

**Comprehensive Registry of
Esophageal Cancer
in Japan (1998, 1999)
&
Long-term Results of Esophagectomy
in Japan (1988-1997)**

3rd Edition

The Japanese Society for Esophageal Diseases

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Preface

The 3rd edition of the Comprehensive Registry of Esophageal Cancer contains the total results for the 2 years from 1998 to 1999. Data were collected using a new meta-analysis type collection method based on various databases (see Appendix). A total 6,131 patients were registered, 3,109 patients from 189 institutions in 1998, 3,022 patients from 191 institutions in 1999. All patients were divided into 4 groups according to treatment methods (endoscopic treatment, chemotherapy and/or radiotherapy, palliative operation, esophagectomy). The clinicopathological findings and cancer staging were made according to the criteria of the 9th edition of the Guidelines of the Japanese Society for Esophageal Diseases and the 5th edition of the TNM classification (UICC). The results were analyzed by year. Epidemiological analysis of all patients and clinical findings of the patient groups according to year are shown in Chapter I. The treatment procedures and the results of endoscopic treatment in Chapter II, chemotherapy and/or radiotherapy in Chapter III, palliative operation in Chapter IV, and esophagectomy in Chapter V. Finally, the long-term results of esophagectomy and extended lymphadenectomy in the comprehensive registry of cases in Japan between 1988 and 1997 was added as a supplement. In the period covered by this edition, extended lymphadenectomy was performed safely in esophagectomy. In addition to radical esophagectomy, less invasive surgery (VATS and/or HALS) was introduced in some institutions. It can be said that in this period we are beginning to see increased individualization of treatment based on each separate case. In addition to the recent results of surgical treatment, we showed the results of endoscopic treatment for superficial cancer, as well as esophageal stents for advanced cancer and chemoradiotherapy. It is our hope that the up to date data of this book will be of value to doctors who are treating patients with esophageal cancer.

**Comprehensive Registry of
Esophageal Cancer in Japan
(1998)**

JSED

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I. Clinical Factors of Esophageal Cancer Patients treated in 1998

1. Institutions registrating cases in 1998

Institutions (No.1)

| Inst# | Institutions | Inst# | Institutions |
|-------|----------------------------------------------------------------------|-------|--------------------------------------------------------------------------|
| 03e01 | Dept. of Surg. Tokai Univ. School of Med. Tokyo Hospital | 3811 | Dept. Surg. Institute of Gastroenterology Tokyo Wemen's Medical Univ. |
| 1102 | Second Dept. of Surg. Hokkaido Univ. School of Med. | 3821 | Dept. Surg. Tokyo Wemen's Medical Univ. Second Hospital |
| 1202 | First Dept. of Surg. Sapporo Med. Univ. | 3901 | First Dept. of Surg. The Jikei Univ. School of Med. |
| 1203 | First Dept. of Medicne. Sapporo Med. Univ. | 4001 | First Dept. of Surg. Yamanashi Med. Univ. School of Med. |
| 1302 | Second Dept. of Surg. Asahikawa Med. Univ. | 4201 | Dept of Surg. Tokai Univ. School of Med. |
| 1401 | First Dept. of Surg. Hirosaki Med. Univ. School of Med. | 4302 | Second Dept. of Surg. Yokohama City Univ. School of Med. |
| 1406 | First Dept. of Medicine Hirosaki Med. Univ. School of Med. | 4402 | Second Dept. of Surg. St. Marianna Univ. School of Med. |
| 1501 | First Dept. of Surg. Iwate Med. Univ. School of Med. | 4501 | Dept of Surg. Kitazato Univ. School of Med. |
| 1601 | First Dept. of Surg. Yamagata Univ. School of Med. | 4511 | Dept. of Digestive Surg. Kitazato Univ. East Hospital |
| 1802 | Second Dept. of Surg. Akita Univ. School of Med. | 4601 | Dept. of Surg. Juntendo Univ. Nagaoka Hospital |
| 1901 | First Dept. of Surg. Fukushima Medical School | 5202 | Second Dept. of Surg., Toyama Med. and Pharmaceutical Univ. |
| 2101 | First Dept. of Surg. Gunma Univ. School of Med. | 5301 | First Dept. of Surg. Shinsyu Univ. School of Med. |
| 2102 | Second Dept. of Surg. Gunma Univ. School of Med. | 5302 | Second Dept. of Surg. Juntendo Univ. School of Med. |
| 2106 | First Dept. of Medicne. Gunma Univ. School of Med. | 5501 | First Dept. of Surg. Nagoya Univ. School of Med. |
| 2301 | First Dept. of Surg. Dokkyo Med. Univ. School of Med. | 5502 | Secondt Dept. of Surg. Nagoya Univ. School of Med. |
| 2311 | Dept of Surg. Dokkyo Med. Univ. School of Med. Koshigaya Hospital | 5506 | Second Dept. of Medicine. Nagoya Univ. School of Med. |
| 2401 | Dept. of Surg. Tsukuba Univ. School of Med. | 5601 | First Dept. of Surg., Nagoya City Univ. School of Med. |
| 2502 | Second Dept. of Surg. Saitama Medical Univ. | 5602 | Second Dept. of Surg., Nagoya City Univ. School of Med. |
| 2602 | Second Dept. of Surg National Defense Medical College | 5701 | First Dept. of Surg. Gifu Univ. School of Med. |
| 2702 | Second Dept. of Surg. Chiba Univ. School of Med. | 5803 | Dept. of Funabiki-Surg. Fujita Health Univ. School of Med. |
| 2705 | Dept. of Endoscopic Diagnostics & Therapautics, Chiba Univ. | 5811 | Fujita Health Univ. School of Med. Houtokukai Hospital |
| 3301 | First Dept. of Surg. Tokyo Univ. School of Med. | 6101 | First Dept. of Surg. Shiga Univ. School of Med. |
| 3303 | First Dept. of Surg. Tokyo Med. & Dental Univ. School of Med. | 6207 | Third Dept. of Kyoto Prefectural Univ. of Med. |
| 3401 | First. Dept. of Surg. Juntendo Univ. School of Med. | 6304 | Dept. of Radiology Kyoto Univ. School of Med. |
| 3501 | First Dept. of Surg. Juntendo Univ. School of Med. | 6311 | Dept. of Surgical oncology Kyoto Univ. School of Med. |
| 3703 | Therd Dept. of Surg. Tokyo Medical Univ. | 6502 | Second Dept. of Surg. Kansai Medical Univ. |
| 3804 | Dept. of Ragiol. Tokyo Women's Medical Univ. | 6601 | Div. of General & Gastroenterological Surg. Osaka Univ. |

Institutions (No.2)

| Inst# | Institutions | Inst# | Institutions |
|-------|------------------------------------------------------------------------------|-------|-------------------------------------------------------------|
| 6602 | Dept. of Surg. and Clinical Oncology(E2) Graduate School of Med. Osaka Univ. | 9502 | Second Dept. of Surg. Nagasaki Univ. School of Med |
| 6701 | First Dept. of Surg. Osaka City Univ. School of Med. | 9602 | Second Dept. of Surg., Kumamoto Univ., School of Med. |
| 6704 | Dept. of Radiology Osaka City Univ. School of Med. | 9802 | First Dept. of Second Dept. of Surg. Miyazaki Medical Univ. |
| 6801 | First Dept. of Surg. Kinki Univ. School of Med. | 9901 | First Dept. of Surg. Kagoshima Univ. School of Med. |
| 6802 | Second Dept. of Surg. Kinki Univ. School of Med. | 9991 | First Dept. of Surg. Univ. of the Ryukyu school of Med. |
| 7002 | Second Dept. of Surg. Wakayama Medical Univ. School of Med. | 9994 | Dept. of Radiology. Ryukyu Univ. School of Med. |
| 7102 | Second Dept. of Surg. Kanazawa Univ. School of Med. | 10011 | Sapporo National Hospital |
| 7201 | First Dept. of Surg. Fukui Med. Univ. | 10014 | Sapporo National Hospital Hokkaido Cancer Center |
| 7301 | First Dept. of Surg. Kobe Univ. School of Med. | 10021 | National Cancer Center Central Hospital |
| 7302 | Second Dept. of Surg. Kobe Univ. School of Med. | 10031 | National Cancer Center East Hospital |
| 7304 | Dept. of Radiology, Kobe Univ. School of Med. | 10081 | National Shikoku Cancer Center Hospital |
| 7401 | First Dept. of Surg. Hyogo Medical Univ. | 10101 | Dept of Surg. Hakodate National Hospital |
| 8001 | First Dept. of Surg. Okayama Univ. School of Med. | 11201 | Dept of Surg. Sendai National Hospital |
| 8002 | Second Dept. of Surg. Okayama Univ. School of Med. | 11301 | Dept of Surg. Mito National Hospital |
| 8302 | Second Dept. of Surg. Shimane Medical Univ. | 12101 | Dept of Surg. Numata National Hospital |
| 8402 | Second Dept. of Surg. Hiroshima Univ. School of Med. | 13301 | Dept of Surg. International Medical Center In Japan |
| 8411 | Dept. of Surg. Reserch Inst. foir Nucler Med. & Biology Hiroshima Univ. | 14401 | Dept of Surg. Kasumigaura National Hospital |
| 8502 | Dept. of Surg. 2, Yamaguchi Univ. School of Med. | 14801 | National Kanazawa Hospital |
| 8507 | First dept. of Int. Med., Yamaguchi Univ. School of Med. | 19041 | Beppu National Hospital |
| 8601 | First Dept. of Surg. Tokushima Univ. School of Med. | 19061 | Dept of Surg. Miyakonojo National Hospital |
| 9102 | Second Dept. of Surg. Kyushu Univ. School of Med. | 19071 | Dept of Surg. Ibusuki National Hospital |
| 9104 | Dept of Radiology Kyushu Univ. School of Med. | 21061 | Dept of Surg. Fukushima Prefectural Aizu Sogo Hospital |
| 9201 | First Dept. of Surg. Fukuoka Univ. School of Med. | 21091 | Dept of Surg. Iwaki City Sogo Iwakikyoritul Hospital |
| 9202 | Second Dept. of Surg. Fukuoka Univ. School of Med. | 21101 | Dept. of Surg. Iwate Prefectural Isawa Hospital |
| 9211 | Dept. of Surg. Fukuoka Univ. School of Med. Tsukushi Hospital | 22011 | Dept of Surg. Niigata Cancer Center Hospital |
| 9301 | Dept. of Surg. Kurume Univ. School of Med. | 22021 | Dept of Surg. Niigata Prefectural Shibata Hospital |
| 9302 | Dept. of Medicalcenter Kurume Univ. School of Med. | 23011 | Metropolitan Komagome General Hospital |
| | | 23021 | Dept of Surg. Metroporitan Hiroo Hospital |
| | | 23031 | Dept of Surg. Metroporitan Futyu Hospital |

Institutions (No.3)

| Inst# | Institutions | Inst# | Institutions |
|--------------|----------------------------------------------------------|--------------|-----------------------------------------------------------------|
| 24011 | Dept of Surg. Gunma Cancer Center Toumou Hospital | 36081 | Dept of Surg. Izumi City Hospital |
| 24031 | Dept of Surg. Tochigi Cancer Center | 37111 | Dept of Surg. Kobe City Central Hospital |
| 24051 | Dept of Digestive Surg. Chiba Cancer Center | 37121 | Nishinomiya Municipal Central Hospital |
| 24061 | Dept. Surg. 1 Kanagawa Pref. Cancer Center | 37200 | Hiroshima City Asa Hospital |
| 24101 | Dept of Surg. West Hamamatsu Medical Cancer Center | 37211 | Dept of Surg. Matsue City Hospital |
| 25021 | Dept. of Digestive Surg. Ishikawa Pref. Central Hospital | 39111 | Dept of Surg. Kitakyusyu City Medical Center Hospital |
| 25032 | Dept of Thoracic Surg. Aichi Cancer Center | 39121 | Dept of Surg. Kitakyusyu City Yahata Hospital |
| 25041 | Dept of Surg. Fukui Prefectural Hospital | 40011 | Dept of Surg. Tonan Hospital |
| 26011 | Osaka Adult Disease Center | 40311 | Dept of Surg. Toranomom Hospital |
| 27014 | Dept of Radiology Hyogo Adult Disease Center | 40711 | Dept of Surg. Kinki Center Hospital |
| 27031 | Dept of Surg. Hyogo Prefectural Kakogawa Hospital | 41411 | Gunmaken Saiseikai Maebashi Hospital |
| 27041 | Dept of Surg. Tottori Prefectural Central Hospital | 41731 | Dept of Surg. Okayama Rousai Hospital |
| 28021 | Dept of Surg. Kochi Prefectural Central Hospital | 42121 | Akita Red Cross Hospital |
| 29011 | Dept of Surg. Saga Prefectural Kouseikan Hospital | 42211 | Dept of Surg. Nagaoka Red Cross Hospital |
| 29041 | Miyazaki Prefectural Nichinan Hospital | 42311 | Japanese Red Cross Medical Center |
| 30011 | Sapporo City General Hospital | 42651 | Dept of Surg. Yamada Red Cross Hospital |
| 31031 | Hachinohe City Hospital | 42711 | Dept of Surg. Oncol. Res. Inst. Rad. Biol. Med. Hiroshima Univ. |
| 31051 | Sakata City Hospital | 42831 | Dept. of Surg. Matsuyama Red Cross Hospital |
| 31061 | Dept of Surg. Tsuruoka City Syounai Hospital | 43021 | Dept of Surg. Kushiro Rosai Hospital |
| 34021 | Urawa Municipal Hospital | 43621 | Wakayama Rosai Hospital |
| 34051 | Dept of Surg. Numazu City Hospital | 43711 | Dept of Surg. Kansai Rosai Hospital |
| 34121 | Yamato Municipal Hospital | 44011 | Sapporo Social Insurance General Hospital |
| 34131 | Hiratsuka City Hospital | 44311 | Dept of Surg. Social Insurance General Center Hospital |
| 35031 | Dept of Surg. Ogaki City Hospital | 44541 | Social Insurance Chukyo Hospital |
| 35041 | Dept of Surg. Gifu City Hospital | 44721 | Dept of Surg. Social Insurance Shimonoseki Kosei Hospital |
| 35081 | Dept of Surg. Nagahama City Hospital | 44911 | Dept of Surg. Social Insurance Ogura Memorial Hospital |
| 36041 | Dept of Surg. Suita City Hospital | 45111 | Dept of Medicine Yamamoto Union General Hospital |

Institutions (No.4)

| Inst# | Institutions | Inst# | Institutions |
|--------------|-------------------------------------------------------------------------------------|--------------|---------------------|
| 45411 | Dept of Surg. Kokuho Seitou Hospital | | |
| 46011 | Obihiro Kousei Hospital | | |
| 46111 | Dept. of Surg. Sendai Kosei Hospital | | |
| 46311 | Tohoku Welfare Pension Hospital | | |
| 46421 | Dept. of Surg. Kiryu Kousei Hospital | | |
| 47111 | Dept. of Surg. Tohokukosai Hospital | | |
| 47311 | Dept. of Surg. Tachikawa Hospital | | |
| 48111 | Dept. of Surg. NTT Tohoku Hospital | | |
| 48611 | Dept. of Surg. Osaka Teishin Hospital | | |
| 52301 | Tokyo Metropolitan Police Hospital | | |
| 53302 | Dept. of Surg. Tamananbu-Chiiki Hospital | | |
| 60019 | Dept. of Surg. Nikko Memorial Hospital | | |
| 60041 | Dept. of Surg. Keiyukai Sapporo Hospital | | |
| 61011 | Dept. of Surg. Ota nishinouchi Hospital | | |
| 61041 | Dept. of Surg. Takeda Sogo Hospital | | |
| 61051 | Dept. of Surg. Hirashika Sogo Hospital | | |
| 63041 | Fed. of National Public Services and Personnel Mutual Aid Assoc Mishuku Hospital | | |
| 64441 | Dept. of Surg. NKK Hospital | | |
| 64521 | Dept. of Surg. Showainan Sogo Hospital | | |
| 66211 | Dept. of Abdominal Surg. Tenri Hospital | | |
| 66351 | Dept. of Surg. Matsushita Memorial Hospital | | |
| 67111 | Dept. of Surg. Kobekogyo(Koko) Hospital | | |
| 67411 | Inst. of Gastroenterol. Hofu Digestive Center | | |
| 68111 | Sumitomo Besshi Hospital | | |
| 69211 | Mitsui Ohmuta Hospital | | |

2. Patient Background

Table 1) Age, gender and treatment

| Age | Cases (%) | Male | Female | Unknown | EMR*/ Stenting | Chemotherapy/ Radiotherapy | Palliative operation | Esopha- gectomy | Unknown |
|---------|--------------|-----------------|----------------|--------------|-------------------|-------------------------------|-------------------------|--------------------|---------------|
| ~29 | 2 (0.06%) | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 30~39 | 9 (0.29%) | 6 | 3 | 0 | 0 | 2 | 1 | 6 | 0 |
| 40~49 | 177 (5.7%) | 147 | 30 | 0 | 11 | 32 | 7 | 119 | 8 |
| 50~59 | 841 (27.1%) | 752 | 89 | 0 | 47 | 174 | 30 | 560 | 30 |
| 60~69 | 1160 (37.3%) | 1036 | 124 | 0 | 72 | 282 | 41 | 722 | 43 |
| 70~79 | 753 (24.2%) | 646 | 105 | 2 | 77 | 217 | 13 | 422 | 24 |
| 80~89 | 138 (4.4%) | 107 | 31 | 0 | 19 | 66 | 2 | 43 | 8 |
| 90~ | 7 (0.23%) | 6 | 1 | 0 | 2 | 2 | 0 | 3 | 0 |
| Unknown | 22 (0.71%) | 20 | 2 | 0 | 1 | 4 | 4 | 8 | 5 |
| Total | 3109 (100%) | 2722 (87.7%) | 385 (12.2%) | 2 (0.06%) | 231 (7.4%) | 779 (25.1%) | 98 (3.2%) | 1883 (60.6%) | 118 (3.8%) |

*EMR: endoscopic mucosal resection

Table 2) Area of patient's residence and occupation

| Area | No. of cases (%) | Area | No. of cases (%) | Occupation | Cases (%) |
|--------------|--------------------|-----------|------------------|---------------------------------|--------------------|
| Total | 3109 (100%) | Miyazaki | 25 (0.8%) | None | 396 (12.7%) |
| Aichi | 105 (3.4%) | Nagano | 38 (1.2%) | Professional | 356 (11.5%) |
| Akita | 63 (2.0%) | Nagasaki | 25 (0.8%) | Management | 257 (8.3%) |
| Aomori | 25 (0.8%) | Nara | 17 (0.5%) | Office worker | 502 (16.1%) |
| Chiba | 187 (6.0%) | Niigata | 51 (1.6%) | Sales worker | 166 (5.3%) |
| Ehime | 32 (1.0%) | Oita | 9 (0.3%) | Farm/Forestry/Marine product | 192 (6.2%) |
| Fukui | 12 (0.4%) | Okayama | 32 (1.0%) | Mining and Quarrying | 16 (0.5%) |
| Fukuoka | 179 (5.8%) | Okinawa | 39 (1.3%) | Transport and communication | 95 (3.1%) |
| Fukushima | 50 (1.6%) | Osaka | 208 (6.7%) | Industrial technician | 207 (6.7%) |
| Gifu | 29 (0.9%) | Saga | 38 (1.2%) | General worker/Service industry | 162 (5.2%) |
| Gunma | 53 (1.7%) | Saitama | 106 (3.4%) | Others | 66 (2.1%) |
| Hiroshima | 50 (1.6%) | Shiga | 24 (0.8%) | Unclassified | 10 (0.3%) |
| Hokkaido | 240 (7.7%) | Shimane | 7 (0.2%) | Unknown | 684 (22.0%) |
| Hyogo | 152 (4.9%) | Shizuoka | 41 (1.3%) | | |
| Ibaraki | 46 (1.6%) | Tochigi | 45 (1.4%) | | |
| Ishikawa | 22 (0.7%) | Tokushima | 4 (0.1%) | | |
| Iwate | 55 (1.8%) | Tokyo | 453 (14.6%) | | |
| Kagawa | 6 (0.2%) | Tottori | 6 (0.2%) | | |
| Kagoshima | 64 (2.1%) | Toyama | 23 (0.7%) | | |
| Kanagawa | 226 (7.3%) | Wakayama | 14 (0.5%) | | |
| Kochi | 19 (0.6%) | Yamagata | 25 (0.8%) | | |
| Kumamoto | 11 (0.4%) | Yamaguchi | 35 (1.1%) | | |
| Kyoto | 38 (1.2%) | Yamanashi | 14 (0.5%) | | |
| Mie | 16 (0.5%) | Others | 0 (0.0%) | | |
| Miyagi | 81 (2.6%) | Unknown | 69 (2.2%) | | |
| | | | | Total | 3109 (100%) |

Table 3) Familial history of carcinoma

| Familial history | Cases (%) |
|------------------|--------------|
| No | 1645 (52.9%) |
| Yes | 924 (29.7%) |
| Unknown | 540 (17.4%) |
| Total | 3109 (100%) |

Table 4) Tumors of familial history of carcinoma

| Diseases | No. of cases (%) | Diseases | No. of cases (%) |
|-------------------|------------------|-----------------|------------------|
| Malig. lymphoma | 9 (0.8%) | Duodenal ca.. | 1 (0.1%) |
| Leukemya | 13 (1.0%) | Gallbladder ca. | 9 (0.7%) |
| Brain tumor | 12 (1.0%) | Pancreas ca. | 47 (3.8%) |
| Mandibular ca. | 2 (0.2%) | Colon ca. | 75 (6.0%) |
| Thyroid ca. | 6 (0.5%) | Rectal ca. | 53 (4.3%) |
| Breast ca. | 69 (5.6%) | Uterus ca. | 74 (6.0%) |
| Lung ca. | 149 (12.0%) | Ovarian ca. | 9 (0.7%) |
| Mediastinal tumor | 3 (0.2%) | Renal ca. | 8 (0.6%) |
| Maxilla ca. | 7 (0.6%) | Bladder ca. | 16 (1.3%) |
| Tongue ca. | 7 (0.6%) | Prostate ca. | 12 (1.0%) |
| Oral ca. | 6 (0.5%) | Myeloma | 1 (0.1%) |
| Pharyngeal ca. | 11 (0.9%) | Osteosarcoma | 2 (0.2%) |
| Laryngeal ca. | 30 (2.4%) | Skin ca. | 3 (0.2%) |
| Esophgeal ca. | 98 (7.9%) | Others | 8 (0.6%) |
| Stomach ca. | 345 (27.8%) | Unknown | 45 (3.6%) |
| Hepatoma | 97 (7.8%) | Total cases(%) | 1240 (100%) |
| Cholangioma | 11 (0.9%) | No. of patients | 924 |
| Jejunal ca. | 2 (0.2%) | | |

Table 5) Chance and basis of diagnosis according to clinical T-category

| Chances of diagnosis | Superficial cancer (cTis,cT1) | Advanced cancer (cT2,cT3,cT4) | Total (%) |
|-------------------------------|----------------------------------|----------------------------------|---------------------|
| Chief complains | 291 (35.0%) | 1756 (85.2%) | 2047 (70.9%) |
| Detection survey / dock | 276 (33.3%) | 131 (6.4%) | 407 (14.1%) |
| Examination for other disease | 240 (29.0%) | 95 (4.6%) | 355 (11.6%) |
| Unknown | 22 (2.7%) | 78 (3.8%) | 100 (3.5%) |
| Total | 829 (100%) | 2060 (100%) | 2889* (100%) |

| Detection methods | Superficial cancer (cTis,cT1) | Advanced cancer (cT2,cT3,cT4) | Total (%) |
|-------------------|----------------------------------|----------------------------------|---------------------|
| Esohagography | 93 (11.2%) | 599 (29.1%) | 692 (24.0%) |
| Esohagoscopy | 705 (85.0%) | 1317 (63.9%) | 2022 (70.0%) |
| CT-scan | 2 (0.2%) | 28 (1.4%) | 30 (1.0%) |
| US | 0 | 3 (0.1%) | 3 (0.1%) |
| Biopsy | 7 (0.8%) | 22 (1.1%) | 29 (1.0%) |
| Others | 1 (0.1%) | 1 (0.05%) | 2 (0.07%) |
| Unknown | 21 (2.5%) | 90 (4.4%) | 111 (3.8%) |
| Total | 829 (100%) | 2060 (100%) | 2889* (100%) |

*: excluding 220 cTX, cT0, cT unknown cases

Table 6) Symptoms according to clinical T-category

| Symptom | cTis, cT1 | | cT2,cT3,cT4 | | Total (%) | |
|-----------------------|------------|---------------|-------------|---------------|--------------|---------------|
| | Cases (%) | Cases (%) | Cases (%) | Cases (%) | | |
| None | 472 | (56.9%) | 165 | (8.0%) | 637 | (22.0%) |
| Chest pain | 51 | (6.2%) | 123 | (6.0%) | 174 | (6.0%) |
| Sense of stricture | 69 | (8.3%) | 719 | (34.9%) | 788 | (27.3%) |
| Unusual sensation | 60 | (7.2%) | 79 | (3.8%) | 139 | (4.8%) |
| Dysphagia | 33 | (4.0%) | 581 | (28.1%) | 613 | (21.2%) |
| Nausea / Vomiting | 14 | (1.7%) | 68 | (3.3%) | 82 | (2.8%) |
| Appetite loss | 20 | (2.4%) | 41 | (2.0%) | 61 | (2.1%) |
| Weight loss | 11 | (1.3%) | 52 | (2.5%) | 63 | (2.2%) |
| Swollen of lymph node | 7 | (0.8%) | 19 | (0.9%) | 26 | (0.9%) |
| Hoarseness | 4 | (0.5%) | 51 | (2.5%) | 55 | (1.9%) |
| Others | 58 | (7.0%) | 105 | (5.1%) | 163 | (5.6%) |
| Unknown | 30 | (3.6%) | 58 | (2.8%) | 88 | (3.0%) |
| Total | 829 | (100%) | 2060 | (100%) | 2889* | (100%) |

*; excluding 220 cTX, cT0, cT unkown cases

Table 7) Double / multiple primary cancers

| | Endoscopical treatment (EMR/Stenting) | Chemotherapy and/or radiotherapy | Surgery | | Total (%) |
|--------------|---------------------------------------|----------------------------------|----------------------|---------------------|---------------------|
| | | | Palliative operation | Esophagectomy | |
| None | 141 (61.0%) | 614 (78.8%) | 73 (74.5%) | 1556 (82.6%) | 2384 (79.7%) |
| Double | 32 (13.9%) | 66 (8.5%) | 11 (11.2%) | 150 (8.0%) | 259 (8.7%) |
| Metachronous | | | | | |
| Before E-Ca | 38 (16.5%) | 67 (8.6%) | 11 (11.2%) | 113 (6.0%) | 229 (7.7%) |
| After E-Ca | 3 (1.3%) | 9 (1.2%) | 0 | 20 (1.1%) | 32 (1.1%) |
| Multiple | 8 (3.5%) | 12 (1.5%) | 0 | 21 (1.1%) | 41 (1.4%) |
| Unknown | 9 (3.9%) | 11 (1.2%) | 3 (3.1%) | 23 (0.4%) | 46 (1.5%) |
| Total | 231 (100 %) | 779 (100 %) | 98 (100 %) | 1883 (100 %) | 2991 (100 %) |

Table 8) Double / multiple primary cancers and Organs

| Organs | Synchronous | Metachronous | Total |
|-------------------------|-------------|--------------|-------------|
| Larynx/Maxilla | 21 (5.4%) | 21 (7.0%) | 42 (6.2%) |
| Pharynx | 66 (17.0%) | 26 (8.7%) | 92 (13.4%) |
| Oral cavity/Gum/Tongue | 6 (1.5%) | 13 (4.3%) | 19 (2.8%) |
| Stomach | 167 (43.0%) | 83 (27.7%) | 250 (36.3%) |
| Colon/Rectum | 44 (11.3%) | 39 (13.0%) | 83 (12.1%) |
| Liver | 11 (2.8%) | 8 (2.7%) | 19 (2.8%) |
| Choledochus/Gallbladder | 4 (1.0%) | 1 (0.3%) | 5 (0.7%) |
| Pancreas | 3 (0.8%) | 1 (0.3%) | 4 (0.6%) |
| Lung/Trachea/Bronchus | 19 (4.9%) | 26 (8.7%) | 45 (6.5%) |
| Remnant esophagus | 1 (0.3%) | 6 (2.0%) | 7 (1.0%) |
| Uterus/Ovarium | 2 (0.5%) | 5 (1.7%) | 7 (1.0%) |
| Breast | 4 (1.0%) | 8 (2.7%) | 12 (1.7%) |
| Prostate | 3 (0.7%) | 6 (2.0%) | 9 (1.3%) |
| Urinary bladder | 5 (1.3%) | 9 (3.0%) | 14 (2.0%) |
| Leukemia | 2 (0.5%) | 1 (0.3%) | 3 (0.4%) |
| Skin | 2 (0.5%) | 4 (1.3%) | 6 (0.9%) |
| Brain | 0 | 0 | 0 |
| Thyroid | 7 (1.8%) | 3 (1.0%) | 10 (1.5%) |
| Bone | 1 (0.3%) | 0 | 1 (0.1%) |
| Kidney | 5 (1.3%) | 5 (1.7%) | 10 (1.5%) |
| Others | 15 (3.9%) | 19 (6.3%) | 34 (4.9%) |
| Unknown | 0 | 16 (5.3%) | 16 (2.3%) |
| Lesions | 388 (100%) | 300 (100%) | 688 (100%) |
| Cases | 352 | 277 | 629 |

Table 9) Double primary cancer - Organs (in endoscopically treated cases)

| Organs | Synchronous | Metachronous | | Multiple |
|-------------------------|------------------|------------------|-----------------|------------------|
| | | Before E-Ca | After E-Ca | |
| Larynx/Maxilla | 4 (11.1%) | 2 (4.9%) | | |
| Pharynx | 4 (11.1%) | 1 (2.4%) | 1 (33.3%) | 5 (31.3%) |
| Oral cavity/Gum/Tongue | 1 (2.8%) | 3 (7.3%) | | 1 (6.3%) |
| Stomach | 12 (33.3%) | 20 (48.8%) | 1 (33.3%) | 4 (25.0%) |
| Colon/Rectum | 5 (13.9%) | 5 (12.2%) | | 3 (18.8%) |
| Liver | 3 (8.3%) | 1 (2.4%) | | |
| Choledochus/Gallbladder | | 1 (2.4%) | | |
| Pancreas | 1 (2.8%) | | | |
| Lung/Trachea/Bronchus | 3 (8.3%) | 1 (2.4%) | | 1 (6.3%) |
| Remnant esophagus | | | | |
| Uterus/Ovarium | | | | |
| Breast | | | | |
| Prostate | | 3 (7.3%) | | |
| Urinary bladder | | 1 (2.4%) | | |
| Leukemia | | | | 1 (6.3%) |
| Skin | | | | |
| Brain | | | | |
| Thyroid | 1 (2.8%) | | | |
| Bone | | | | |
| Kidney | | | | |
| Others | 2 (5.6%) | 2 (4.9%) | | 1 (6.3%) |
| Unknown | | 1 (2.4%) | 1 (33.3%) | |
| Lesions | 36 (100%) | 41 (100%) | 3 (100%) | 16 (100%) |
| Cases | 32 | 38 | 3 | 8 |

Table 10) Double primary cancer - Organs (in cases of chemotherapy and/or radiotherapy)

| Organs | Synchronous | Metachronous | | Multiple |
|------------------------|-------------|--------------|------------|------------|
| | | Before E-Ca | After e-Ca | |
| Larynx/Maxillary | 2 (2.8%) | 1 (1.3%) | | 1 (3.2%) |
| Pharynx | 18 (25.0%) | 3 (4.0%) | | 7 (22.6%) |
| Oral cavity/Gum/Tongue | 1 (1.4%) | 4 (5.3%) | 1 (9.1%) | 2 (6.5%) |
| Stomach | 27 (37.5%) | 20 (26.7%) | | 12 (38.7%) |
| Colon/Rectum | 6 (8.3%) | 15 (20.0%) | 3 (27.3%) | 1 (3.2%) |
| Liver | 5 (6.9%) | 4 (5.3%) | | 2 (6.5%) |
| Choledocus/Gallbladder | | | | 1 (3.2%) |
| Pancreas | 1 (1.4%) | | 1 (9.1%) | |
| Lung/Trachea/Bronchus | 3 (4.2%) | 7 (9.3%) | 1 (9.1%) | 2 (6.5%) |
| Remnant esophagus | | | 2 (18.2%) | |
| Uterus/Ovarium | | | | |
| Breast | | 2 (2.7%) | | |
| Prostate | 2 (2.8%) | | | 2 (6.5%) |
| Urinary bladder | 2 (2.8%) | 5 (6.7%) | 1 (9.1%) | |
| Leukemia | | 1 (1.3%) | | |
| Skin | | 1 (1.3%) | 1 (9.1%) | |
| Brain | | | | |
| Thyroid | 1 (1.4%) | 2 (2.7%) | | |
| Bone | | | | |
| Kidney | 1 (1.4%) | 3 (4.0%) | | |
| Others | 3 (4.2%) | 4 (5.3%) | 1 (9.1%) | 1 (3.2%) |
| Unknown | | 3 (4.0%) | | |
| Lesions | 72 (100%) | 75 (100%) | 11 (100%) | 31 (100%) |
| Cases | 66 | 67 | 9 | 12 |

Table 11) Double primary cancer - Organs (in cases of palliative operation)

| Organs | Synchronous | Metachronous | | Multiple |
|-----------------------------|-------------|--------------|------------|-----------|
| | | Before E-Ca | After E-Ca | |
| Larynx/Maxillary Pharynx | 2 (20.0%) | 1 (11.1%) | | 1 (33.3%) |
| Oral cavity/Gum/Tongue | | | 1 (100%) | |
| Stomach | 5 (50.0%) | 2 (22.2%) | | 1 (33.3%) |
| Colon/Rectum | 2 (20.0%) | 2 (22.2%) | | |
| Liver | | | | |
| Choledocus/Gallbladder | | | | |
| Pancreas | | | | |
| Lung/Trachea/Bronchus | | | | |
| Remnant esophagus | 1 (10.0%) | | | |
| Uterus/Ovarium | | 2 (22.2%) | | |
| Breast | | | | 1 (33.3%) |
| Prostate | | | | |
| Urinary bladder | | | | |
| Leukemia | | | | |
| Skin | | | | |
| Brain | | | | |
| Thyroid | | | | |
| Bone | | | | |
| Kidney | | | | |
| Others | | 1 (11.1%) | | |
| Unknown | | 1 (11.1%) | | |
| Lesions | 10 (100%) | 9 (100%) | 1 (100%) | 3 (100%) |
| Cases | 10 | 8 | 1 | 1 |

Table 12) Double primary cancer - Organs (in cases of esophagectomy)

| Organs | Synchronous | Metachronous | | Multiple |
|------------------------|-------------|--------------|------------|------------|
| | | Before E-Ca | After E-Ca | |
| Larynx/Maxillary | 11 (6.4%) | 14 (12.1%) | 2 (9.1%) | 4 (8.3%) |
| Pharynx | 29 (17.1%) | 5 (4.3%) | 6 (27.3%) | 6 (12.5%) |
| Oral cavity/Gum/Tongue | 2 (1.2%) | 4 (3.4%) | 1 (4.5%) | |
| Stomach | 85 (50.0%) | 33 (28.4%) | 5 (18.2%) | 11 (22.9%) |
| Colon/Rectum | 20 (11.8%) | 14 (12.1%) | 2 (9.1%) | 9 (18.8%) |
| Liver | 2 (1.2%) | 1 (0.9%) | | |
| Choledocus/Gallbladder | 1 (0.6%) | 1 (0.9%) | | 1 (2.1%) |
| Pancreas | | | | |
| Lung/Trachea/Bronchus | 4 (2.4%) | 10 (8.6%) | 4 (18.2%) | 5 (10.4%) |
| Remnant esophagus | | 3 (2.6%) | | 1 (2.1%) |
| Uterus/Ovarium | | 4 (3.4%) | | 1 (2.1%) |
| Breast | | 7 (6.0%) | | 2 (4.2%) |
| Prostate | 1 (0.6%) | 1 (0.9%) | | |
| Urinary bladder | | 3 (2.6%) | 1 (4.5%) | 1 (2.1%) |
| Leukemia | | 1 (0.9%) | 1 (4.5%) | |
| Skin | 2 (1.2%) | 2 (1.7%) | | |
| Brain | | | | |
| Thyroid | 3 (1.8%) | 1 (0.9%) | | 2 (4.2%) |
| Bone | 1 (0.6%) | | | |
| Kidney | 3 (1.8%) | 1 (0.9%) | 1 (4.5%) | 1 (2.1%) |
| Others | 6 (3.5%) | 8 (6.9%) | | 4 (8.3%) |
| Unknown | | 3 (2.6%) | | |
| Lesions | 170 (100%) | 116 (100%) | 23 (100%) | 48 (100%) |
| Cases | 153 | 113 | 22 | 21 |

Table 13) Location of tumor

| Location | Endoscopic treatment | Chemotherapy and/or radiotherapy | Surgery | | Total (%) |
|----------------------|----------------------|----------------------------------|----------------------|--------------------|--------------------|
| | | | Palliative operation | Esophagectomy | |
| Not detected | 3 (1.3%) | | | 3 (0.2%) | 6 (0.2%) |
| Pharynx | | 4 (0.5%) | 2 (2.0%) | 18 (1.0%) | 24 (0.8%) |
| Cervical esophagus | | 67 (8.6%) | 6 (6.1%) | 71 (3.8%) | 144 (4.8%) |
| Upper thoracic eso. | 23 (10.0%) | 152 (19.5%) | 16 (16.3%) | 190 (10.1%) | 381 (12.7%) |
| Middle thoracic eso. | 150 (64.9%) | 387 (49.7%) | 49 (50.0%) | 970 (51.5%) | 1556 (52.0%) |
| Lower thoracic eso. | 42 (18.2%) | 142 (18.2%) | 22 (22.4%) | 504 (26.8%) | 710 (23.7%) |
| Abdominal esophagus | 3 (1.3%) | 18 (2.3%) | 2 (2.0%) | 99 (5.3%) | 122 (4.1%) |
| EG-Junction (E=G) | 1 (0.4%) | | | 16 (0.9%) | 17 (0.6%) |
| Cardia (G) | | | | 2 (0.1%) | 2 (0.07%) |
| Unknown | 9 (3.9%) | 9 (1.2%) | 1 (1.0%) | 10 (0.5%) | 29 (1.0%) |
| Total | 231 (100%) | 779 (100%) | 98 (100%) | 1883 (100%) | 2991 (100%) |

Table 14) Longitudinal tumor length on esophagography

| Length | Endoscopic treatment | Chemotherapy and/or radiotherapy | Surgery | | Total (%) |
|--------------|----------------------|----------------------------------|----------------------|--------------------|--------------------|
| | | | Palliative operation | Esophagectomy | |
| not examined | 94 (40.7%) | 52 (6.7%) | 4 (4.1%) | 43 (2.3%) | 193 (6.4%) |
| ~1cm | 6 (2.6%) | 6 (0.8%) | 2 (2.0%) | 24 (1.3%) | 38 (1.3%) |
| ~2cm | 25 (10.8%) | 19 (2.4%) | 7 (7.1%) | 90 (4.8%) | 141 (4.7%) |
| ~3cm | 19 (8.2%) | 43 (5.5%) | 5 (5.1%) | 174 (9.2%) | 241 (8.1%) |
| ~4cm | 13 (5.6%) | 51 (6.5%) | 8 (8.2%) | 232 (12.3%) | 304 (10.2%) |
| ~5cm | 7 (3.0%) | 74 (9.5%) | 7 (7.1%) | 249 (13.2%) | 337 (11.3%) |
| ~6cm | 7 (3.0%) | 102 (13.1%) | 17 (17.3%) | 269 (14.3%) | 395 (13.2%) |
| ~7cm | 1 (0.4%) | 53 (6.8%) | 7 (7.1%) | 210 (11.2%) | 271 (9.1%) |
| ~8cm | 2 (0.9%) | 80 (10.3%) | 8 (8.2%) | 190 (10.1%) | 280 (9.4%) |
| ~9cm | 2 (0.9%) | 77 (9.9%) | 6 (6.1%) | 91 (4.8%) | 176 (5.9%) |
| ~10cm | 0 | 30 (3.9%) | 2 (2.0%) | 59 (3.1%) | 91 (3.0%) |
| ~11cm | 5 (2.2%) | 46 (5.9%) | 4 (4.1%) | 52 (2.8%) | 107 (3.5%) |
| ~12cm | 2 (0.9%) | 16 (2.1%) | 1 (1.0%) | 21 (1.1%) | 40 (1.3%) |
| ~13cm | 1 (0.4%) | 17 (2.2%) | 3 (3.1%) | 10 (0.5%) | 31 (1.0%) |
| ~14cm | 0 | 9 (1.2%) | 1 (1.0%) | 6 (0.3%) | 16 (0.5%) |
| ~15cm | 0 | 6 (0.8%) | 0 | 2 (0.1%) | 8 (0.3%) |
| ~16cm | 0 | 3 (0.4%) | 2 (2.0%) | 4 (0.2%) | 9 (0.3%) |
| ~17cm | 0 | 1 (0.1%) | 0 | 2 (0.1%) | 3 (0.1%) |
| 17.1cm~ | 0 | 9 (1.2%) | 0 | 2 (0.1%) | 11 (0.4%) |
| Unknown | 47 (20.3%) | 85 (10.9%) | 14 (14.3%) | 153 (8.1%) | 299 (10.0%) |
| Total | 231 (100%) | 779 (100%) | 98 (100%) | 1883 (100%) | 2991 (100%) |

Table 15) Endoscopic features

| Type | Endoscopic treatment | Chemotherapy and/or radiotherapy | Surgery | | Total (%) |
|--------------|----------------------|----------------------------------|----------------------|--------------------|--------------------|
| | | | Palliative operation | Esophagectomy | |
| Not examined | 2 (0.9%) | 1 (1.3%) | 4 (4.1%) | 6 (0.3%) | 13 (0.4%) |
| 0-I | 7 (3.0%) | 23 (3.0%) | 3 (3.1%) | 107 (5.7%) | 140 (4.7%) |
| 0-IIa | 13 (5.6%) | 19 (2.4%) | 6 (6.1%) | 100 (5.3%) | 138 (4.6%) |
| 0-IIb | 40 (17.3%) | 9 (1.2%) | 0 | 42 (2.2%) | 91 (3.0%) |
| 0-IIc | 141 (61.0%) | 71 (9.1%) | 8 (8.2%) | 226 (12.0%) | 446 (14.9%) |
| 0-III | 0 | 1 (0.1%) | 0 | 24 (1.3%) | 25 (0.8%) |
| 0-V | 0 | 0 | 0 | 1 (0.05%) | 1 (0.03%) |
| 1 | 1 (0.4%) | 48 (6.2%) | 10 (10.2%) | 162 (8.6%) | 221 (7.4%) |
| 2 | 6 (2.6%) | 226 (29.0%) | 27 (27.6%) | 587 (31.2%) | 846 (28.3%) |
| 3 | 10 (4.3%) | 251 (32.2%) | 25 (25.5%) | 489 (26.0%) | 775 (25.9%) |
| 4 | 1 (0.4%) | 29 (3.7%) | 4 (4.1%) | 36 (1.9%) | 70 (2.3%) |
| 5 | 1 (0.4%) | 22 (2.8%) | 2 (2.0%) | 32 (1.7%) | 57 (1.9%) |
| Unknown | 9 (3.9%) | 79 (10.1%) | 9 (9.2%) | 71 (3.8%) | 168 (5.6%) |
| Total | 231 (100%) | 779 (100%) | 98 (100%) | 1883 (100%) | 2991 (100%) |

0- I : superficial and protruding type
 0- IIa : superficial and slight elevated type
 0- IIb : superficial and flat type
 0- IIc : superficial and slightly depressed
 0- III : superficial and distinctly depressed

1 : protruding type
 2 : ulcerative and localized type
 3 : ulcerative and infiltrating type
 4 : diffusely infiltrating type
 5 : miscellaneous type

Table 16) Histologic types of biopsy

| Histologic types | | Endoscopic treatment | Chemotherapy and/or radiotherapy | Surgery | | Total (%) |
|--------------------------|------------------|----------------------|----------------------------------|----------------------|---------------|-------------|
| | | | | Palliative operation | Esophagectomy | |
| Not examined | | 22 (9.5%) | 5 (0.6%) | 5 (5.1%) | 16 (0.9%) | 48 (1.6%) |
| SCC | SCC | 117 (50.6%) | 328 (42.1%) | 49 (50.0%) | 771 (40.9%) | 1265 (423%) |
| | Well diff. | 22 (9.5%) | 51 (6.5%) | 4 (4.1%) | 221 (11.7%) | 298 (10.0%) |
| | Moderately diff. | 36 (15.6%) | 226 (29.0%) | 25 (25.5%) | 547 (29.0%) | 834 (27.9%) |
| | Poorly diff. | 7 (3.0%) | 105 (13.5%) | 6 (6.1%) | 235 (12.5%) | 353 (11.8%) |
| Adenocarcinoma | | 0 | 6 (0.8%) | 2 (2.0%) | 39 (2.1%) | 47 (1.6%) |
| Undifferentiated | | 0 | 9 (1.2%) | 0 | 16 (0.8%) | 25 (0.8%) |
| So-called carcinosarcoma | | 0 | 2 (0.3%) | 0 | 4 (0.2%) | 6 (0.3%) |
| Malignant melanoma | | 0 | 0 | 0 | 1 (0.05%) | 1 (0.03%) |
| Others | | 1 (0.4%) | 8 (1.0%) | 0 | 17 (0.9%) | 26 (0.9%) |
| Dysplasia | | 2 (0.9%) | 0 | 0 | 0 | 2 (0.07%) |
| Unknown | | 24 (10.4%) | 39 (5.0%) | 7 (7.0%) | 16 (0.9%) | 86 (2.9%) |
| Total | | 231 (100%) | 779 (100%) | 98 (100%) | 1883 (100%) | 2991 (100%) |

Table 17) Depth of tumor invasion cT (Clinical TNM-classification)

| cT | Endoscopic treatment | Chemotherapy and/or radiotherapy | Surgery | | Total (%) |
|--------------|----------------------|----------------------------------|----------------------|--------------------|--------------------|
| | | | Palliative operation | Esophagectomy | |
| cTx | 0 | 10 (1.3%) | 1 (1.0%) | 6 (0.3%) | 17 (0.6%) |
| cT0 | 3 (1.3%) | 3 (0.4%) | 0 | 5 (0.3%) | 11 (0.4%) |
| cTis | 62 (26.8%) | 4 (0.5%) | 3 (3.1%) | 16 (0.9%) | 85 (2.8%) |
| cT1 | 37 (16.0%) | 44 (5.6%) | 9 (9.2%) | 165 (8.8%) | 255 (8.5%) |
| cT1a | 70 (30.3%) | 17 (2.2%) | 1 (1.0%) | 61 (3.2%) | 149 (5.0%) |
| cT1b | 15 (6.5%) | 55 (7.1%) | 11 (11.2%) | 253 (13.4%) | 334 (11.2%) |
| cT2 | 0 | 89 (11.4%) | 9 (9.2%) | 331 (17.6%) | 429 (14.3%) |
| cT3 | 11 (4.8%) | 269 (34.5%) | 31 (31.6%) | 821 (43.6%) | 1132 (37.8%) |
| cT4 | 8 (3.5%) | 262 (33.6%) | 26 (26.5%) | 167 (8.9%) | 463 (15.5%) |
| Unknown | 25 (10.8%) | 26 (3.3%) | 7 (7.1%) | 58 (3.1%) | 116 (3.9%) |
| Total | 231 (100%) | 779 (100%) | 98 (100%) | 1883 (100%) | 2991 (100%) |

Table 18) Lymph node metastasis, cN; and Organ metastasis, cM (Clinical TNM-classification)

| cN | Endoscopic treatment | Chemotherapy and/or radiotherapy | Surgery | | Total (%) |
|--------------|----------------------|----------------------------------|----------------------|--------------------|--------------------|
| | | | Palliative operation | Esophagectomy | |
| cNx | 5 (2.2%) | 37 (5.2%) | 1 (1.0%) | 33 (1.8%) | 90 (3.6%) |
| cN0 | 190 (82.3%) | 252 (26.0%) | 28 (28.6%) | 903 (48.0%) | 1092 (43.6%) |
| cN1 | 10 (4.3%) | 460 (64.0%) | 63 (64.3%) | 883 (46.9%) | 1232 (49.2%) |
| Unknown | 26 (11.3%) | 30 (4.8%) | 6 (6.1%) | 64 (3.4%) | 88 (3.5%) |
| Total | 231 (100%) | 779 (100%) | 98 (100%) | 1883 (100%) | 2502 (100%) |

| cM | Endoscopic treatment | Chemotherapy and/or radiotherapy | Surgery | | Total (%) |
|--------------|----------------------|----------------------------------|----------------------|--------------------|--------------------|
| | | | Palliative operation | Esophagectomy | |
| cMx | 2 (0.9%) | 27 (3.5%) | 1 (1.0%) | 7 (0.4%) | 24 (1.0%) |
| cM0 | 201 (87.0%) | 485 (62.3%) | 66 (67.3%) | 1638 (87.0%) | 2057 (82.2%) |
| cM1 | 2 (0.9%) | 50 (6.4%) | 3 (3.1%) | 36 (1.9%) | 147 (5.9%) |
| cM1a | 2 (0.9%) | 49 (6.3%) | 3 (3.1%) | 46 (2.4%) | 59 (2.4%) |
| cM1b | 2 (0.9%) | 146 (18.7%) | 17 (17.3%) | 99 (5.3%) | 154 (6.2%) |
| Unknown | 22 (9.5%) | 22 (2.8%) | 8 (8.2%) | 57 (3.0%) | 61 (2.4%) |
| Total | 231 (100%) | 779 (100%) | 98 (100%) | 1883 (100%) | 2502 (100%) |

Table 19) Metastatic Organs of cM1 (Clinical TNM classification)

| Metastatic organs | Endoscopic treatment | Chemotherapy and/or radiotherapy | Surgery | | Total (%) |
|-------------------|----------------------|----------------------------------|----------------------|---------------|-------------|
| | | | Palliative operation | Esophagectomy | |
| PUL | 0 | 60 (20.0%) | 1 (4.0%) | 9 (4.7%) | 70 (13.5%) |
| OSS | 2 (33.3%) | 14 (4.7%) | 0 | 3 (1.6%) | 19 (3.3%) |
| HEP | 1 (16.7%) | 55 (18.3%) | 4 (16.0%) | 18 (9.5%) | 78 (13.5%) |
| BRA | 0 | 5 (1.7%) | 0 | 0 | 5 (1.3%) |
| LYM | 2 (33.3%) | 138 (46.0%) | 18 (72.0%) | 125 (65.8%) | 283 (44.1%) |
| MAR | 0 | 1 (0.3%) | 0 | 1 (0.5%) | 2 (0.9%) |
| PLE | 0 | 3 (1.0%) | 0 | 0 | 3 (1.3%) |
| PER | 0 | 0 | 0 | 2 (1.1%) | 2 (1.1%) |
| SKI | 0 | 0 | 0 | 0 | 0 (0.4%) |
| OTH | 0 | 8 (2.7%) | 0 | 3 (1.6%) | 11 (3.7%) |
| Unknown | 1 (16.7%) | 16 (5.3%) | 2 (8.0%) | 29 (15.3%) | 48 (17.0%) |
| Lesions | 6 (100%) | 300 (100%) | 25 (100%) | 190 (100%) | 521 (100%) |
| One organ | 5 (83.3%) | 187 (76.3%) | 19 (55.0%) | 143 (79.0%) | 354 (68.0%) |
| Two organs | 0 | 32 (13.1%) | 2 (20.0%) | 9 (5.0%) | 43 (9.5%) |
| Three organs | 0 | 8 (3.3%) | 0 | 0 | 8 (2.8%) |
| Four organs~ | 0 | 2 (0.8%) | 0 | 0 | 2 (0.2%) |
| Unknown | 1 (16.7%) | 16 (6.5%) | 2 (20.0%) | 29 (16.0%) | 48 (19.5%) |
| Total cases | 6 (100%) | 245 (100%) | 23 (100%) | 181 (100%) | 455 (100%) |

Table 20) Clinical Stage (Clinical TNM-classification)

| cStage | Endoscopic treatment | Chemotherapy and/or radiotherapy | Surgery | | Total (%) |
|--------------|----------------------|----------------------------------|---------------------|--------------------|--------------------|
| | | | Palliativeoperation | Esophagectomy | |
| 0 | 62 (26.8%) | 5 (0.6%) | 3 (3.1%) | 19 (1.0%) | 89 (3.0%) |
| I | 121 (52.4%) | 91 (11.7%) | 10 (10.2%) | 381 (20.2%) | 603 (20.1%) |
| IIA | 3 (1.3%) | 92 (11.8%) | 7 (7.1%) | 435 (23.1%) | 537 (18.0%) |
| IIB | 0 | 29 (3.7%) | 9 (9.2%) | 192 (10.2%) | 230 (7.7%) |
| III | 8 (3.4%) | 240 (30.8%) | 36 (36.7%) | 570 (30.3%) | 854 (28.6%) |
| IV | 1 (0.4%) | 43 (5.5%) | 1 (1.0%) | 34 (1.8%) | 79 (2.6%) |
| VIA | 1 (0.4%) | 45 (5.8%) | 5 (5.1%) | 46 (2.4%) | 97 (3.2%) |
| IVB | 2 (0.9%) | 141 (18.1%) | 15 (15.3%) | 99 (5.3%) | 257 (8.6%) |
| Unknown | 33 (14.3%) | 93 (11.9%) | 12 (12.2%) | 107 (5.7%) | 245 (8.2%) |
| Total | 231 (100%) | 779 (100%) | 98 (100%) | 1883 (100%) | 2991 (100%) |

II. Clinical Results of Patients treated with Endoscopically in 1998

Table 21) Treatment details in patients with endoscopic treatment

| Treatment details | Cases (%) |
|------------------------------------------|-------------------|
| Endoscopic treatment only | 221 (95.2%) |
| Endoscopic treatment + Radiotherapy | 0 |
| Endoscopic treatment + Chemotherapy | 11 (4.8%) |
| Endoscopic treatment + Hyperthermia | 0 |
| Endoscopic treatment + Chemoradiotherapy | 0 |
| Total | 231 (100%) |

| Treatment details | Cases (%) |
|-----------------------------------------|-------------------|
| EMR | 207 (89.6%) |
| EMR+PDT | 1 (0.4%) |
| EMR+YAG laser | 1 (0.4%) |
| EMR+MCT | 3 (1.3%) |
| EMR+Other treatment | 1 (0.4%) |
| Esophageal stenting | 15 (6.5%) |
| Esophageal stenting + tracheal stenting | 1 (0.4%) |
| Others | 2 (0.9%) |
| Total | 231 (100%) |

EMR: endoscopic mucosal resection
PDT: photodynamic therapy
MCT:microwave coaguration therapy

Table 22) Endoscopic mucosal resection (EMR)

| Method of EMR | Cases (%) |
|---------------------|-------------------|
| One piece resection | 118 (50.7%) |
| Piecemeal resection | 93 (43.8%) |
| Unknown | 2 (5.5%) |
| Total | 213 (100%) |

| No. of lesions treated by EMR | Cases (%) |
|-------------------------------|-------------------|
| 1 | 118 (55.4%) |
| 2 | 39 (18.3%) |
| 3 | 14 (6.6%) |
| 4 | 7 (3.3%) |
| 5 | 3 (1.4%) |
| 6 | 6 (2.8%) |
| 7 | 2 (0.9%) |
| 8 | 2 (0.9%) |
| 9 | 2 (0.9%) |
| 10 and/or over | 2 (0.9%) |
| Unknown | 18 (8.5%) |
| Total | 213 (100%) |

| Radicality of EMR | Cases (%) |
|------------------------|-------------------|
| Complete resection | 164 (77.0%) |
| Non-complete resection | 24 (11.2%) |
| Unknown | 25 (11.7%) |
| Total | 213 (100%) |

| Complications of EMR | Cases (%) |
|----------------------|-------------------|
| None | 172 (80.8%) |
| Perforation | 1 (0.5%) |
| Bleeding | 3 (1.4%) |
| Mediastinitis | 0 |
| Stenosis | 8 (3.8%) |
| Others | 2 (0.9%) |
| Unknown | 27 (12.7%) |
| Total | 213 (100%) |

Table 23) Prognosis of patients underwent endoscopic mucosal resection (EMR)

| Outcome | Cases | (%) |
|-------------------|------------|---------------|
| Alive | 173 | (81.2%) |
| Dead | 19 | (8.9%) |
| Lost of follow up | 14 | (6.6%) |
| Unknown | 7 | (3.3%) |
| Total | 213 | (100%) |

| Type of recurrence | Cases | (%) |
|--------------------|------------|---------------|
| None | 156 | (73.2%) |
| Lymph node | 1 | (0.5%) |
| Lung | 3 | (1.4%) |
| Liver | 0 | |
| Bone | 0 | |
| Brain | 0 | |
| Local | 6 | (2.8%) |
| Dissemination | 0 | |
| Stump | 1 | (0.4%) |
| Other | 0 | |
| Unknown | 46 | (21.6%) |
| Total | 213 | (100%) |

| Causes of Death | Cases | (%) |
|------------------------------------------|-----------|---------------|
| Death due to esophageal cancer | 10 | (11.8%) |
| Death due to other cancer | 2 | (41.2%) |
| Death due to other disease (rec+) | 0 | |
| Death due to other disease (rec-) | 5 | (35.3%) |
| Death due to other disease (rec?) | 0 | (5.9%) |
| Death related to treatment within 30days | 0 | |
| Death related to treatment after 30 days | 1 | |
| Unknown | 1 | (5.9%) |
| Total | 19 | (100%) |

rec : recurrence

Table 24) Histologic findings of EMR specimen (tumor size, histologic type, and depth of tumor invasion)

| Size of lesion | Cases (%) |
|----------------|-------------------|
| ~ 9mm | 15 (7.0%) |
| 10 ~19mm | 39 (18.3%) |
| 20~29mm | 14 (6.6%) |
| 30~39mm | 7 (3.3%) |
| 40~49mm | 4 (1.9%) |
| 50~59mm | 3 (1.4%) |
| 60~69mm | 3 (1.4%) |
| 70mm~` | 2 (0.9%) |
| Unknown | 126 (59.2%) |
| Total | 213 (100%) |

| Histologic type of EMR specimen | Cases (%) |
|---------------------------------|-------------------|
| Squamous cell ca (SCC) | 92 (43.2%) |
| Well diff. SCC | 18 (8.5%) |
| Moderately diff. SCC | 52 (24.4%) |
| Poorly diff. SCC | 7 (3.3%) |
| Adenocarcinoma | 0 |
| Barrett's carcinoma | 0 |
| Dysplasia | 5 (2.3%) |
| Others | 2 (0.9%) |
| Unknown | 37 (17.3%) |
| Total | 213 (100%) |

| Pathological depth of tumor invasion (pT) | Cases (%) |
|-------------------------------------------|-------------------|
| pT0 | 2 (0.9%) |
| pTis | 77 (36.2%) |
| pT1a(lpm) | 54 (25.4%) |
| pT1a(mm) | 23 (10.8%) |
| pt1b | 19 (8.9%) |
| Unknown | 38 (17.8%) |
| Total | 213 (100%) |

| Sub-classification of histological depth of invasion in superficial cancer | Cases (%) |
|----------------------------------------------------------------------------|-------------------|
| m1(ep) | 77 (36.2%) |
| m2(lpm) | 54 (25.4%) |
| m3(mm) | 23 (10.8%) |
| sm1 | 10 (4.7%) |
| sm2 | 5 (2.3%) |
| sm3 | 0 |
| Unknown | 44 (20.7%) |
| Total | 213 (100%) |

ep: epithelium
lpm: lamina propria mucosa
mm: muscularis mucosa

Table 25) Histologic findings of EMR specimen (intraepithelial spread, vessel invasion, multiple cancer, and multiple lesion)

| Intraepithelial spread (ie) | Cases (%) |
|-----------------------------|-------------------|
| (-) | 39 (18.3%) |
| (+) | 9 (4.2%) |
| (+++) superficial spread | 1 (0.5%) |
| Unknown | 164 (77.0%) |
| Total | 213 (100%) |

| Lymphatic vessel invasion (ly) | Cases (%) |
|--------------------------------|-------------------|
| (-) | 106 (49.8%) |
| (+) | 5 (2.3%) |
| Unknown | 102 (47.9%) |
| Total | 213 (100%) |

| Blood vessel invasion (v) | Cases (%) |
|---------------------------|-------------------|
| (-) | 107 (50.2%) |
| (+) | 3 (1.4%) |
| Unknown | 103 (48.4%) |
| Total | 213 (100%) |

| Multiple primary cancer | Cases (%) |
|-------------------------|-------------------|
| (-) | 41 (19.2%) |
| (+) | 5 (2.3%) |
| Unknown | 167 (78.4%) |
| Total | 213 (100%) |

| Multiple malignant lesions | Cases (%) |
|----------------------------|-------------------|
| (-) | 38 (17.8%) |
| (+) | 8 (3.8%) |
| Unknown | 167 (78.4%) |
| Total | 213 (100%) |

| No. of multiple primary lesions | Cases (%) |
|---------------------------------|-----------------|
| 2 | 6 (25.0%) |
| 3 | 2 (50.0%) |
| 4 | 0 |
| Total | 8 (100%) |

Figure 1) Survival of patients treated with endoscopy

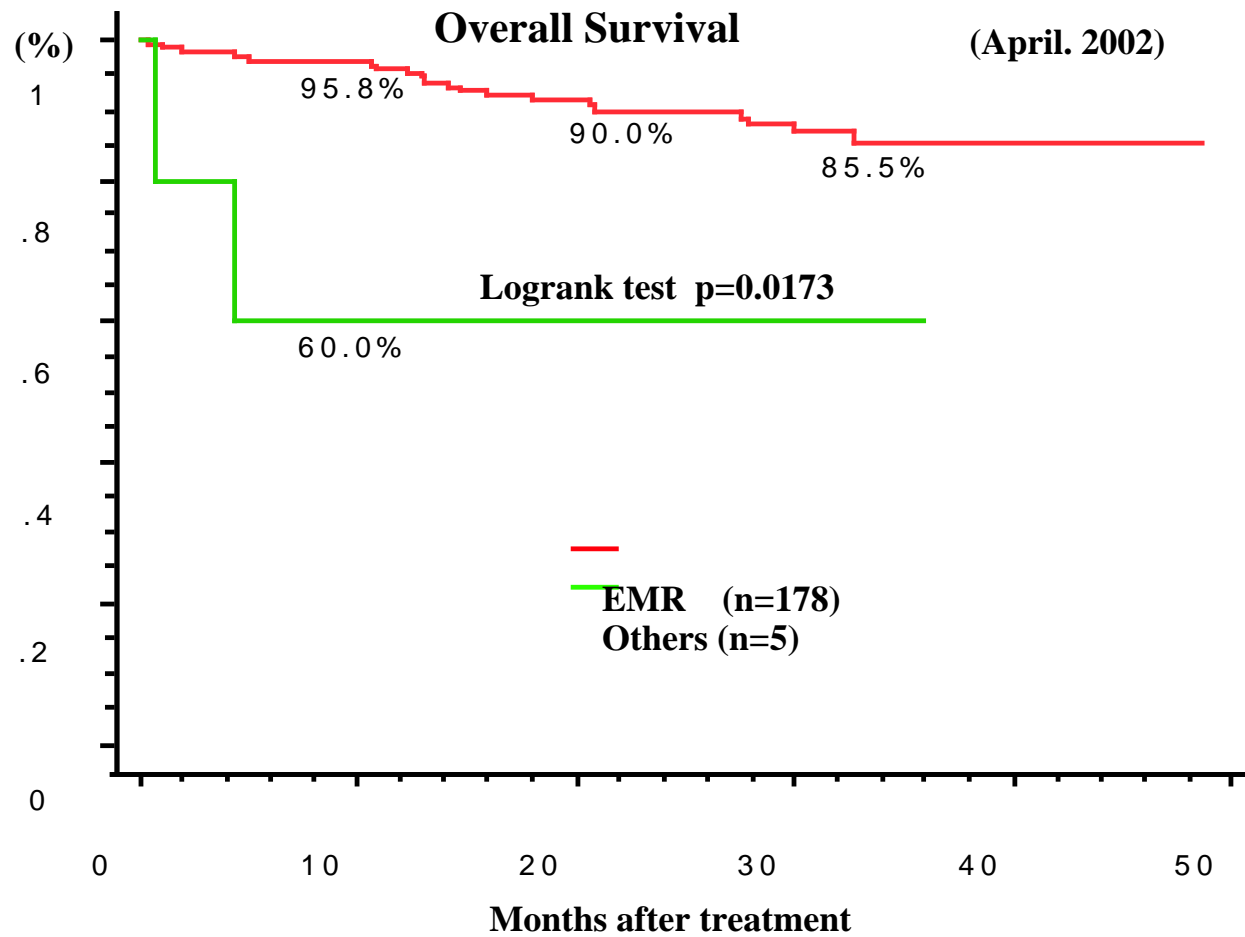


Figure 2) Survival of patients treated with EMR

(April, 2002)

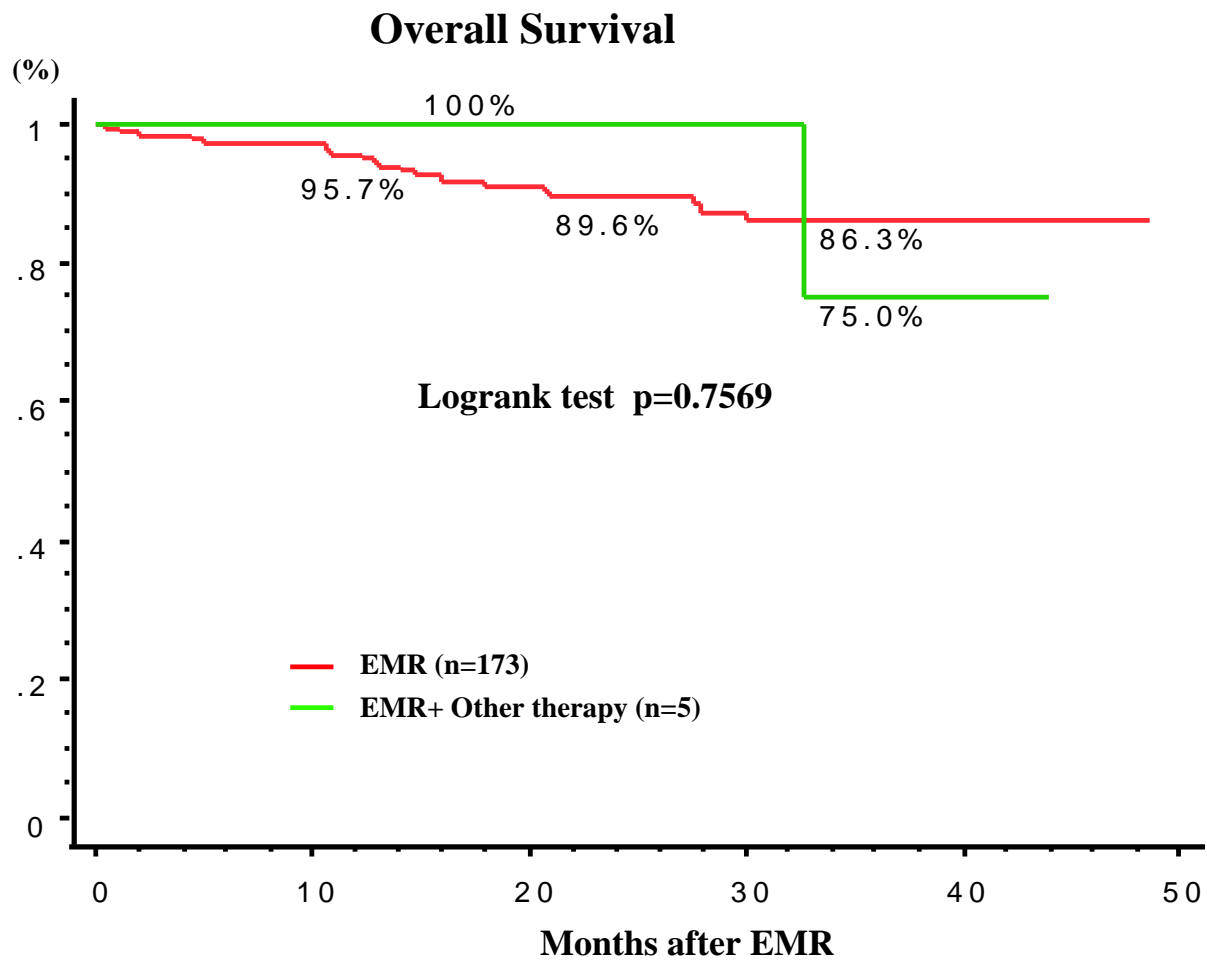
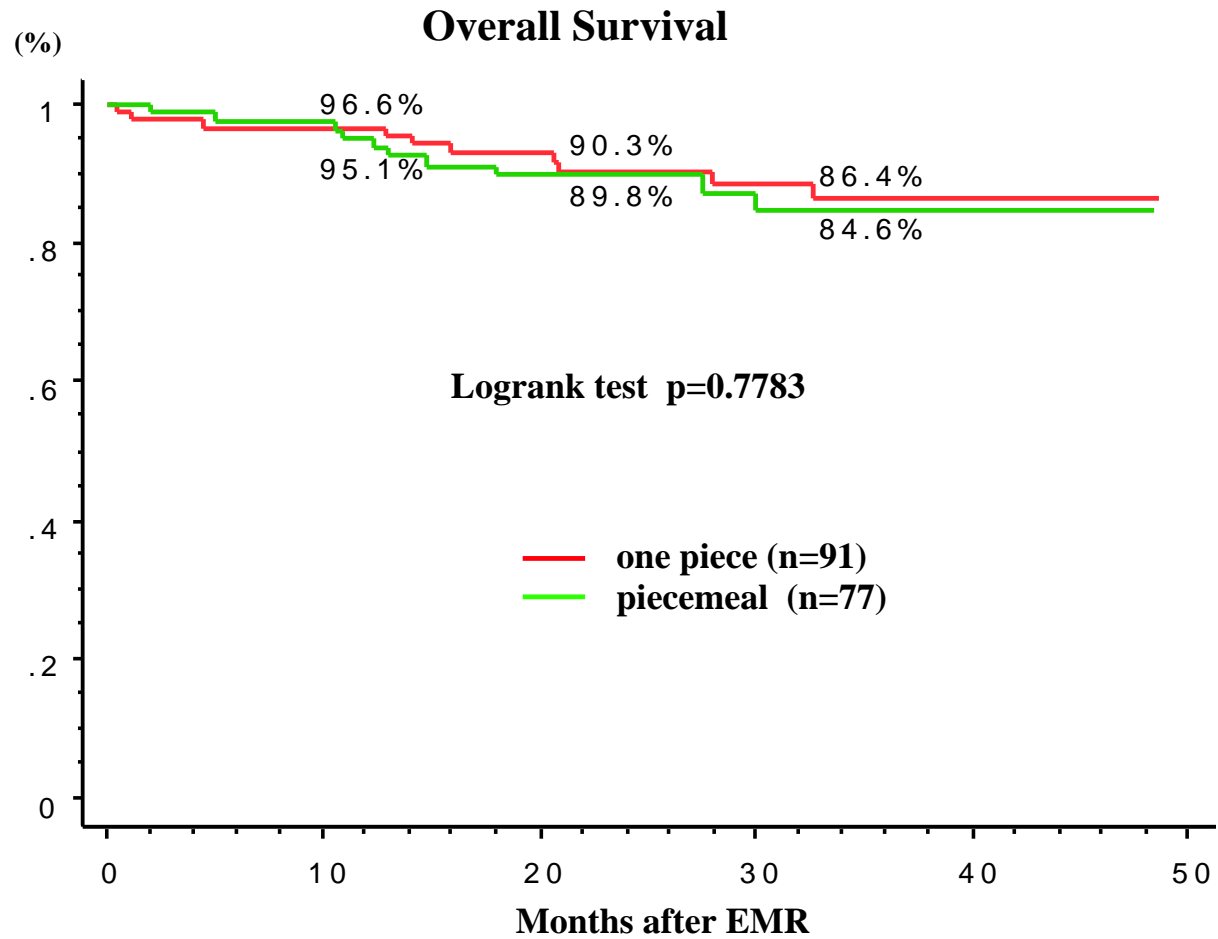


Figure 3) Survival of patients according to type of EMR

(April, 2002)



**III. Clinical Results in Patients treated with
Chemotherapy and/or Radiotherapy
in 1998**

Table 26) Radiotherapy and/or chemotherapy (non surgically treated cases)

| Treatment | Cases (%) |
|--------------------|-------------------|
| Radiotherapy alone | 264 (33.9%) |
| Chemoradiotherapy | 460 (59.1%) |
| Chemotherapy alone | 55 (7.1%) |
| Total | 779 (100%) |

| Radiotherapy | Cases (%) |
|----------------------|-------------------|
| Curative radiation | 417 (40.5%) |
| Palliative radiation | 183 (26.1%) |
| Others | 56 (10.6%) |
| Unknown | 68 (22.7%) |
| Total | 724 (100%) |

| Endo-irradiation | Cases (%) |
|------------------|-------------------|
| (-) | 514 (68.2%) |
| (+) | 70 (17.8%) |
| Unknown | 140 (14.0%) |
| Total | 724 (100%) |

| Doses of irradiation (Gy) | Cases (%) |
|---------------------------|-------------------|
| 0 | 0 |
| ~ 19 | 18 (2.5%) |
| 20 ~ 39 | 66 (9.1%) |
| 40 ~ 59 | 126 (17.4%) |
| 60 ~ 79 | 412 (56.9%) |
| 80 ~ 99 | 2 (0.3%) |
| 100 ~ | 4 (0.6%) |
| Unknown | 96 (13.3%) |
| Total | 724 (100%) |

Table 27) Effectiveness of radiotherapy and/or chemotherapy (non surgically treated cases)

| Chemotherapy | Cases (%) |
|--------------|-------------------|
| (-) | 0 |
| (+) | 515 (98.4%) |
| Unknown | 8 (1.6%) |
| Total | 515 (100%) |

| Response to radiotherapy | Cases (%) |
|--------------------------|-------------------|
| CR | 56 (21.2%) |
| PR | 62 (23.5%) |
| NC | 26 (9.8%) |
| PD | 9 (3.4%) |
| Not evaluated | 25 (9.5%) |
| Unknown | 86 (32.6%) |
| Total | 264 (100%) |

| Response to chemoradiotherapy | Cases (%) |
|-------------------------------|-------------------|
| CR | 82 (17.8%) |
| PR | 185 (40.2%) |
| NC | 78 (17.0%) |
| PD | 38 (8.3%) |
| Not evaluated | 18 (3.9%) |
| Unknown | 59 (12.8%) |
| Total | 460 (100%) |

| Response to chemotherapy | Cases (%) |
|--------------------------|------------------|
| CR | 3 (5.5%) |
| PR | 23 (41.8%) |
| NC | 9 (16.4%) |
| PD | 11 (20.0%) |
| Not evaluated | 1 (1.8%) |
| Unknown | 8 (14.5%) |
| Total | 55 (100%) |

Figure 4) Cumulative survival curves of patients treated by chemotherapy and/or radiotherapy

(April, 2002)

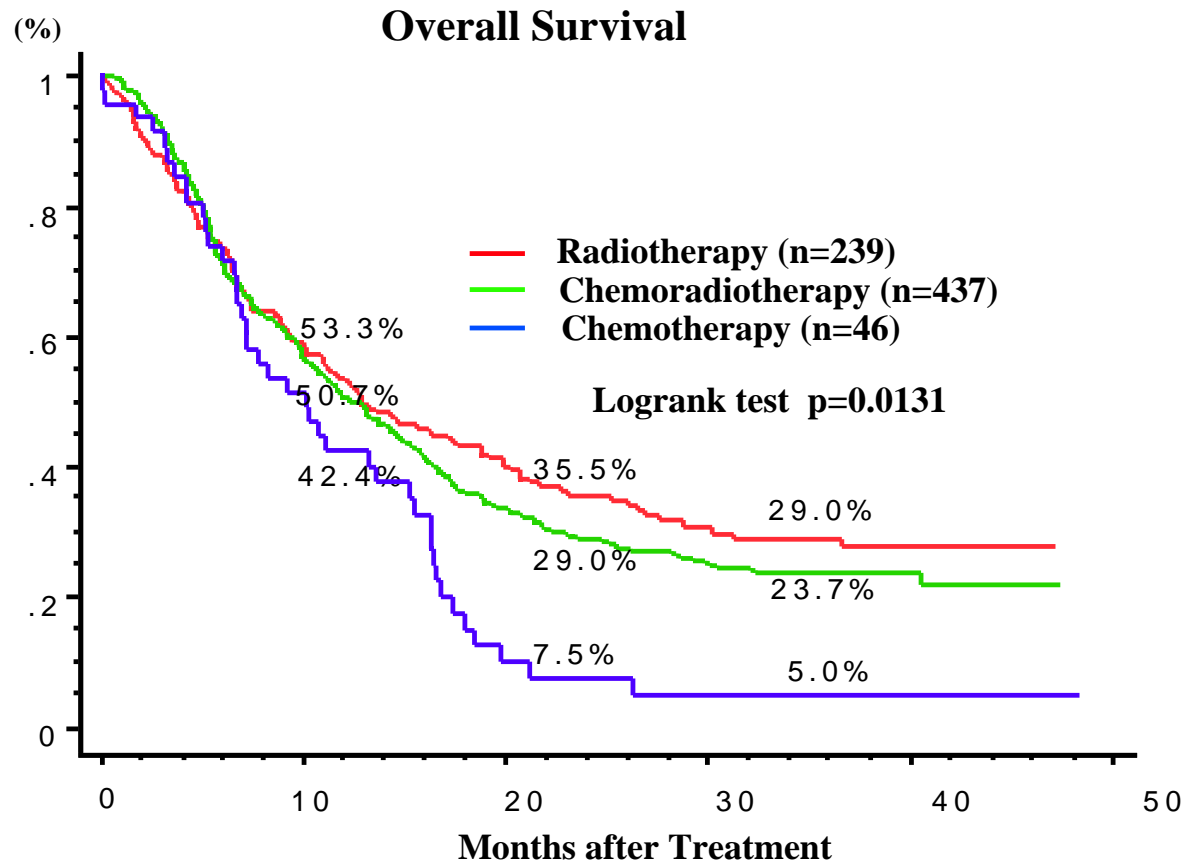


Figure 5) Cumulative survival curves of patients treated by chemotherapy and/or radiotherapy (cStage I-IIA)

-cTNM Stage 0, I, and IIA Cases - (April, 2002)

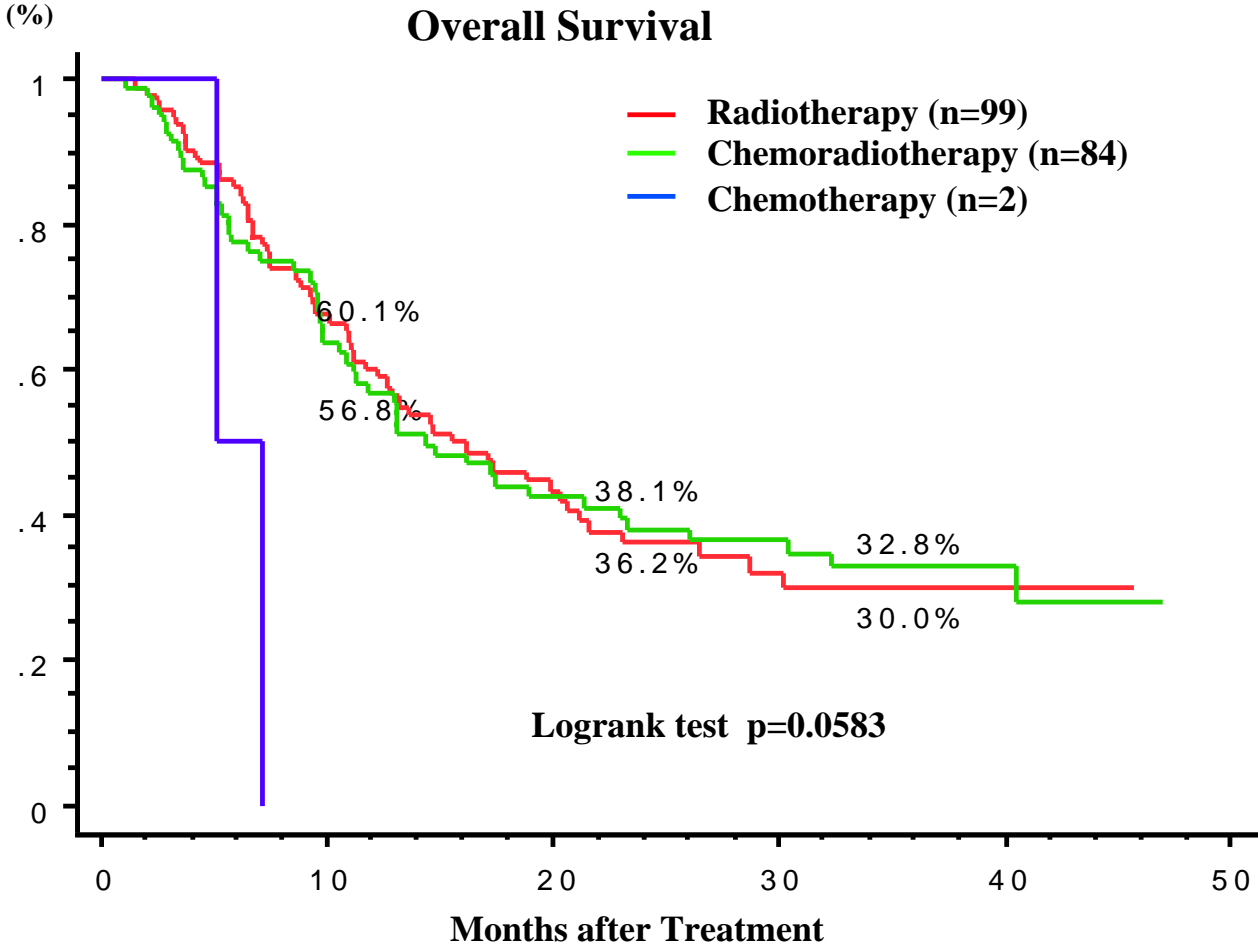
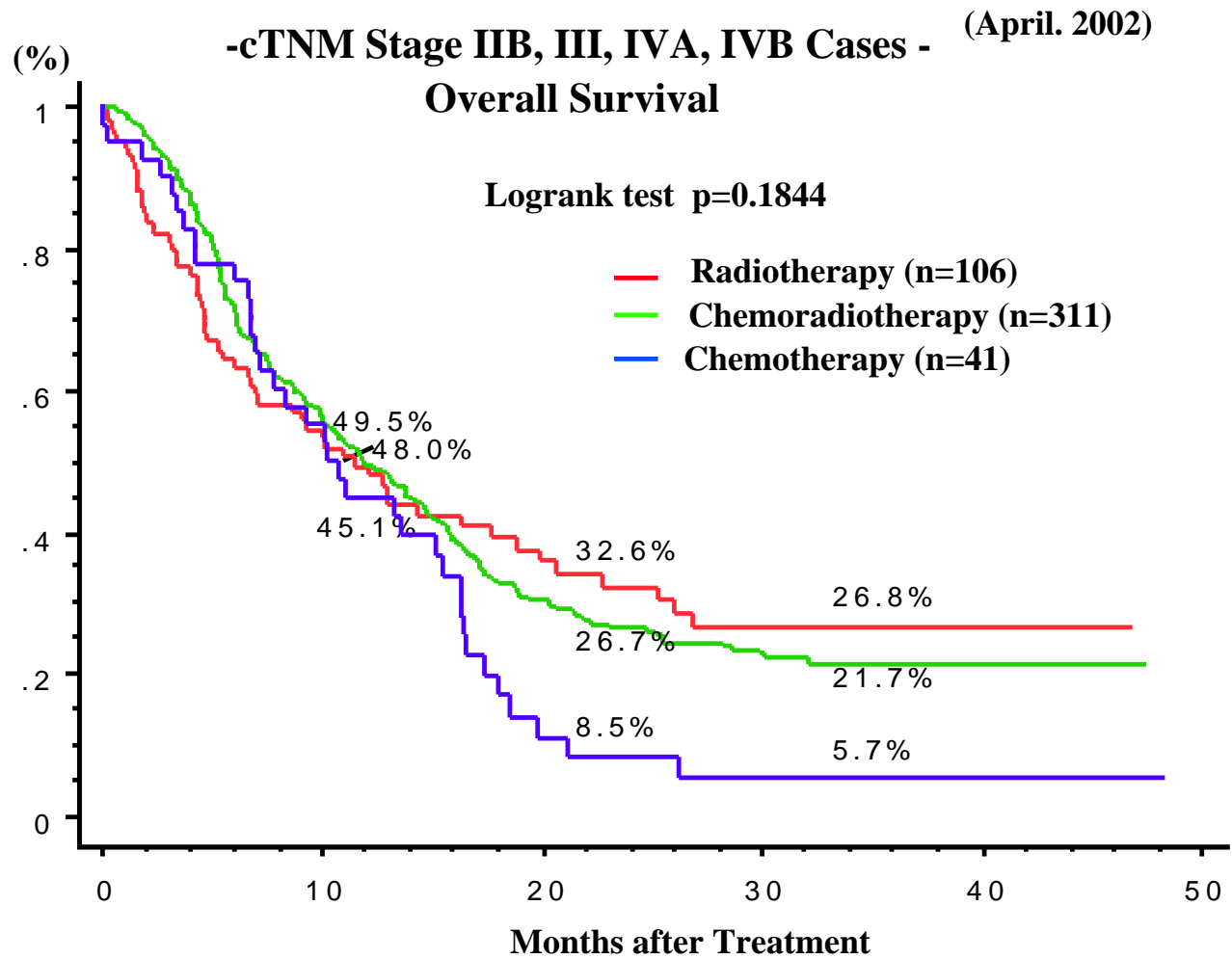


Figure 6) Cumulative survival curves of patients treated by chemotherapy and/or radiotherapy (cStage IIB-IVB)



IV. Clinical Results in Patients treated by Palliative Operation in 1998

Table 28) Palliative operation cases without esophagectomy

| Treatment | Cases (%) |
|--------------------------------------------------|------------------|
| Surgery | 26 (26.5%) |
| Surgery +radiotherapy | 18 (18.4%) |
| Surgery + radiotherapy + endoscopic treatment | 2 (2.0%) |
| Surgery + chemoradiotherapy | 42 (42.9%) |
| Surgery + chemotherapy | 9 (9.2%) |
| Surgery + endoscopic treatment | 1 (1.0%) |
| Total | 98 (100%) |

| Surgical treatment | Cases (%) |
|----------------------------|------------------|
| Probe thoraco / laparotomy | 51 (52.0%) |
| Bypass-operation | 14 (14.3%) |
| Gastrostomy / Jejunostomy | 6 (6.1%) |
| Lymph adenectomy | 16 (16.3%) |
| Others | 11 (11.2%) |
| Total | 98 (100%) |

| Radiotherapy | Cases (%) |
|------------------------|------------------|
| No-irradiation | 36 (36.7%) |
| Curative irradiation | 33 (33.7%) |
| Palliative irradiation | 29 (29.6%) |
| Unknown | 0 |
| Total | 98 (100%) |

| Total doses (Gy) | Cases (%) |
|------------------|------------------|
| 0 | 36 (36.7%) |
| 2 - 19 | 2 (2.0%) |
| 20 - 39 | 6 (6.1%) |
| 40 - 59 | 24 (24.5%) |
| 60 - 79 | 21 (21.4%) |
| 80 - 99 | 2 (2.0%) |
| 100 - ` | 0 |
| Unknown | 7 (7.1%) |
| Total | 98 (100%) |

Table 29) Effectiveness of treatments (Palliative operation cases without esophagectomy)

| Chemotherapy | Cases (%) |
|--------------|------------------|
| (-) | 45 (45.9%) |
| (+) | 53 (54.1%) |
| Unknown | 0 |
| Total | 98 (100%) |

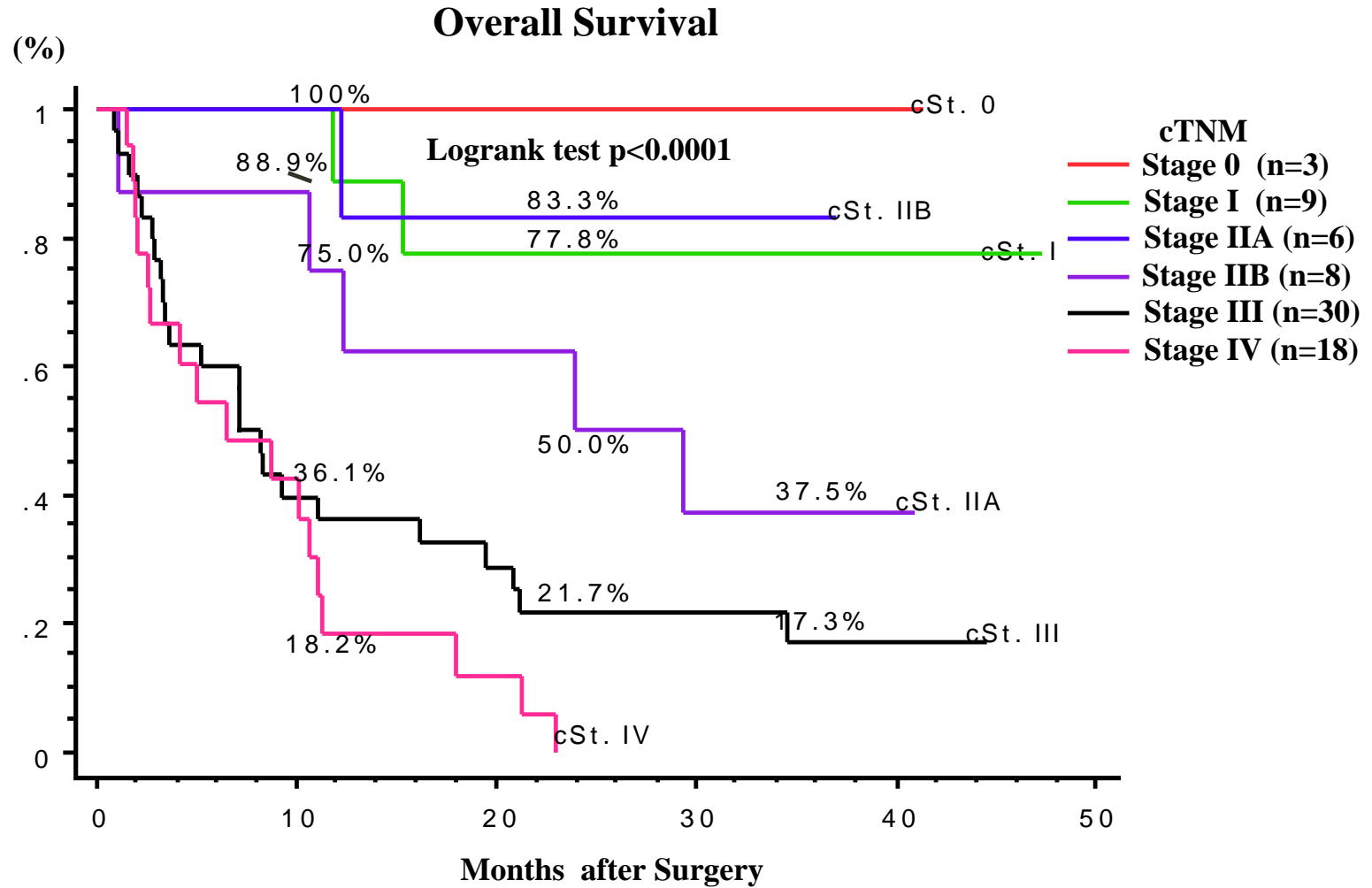
| Surg + radiotherapy | Cases (%) |
|---------------------|------------------|
| CR | 2 (11.1%) |
| PR | 4 (22.2%) |
| NC | 3 (16.7%) |
| PD | 1 (5.6%) |
| Not evaluated | 2 (11.1%) |
| Unknown | 6 (33.3%) |
| Total | 18 (100%) |

| Surg + chemoradiotherapy | Cases (%) |
|--------------------------|------------------|
| CR | 8 (18.2%) |
| PR | 11 (25.0%) |
| NC | 14 (31.8%) |
| PD | 3 (6.8%) |
| Not evaluated | 4 (9.1%) |
| Unknown | 4 (9.1%) |
| Total | 44 (100%) |

| Surg + chemotherapy | Cases (%) |
|---------------------|-----------------|
| CR | 0 |
| PR | 2 (22.2%) |
| NC | 2 (22.2%) |
| PD | 1 (11.1%) |
| Not evaluated | 1 (11.1%) |
| Unknown | 3 (33.3%) |
| Total | 9 (100%) |

Figure 7) Cumulative survival curves of patients treated by palliative surgery (cTNM)

(April. 2002)



V. Clinical Results in Patients treated with Esophagectomy in 1998

Table 30) Cases of esophagectomy (treatment, surgical procedure, and location of the tumor)

| Treatment | Cases (%) |
|--------------------------------------|--------------------|
| Esophagectomy | 652 (34.6%) |
| Esophagectomy + radiotherapy* | 591 (31.4%) |
| Esophagectomy + chemoradiotherapy** | 351 (18.6%) |
| Esophagectomy + chemotherapy*** | 277 (14.7%) |
| Esophagectomy + endoscopic treatment | 12 (0.6%) |
| Esophagectomy + other treatment | 0 |
| Total | 1883 (100%) |

* : + endoscopic treatment (3 cases) , + other treatment (1 case)

** : + hyperthermia (9 cases), + endoscopic treatment (10 cases)
+ other treatment (1case)

***: + hyperthermia (1cases), + endoscopic treatment (9 cases)

| Surgical procedures | Cases (%) |
|----------------------------------------------------|--------------------|
| Esophagectomy without reconstruction | 1 (0.05%) |
| Esophagectomy + reconstruction (2-stage operation) | 40 (2.1%) |
| Esophagectomy with reconstruction | 1832 (97.3%) |
| Unknown | 10 (0.5%) |
| Total | 1883 (100%) |

| Location | Cases (%) |
|---------------------------|--------------------|
| Pharynx | 20 (1.1%) |
| Cervical esophagus | 70 (3.7%) |
| Upper thoracic esophagus | 195 (10.4%) |
| Middle thoracic esophagus | 956 (50.8%) |
| Lower thoracic esophagus | 506 (26.9%) |
| Abdominal esophagus | 107 (5.7%) |
| EG Junction | 15 (0.8%) |
| Cardia | 4 (0.2%) |
| Unknown | 10 (0.5%) |
| Total | 1883 (100%) |

Table 31) Cases of esophagectomy (surgical approach and region of lymphadenectomy)

| Approach | Cases (%) |
|----------------------------------------|--------------------|
| Cervical approach | 59 (3.1%) |
| Right thoracotomy | 1495 (79.4%) |
| Left thoracotomy | 31 (1.6%) |
| Left thoracoabdominal approach | 50 (2.7%) |
| Laparotomy | 28 (1.5%) |
| Transhiatal (without blunt dissection) | 15 (0.8%) |
| Transhiatal (with blunt dissection) | 115 (6.1%) |
| Sternotomy | 16 (0.9%) |
| Others | 20 (2.9%) |
| Unknown | 54 (1.1%) |
| Total | 1883 (100%) |

| Region of lymphadenectomy | Cases (%) |
|---------------------------|--------------------|
| (-) | 40 (2.1%) |
| C | 37 (2.0%) |
| C+UM | 20 (1.1%) |
| C+UM+MLM | 22 (1.2%) |
| C+UM+MLM+A | 636 (33.8%) |
| C+UM+A | 5 (0.3%) |
| C+MLM | 0 |
| C+MLM+A | 4 (0.2%) |
| C+A | 12 (0.6%) |
| UM | 5 (0.3%) |
| UM+MLM | 28 (1.5%) |
| UM+MLM+A | 650 (34.5%) |
| MLM+A | 1 (0.05%) |
| MLM | 10 (0.5%) |
| MLM+A | 198 (10.5%) |
| A | 77 (4.1%) |
| Unknown | 138 (7.3%) |
| Total | 1883 (100%) |

C: bilateral cervical nodes

UM: upper mediastinal nodes

MLM: middle-lower mediastinal nodes

A: abdominal nodes

Table 32) Cases of esophagectomy (esophageal reconstruction)

| Reconstruction route | Cases | (%) |
|-----------------------|-------------|---------------|
| (-) | 1 | (0.05%) |
| Antethoracic | 199 | (10.6%) |
| Retrosternal | 718 | (38.1%) |
| Posterior mediastinal | 473 | (25.1%) |
| High intrathoracic* | 228 | (12.1%) |
| Low intrathoracic** | 95 | (5.0%) |
| Transhiatal | 28 | (1.5%) |
| Cervical | 31 | (1.6%) |
| Others | 2 | (5.7%) |
| Unknown | 108 | (0.1%) |
| Total | 1883 | (100%) |

| Organs for esophageal replacement | Cases | (%) |
|-----------------------------------|-------------|---------------|
| (-) | 1 | (0.05%) |
| Whole stomach* | 85 | (4.5%) |
| Gastric tube** | 1421 | (75.4%) |
| Jejunum*** | 81 | (4.3%) |
| Free jejunum**** | 27 | (1.4%) |
| Colon***** | 109 | (5.8%) |
| Free colon | 4 | (0.2%) |
| Skin graft | 0 | |
| Others | 35 | (1.9%) |
| Unknown | 120 | (6.4%) |
| Total | 1883 | (100%) |

* with upper mediastinal anastomosis

** with middle/lower mediastinal anastomosis

* : Free jejunum+Whole stomach (1 case)

** : Gastric tube+Jejunum (4 cases), Free jejunum+Gastric tube (3 cases)

Colon+Gastric tube+Free jejunum (1 case), Skin roll+Gastric Tube (1case)

***: Jejunum+Colon (1 case)

****: Free jejunum+Colon (1 case)

*****: Colon+Skin roll (1 case)

Table 33) Cases of intrathoracic esophagectomy (location of the tumor and reconstruction route)

| Location | Upper thoracic | Middle thortacic | Lower thoracic | Total thoracic |
|-----------------------|----------------|------------------|----------------|----------------|
| Reconstruction route | Cases (%) | Cases (%) | Cases (%) | Cases (%) |
| (-) | 0 | 0 | 0 | 0 |
| Antethoracic | 32 (16.4%) | 96 (10.0%) | 49 (9.7%) | 177 (10.7%) |
| Retrosternal | 65 (33.3%) | 372 (38.9%) | 192 (37.9%) | 629 (38.0%) |
| Posterior mediastinal | 44 (22.6%) | 251 (26.3%) | 130 (25.7%) | 425 (25.6%) |
| High intrathoracic* | 24 (12.3%) | 112 (11.7%) | 67 (13.2%) | 203 (12.3%) |
| Low intrathoracic** | 8 (4.1%) | 46 (4.8%) | 23 (4.5%) | 77 (4.6%) |
| Transhiatal | 1 (0.5%) | 13 (1.4%) | 9 (1.8%) | 23 (1.4%) |
| Cervical | 6 (3.1%) | 13 (1.4%) | 6 (1.2%) | 25 (1.5%) |
| Others | 0 | 1 (0.1%) | 1 (0.2%) | 2 (0.1%) |
| Unknown | 15 (7.7%) | 52 (5.4%) | 29 (5.7%) | 96 (5.8%) |
| Total | 195 (100%) | 956 (100%) | 506 (100%) | 1657 (100%) |

Table 34) Cases of esophagectomy for external lesion of the thorax (location of the tumor and reconstruction route)

| Location | Pharynx | | Cervical esophagus | | Abdominal esophagus | | EGJ/Cardia | |
|-----------------------|-----------|---------------|--------------------|---------------|---------------------|---------------|-------------|---------------|
| Reconstruction route | Cases | (%) | Cases | (%) | Cases | (%) | Cases | (%) |
| (-) | 0 | | 0 | | 1 | (0.9%) | 0 | |
| Antethoracic | 0 | | 13 | (18.6%) | 8 | (7.5%) | 1 | (5.3%) |
| Retrosternal | 8 | (40.0%) | 26 | (37.1%) | 14 | (41.1%) | 10 | (52.6%) |
| Posterior mediastinal | 4 | (20.0%) | 15 | (21.4%) | 23 | (21.5%) | 5 | (26.3%) |
| High intrathoracic* | 2 | (10.0%) | 6 | (8.6%) | 17 | (15.9%) | 0 | |
| Low intrathoracic** | 3 | (15.0%) | 4 | (5.7%) | 9 | (8.4%) | 2 | (10.5%) |
| Transhiatal | 0 | | 2 | (2.9%) | 2 | (1.9%) | 0 | |
| Cervical | 3 | (15.0%) | 2 | (2.9%) | 1 | (0.9%) | 0 | |
| Others | 0 | | 0 | | 0 | | 0 | |
| Unknown | 0 | | 2 | (2.9%) | 2 | (1.9%) | 1 | (5.3%) |
| Total | 20 | (100%) | 70 | (100%) | 107 | (100%) | 19 * | (100%) |

* E=G:15cases, G:4 cases

Table 35) Cases of intrathoracic esophagectomy (location of the tumor and lymph node dissection)

| Location | Upper thoracic | Middle thoracic | Lower thoracic | Total |
|---------------------------|-------------------|-------------------|-------------------|--------------------|
| Region of lymphadenectomy | Cases (%) | Cases (%) | Cases (%) | Cases (%) |
| (-) | 5 (2.6%) | 20 (2.1%) | 10 (2.0%) | 35 (2.1%) |
| C | 6 (3.1%) | 16 (1.7%) | 7 (1.4%) | 29 (1.8%) |
| C+UM | 1 (0.5%) | 11 (1.2%) | 7 (1.4%) | 19 (1.1%) |
| C+UM+MLM | 3 (1.5%) | 12 (1.3%) | 4 (0.8%) | 19 (1.1%) |
| C+UM+MLM+A | 67 (34.4%) | 327 (34.2%) | 168 (33.2%) | 562 (33.9%) |
| C+UM+A | 1 (0.5%) | 2 (0.2%) | 2 (0.4%) | 5 (0.3%) |
| C+MLM | 0 | 0 | 0 | 0 |
| C+MLM+A | 0 | 1 (0.1%) | 2 (0.4%) | 3 (0.2%) |
| C+A | 3 (1.5%) | 4 (0.4%) | 5 (1.0%) | 12 (0.7%) |
| UM | 0 | 1 (0.1%) | 3 (0.6%) | 4 (0.2%) |
| UM+MLM | 1 (0.5%) | 18 (1.9%) | 7 (1.4%) | 26 (1.6%) |
| UM+MLM+A | 67 (34.4%) | 334 (34.9%) | 172 (34.0%) | 573 (34.6%) |
| UM+A | 0 | 1 (0.1%) | 0 | 1 (0.06%) |
| MLM | 1 (0.5%) | 6 (0.6%) | 2 (0.4%) | 9 (0.5%) |
| MLM+A | 22 (11.3%) | 87 (9.1%) | 59 (11.7%) | 168 (10.1%) |
| A | 5 (2.6%) | 48 (5.0%) | 19 (3.8%) | 72 (4.3%) |
| Unknown | 13 (6.7%) | 68 (7.1%) | 39 (7.7%) | 120 (7.2%) |
| Total | 195 (100%) | 956 (100%) | 506 (100%) | 1657 (100%) |

C: bilateral cervical nodes

UM: upper mediastinal nodes

MLM: middle-lower mediastinal nodes

A: abdominal nodes

Table 36) Cases of esophagectomy for external lesion of the thorax (location of the tumor and lymph node dissection)

| Location | Pharynx | Cervical esophagus | Abdominal esophagus | EGJ/Cardia |
|---------------------------|------------------|--------------------|---------------------|-------------------|
| Region of lymphadenectomy | Cases (%) | Cases (%) | Cases (%) | Cases (%) |
| (-) | 0 | 2 (2.9%) | 3 (2.8%) | 0 |
| C | 4 (20.0%) | 2 (2.9%) | 1 (0.9%) | 1 (5.3%) |
| C+UM | 0 | 0 | 1 (0.9%) | 0 |
| C+UM+MLM | 0 | 3 (4.3%) | 0 | 0 |
| C+UM+MLM+A | 5 (25.0%) | 28 (40.0%) | 36 (33.6%) | 5 (26.3%) |
| C+UM+A | 0 | 0 | 0 | 0 |
| C+MLM | 0 | 0 | 0 | 0 |
| C+MLM+A | 0 | 0 | 1 (0.9%) | 0 |
| C+A | 0 | 0 | 0 | 0 |
| UM | 1 (5.0%) | 0 | 0 | 0 |
| UM+MLM | 0 | 0 | 2 (1.9%) | 0 |
| UM+MLM+A | 7 (35.0%) | 22 (31.4%) | 38 (35.5%) | 8 (42.1%) |
| UM+A | 0 | 0 | 0 | 0 |
| MLM | 0 | 0 | 1 (0.9%) | 0 |
| MLM+A | 3 (15.0%) | 11 (15.7%) | 13 (12.2%) | 3 (15.8%) |
| A | 0 | 0 | 5 (4.7%) | 0 |
| Unknown | 0 | 2 (2.9%) | 6 (5.6%) | 2 (10.5%) |
| Total | 20 (100%) | 70 (100%) | 107 (100%) | 19* (100%) |

*E=G:15cases, G:4cases

Table 37) Cases of esophagectomy (vascular anastomosis and endoscopic surgery)

| Vascular anastomosis | Cases (%) |
|----------------------|--------------------|
| (-) | 1680 (89.2%) |
| (+) | 94 (5.0%) |
| Unknown | 109 (5.8%) |
| Total | 1883 (100%) |

| Endoscopic surgery | Cases (%) |
|--------------------------------------|--------------------|
| (-) | 1690 (89.8%) |
| Thoracoscopy | 45 (2.4%) |
| Thoracoscopy assist | 58 (3.1%) |
| Mediastinoscopy assist | 7 (0.4%) |
| Laparoscopy assist | 16 (0.9%) |
| Thoracoscopy & Laparoscopy assist | 2 (0.1%) |
| Unknown | 65 (3.5%) |
| Total | 1883 (100%) |

Table 38) Cases of esophagectomy (operative findings of cT and combined resected organs)

| Macroscopic T-category (cT) | Cases | (%) |
|-----------------------------|-------------|---------------|
| T0 | 44 | (2.3%) |
| T1 | 412 | (21.9%) |
| T2 | 352 | (18.7%) |
| T3 | 766 | (40.7%) |
| T4 | 227 | (12.1%) |
| Unknown | 82 | (4.4%) |
| Total | 1883 | (100%) |

| cT4 by lymphatic metastasis | Cases | (%) |
|-----------------------------|-------------|---------------|
| (-) | 1663 | (88.3%) |
| N1(T4) | 40 | (2.1%) |
| N2(T4) | 81 | (4.3%) |
| N3(T4) | 29 | (1.5%) |
| N4(T4) | 18 | (1.0%) |
| Nx(T4) | 3 | (0.2%) |
| Unknown | 49 | (2.6%) |
| Total | 1883 | (100%) |

| Organs* | Cases | (%) |
|---------------------------------|------------|---------------|
| (-) | 198 | (46.3%) |
| Larynx | 25 | (5.8%) |
| Trachea | 13 | (3.0%) |
| Aorta | 1 | (0.2%) |
| Lung | 21 | (4.9%) |
| Pericardium | 11 | (2.6%) |
| Diaphragm | 21 | (4.9%) |
| Stomach | 20 | (4.6%) |
| Pancreas+spleen | 8 | (1.9%) |
| Thoracic duct | 35 | (8.2%) |
| Recurrent nerve | 15 | (3.5%) |
| Recurrent nerve (main trunk) | 2 | (0.5%) |
| Others | 45 | (10.5%) |
| Unknown | 13 | (3.0%) |
| Total of resected organs | 428 | (100%) |
| Total of cT4 cases | 364 | |

*: Organs resected in addition to the esophagus

Table 39) Cases of esophagectomy (operative findings of the tumor feature and size)

| Macroscopic type | Cases (%) |
|------------------|--------------------|
| 0-Ip | 35 (1.9%) |
| 0-Ipl | 89 (4.7%) |
| 0-Isep | 29 (1.5%) |
| 0-IIa | 105 (5.6%) |
| 0-IIb | 52 (2.8%) |
| 0-IIc | 215 (11.4%) |
| 0-III | 22 (1.2%) |
| 0-V | 12 (0.6%) |
| 1p | 32 (1.7%) |
| 1c | 19 (1.0%) |
| 1pl | 65 (3.5%) |
| 1sep | 1 (0.05%) |
| 2 | 524 (27.8%) |
| 3 | 498 (26.4%) |
| 4s | 34 (1.8%) |
| 4ns | 7 (0.4%) |
| 5c | 12 (0.6%) |
| 5s | 7 (0.4%) |
| 5u | 71 (3.8%) |
| Unknown | 54 (2.9%) |
| Total | 1883 (100%) |

| Size of Tumor (mm) | Cases (%) |
|--------------------|--------------------|
| - 9 | 25 (1.3%) |
| 10 - 19 | 143 (7.6%) |
| 20 - 29 | 232 (12.3%) |
| 30 - 39 | 279 (14.8%) |
| 40 - 49 | 270 (14.3%) |
| 50 - 59 | 293 (15.6%) |
| 60 - 69 | 205 (10.9%) |
| 70 - 79 | 124 (6.6%) |
| 80 - 89 | 91 (4.8%) |
| 90 - 99 | 38 (2.0%) |
| 100 -109 | 24 (1.3%) |
| 110 -119 | 17 (0.9%) |
| 120 -129 | 13 (0.7%) |
| 130 -139 | 6 (0.3%) |
| 140 -149 | 4 (0.2%) |
| 150 - | 10 (0.5%) |
| Unknown | 109 (5.8%) |
| Total | 1883 (100%) |

Table 40) Histologic types of resected specimen and multiple primary cancer

| Histologic types | | Cases (%) |
|---------------------------------|------------------|-------------|
| Not examined | | 0 |
| SCC | SCC | 128 (6.8%) |
| | Well diff. | 433 (23.0%) |
| | Moderately diff. | 773 (41.1%) |
| | Poorly diff. | 368 (19.5%) |
| Adenocarcinoma | | 29 (1.5%) |
| Barrett's adenocarcinoma | | 9 (0.5%) |
| Adenosquamous cell carcinoma | | 9 (0.5%) |
| Epidermoid carcinoma | | 3 (0.2%) |
| Adenoid cystic carcinoma | | 3 (0.2%) |
| Basoloid carcinoma | | 22 (1.2%) |
| Undiff. carcinoma (small cell) | | 12 (0.6%) |
| Undiff. carcinoma | | 7 (0.4%) |
| Sarcoma | | 2 (0.1%) |
| So-called carcinosarcoma | | 13 (0.7%) |
| Pseudosarcoma | | 0 |
| True carcinosarcoma | | 2 (0.1%) |
| Malignant melanoma | | 1 (0.05%) |
| Dysplasia | | 2 (0.1%) |
| Other | | 17 (0.6%) |
| Unknown | | 56 (3.0%) |
| Total | | 1883 (100%) |

| Multiple primary cancer | Cases (%) |
|-------------------------|--------------|
| (-) | 1587 (84.3%) |
| (+) | 242 (12.9%) |
| Unknown | 54 (2.9%) |
| Total | 1883 (100%) |

Table 41) Pathological findings of resected specimen (residual cancer, intraepithelial spread, and infiltrative growth pattern)

Residual cancer cells at the transected stump

| proximal (p)/distal (d) | Cases (%) |
|-------------------------|--------------------|
| p / d (-) | 1802 (95.7%) |
| p / d (+) | 39 (2.1%) |
| Unknown | 42 (2.2%) |
| Total | 1883 (100%) |

Residual cancer cell in the cut surface of the esophageal wall (ew) of the resected spacemen

| ew | Cases (%) |
|--------------|--------------------|
| ew(-) | 1720 (91.3%) |
| ew(+) | 126 (6.7%) |
| Unknown | 37 (2.0%) |
| Total | 1883 (100%) |

Intraepithelial spread (ie)

| ie | Cases (%) |
|---------------------|--------------------|
| ie(-) | 1094 (58.1%) |
| ie(+) | 628 (33.4%) |
| ie(++)(superficial) | 48 (2.5%) |
| Unknown | 113 (6.0%) |
| Total | 1883 (100%) |

Infiltrative growth pattern (inf)

| inf | Cases (%) |
|--------------|--------------------|
| inf | 285 (15.1%) |
| inf | 1012 (53.7%) |
| inf | 203 (10.8%) |
| Unknown | 383 (20.3%) |
| Total | 1883 (100%) |

Table 42) Pathological findings of resected specimen (vessel invasion and skip metastasis)

| Lymphatic vessel invasion (ly) | | Cases (%) | |
|--------------------------------|-------|-----------|---------|
| ly0 | | 577 | (30.6%) |
| ly(+) | ly(+) | 87 | (4.6%) |
| | ly1 | 554 | (29.4%) |
| | ly2-3 | 591 | (31.4%) |
| Unknown | | 74 | (3.9%) |
| Total | | 1883 | (100%) |

| Blood vessel invasion (v) | | Cases (%) | |
|---------------------------|------|-----------|---------|
| v0 | | 905 | (48.1%) |
| v(+) | v(+) | 50 | (2.7%) |
| | v1 | 504 | (26.8%) |
| | v2-3 | 342 | (18.1%) |
| Unknown | | 82 | (4.4%) |
| Total | | 1883 | (100%) |

| Skip metastasis in the esophageal wall (im-e) | | Cases (%) | |
|-----------------------------------------------|--|-----------|---------|
| im-e (-) | | 1640 | (87.1%) |
| im-e (+) | | 179 | (9.5%) |
| Unknown | | 64 | (3.4%) |
| Total | | 1883 | (100%) |

| Skip metastasis in the stomach wall (im-st) | | Cases (%) | |
|---------------------------------------------|--|-----------|---------|
| im-st (-) | | 1750 | (92.9%) |
| im-st (+) | | 57 | (3.0%) |
| Unknown | | 76 | (4.0%) |
| Total | | 1883 | (100%) |

Table 43) Pathological findings of resected specimen (pT)

Depth of tumor invasion

| pT-category | Cases (%) |
|--------------|--------------------|
| Not examined | 4 (0.2%) |
| pT0 | 17 (0.9%) |
| pTis | 40 (2.1%) |
| pT1a | 126 (6.7%) |
| pT1b | 414 (22.0%) |
| pT2 | 233 (12.4%) |
| pT3 | 807 (42.9%) |
| pT4 | 169 (9.0%) |
| Unknown | 73 (3.9%) |
| Total | 1883 (100%) |

Subclassification of superficial carcinoma

| Subclassification | Cases (%) |
|-------------------|-------------------|
| m1 (pTis)* | 36 (6.2%) |
| m2 (pT1a)** | 22 (3.8%) |
| m3 (pT1a)*** | 101 (17.4%) |
| sm1(pT1b) | 61 (10.5%) |
| sm2 (pT1b) | 117 (20.2%) |
| sm3 (pT1b) | 152 (26.2%) |
| Unknown (pT1b) | 91 (15.7%) |
| Total | 580 (100%) |

* ep = epithel

** lpm = lamina proplia mucosa

*** mm = muscularis mucosa

Table 44) Pathological findings of resected specimen (pN)

| Lymph node metastasis | Cases | (%) |
|-----------------------|-------------|---------------|
| n(-) | 728 | (38.7%) |
| n1(+) | 179 | (9.5%) |
| n2(+) | 553 | (29.4%) |
| n3(+) | 209 | (11.1%) |
| n4(+) | 144 | (7.6%) |
| Unknown | 70 | (3.7%) |
| Total | 1883 | (100%) |

| Number of lymph node metastasis | Cases | (%) |
|---------------------------------|-------------|---------------|
| 0 | 728 | (38.7%) |
| 1~3 | 603 | (32.0%) |
| 4~7 | 249 | (13.2%) |
| 8~ | 177 | (9.4%) |
| Unknown | 126 | (6.7%) |
| Total | 1883 | (100%) |

Table 45) Pathological findings of resected specimen (grade of lymph node metastasis corrected using number of metastasis and fields of lymph node metastasis)

Grade of lymph node metastasis

(corrected using number of metastasis)

| Grade of metastasis | Cases (%) |
|---------------------|--------------------|
| gN0 | 728 (38.7%) |
| gN1(n1a) | 157 (8.3%) |
| gN2(n1b) | 13 (0.7%) |
| gN2(n2a) | 335 (17.8%) |
| gN3(n1c) | 1 (0.05%) |
| gN3(n2b) | 146 (7.8%) |
| gN3(n3a) | 71 (3.8%) |
| gN4(n2c) | 44 (2.3%) |
| gN4(n3b) | 59 (3.1%) |
| gN4(n3c) | 64 (3.4%) |
| gN4(n4a) | 24 (1.3%) |
| gN4(n4b) | 42 (2.2%) |
| gN4(n4c) | 65 (3.5%) |
| Unknown | 134 (7.1%) |
| Total | 1883 (100%) |

Number of lymph node metastasis

a : 1~3

b : 4~7

c : 8~

Fields of lymph node metastasis

| Field of metastasis | Cases (%) |
|---------------------|--------------------|
| n(-) | 728 (38.7%) |
| C | 58 (3.1%) |
| A+C | 74 (3.9%) |
| A+B+C | 96 (5.1%) |
| B+C | 11 (0.6%) |
| A | 247 (13.1%) |
| A+B | 274 (14.6%) |
| B | 269 (14.3%) |
| Unknown | 126 (6.7%) |
| Total | 1883 (100%) |

A: mediastinal lymph nodes

B: abdominal lymph nodes

C: cervical lymph nodes

Fig. 8) N-category in Japanese Classification (JSED 1998 ~)

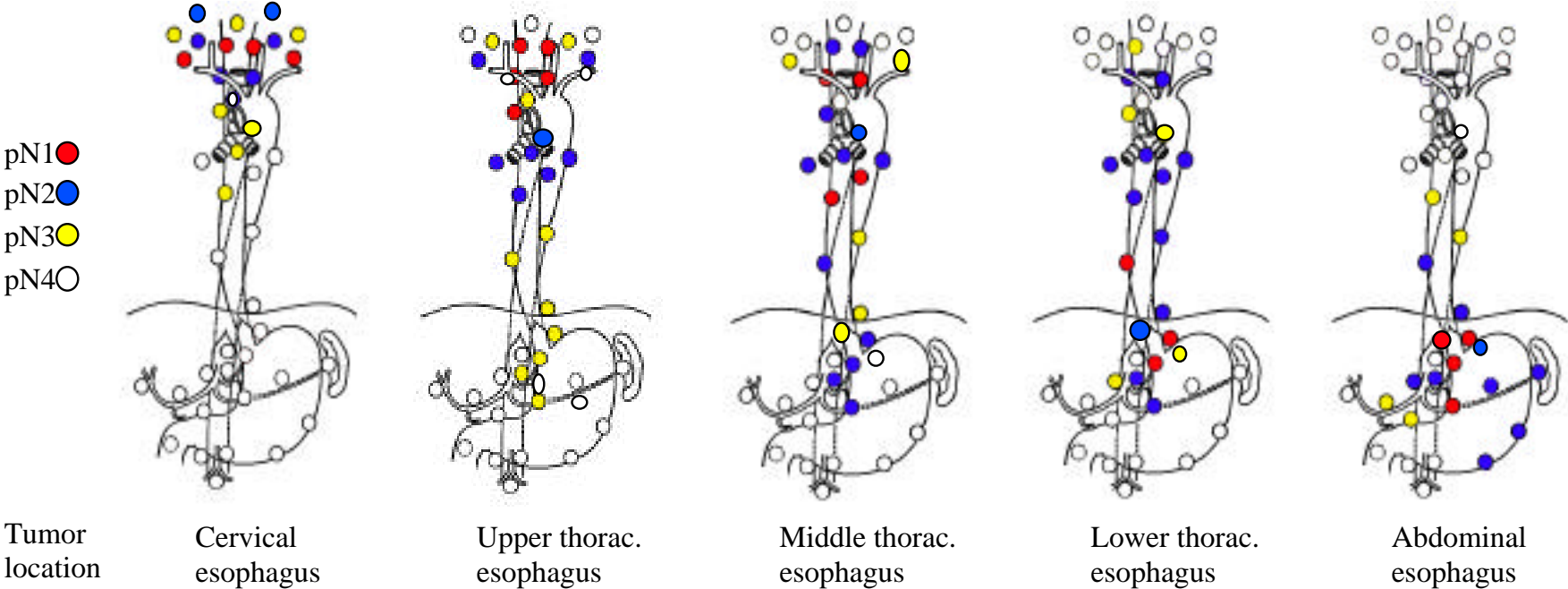


Fig. 9) Grade of metastasis (gN) corrected by number of metastatic node (JSED 1998 ~)

| pN-category of JSED | Number of lymph node metastasis | | | |
|---------------------|---------------------------------|-----------|-----------|----------|
| | 0 | a:(1~3) | b:(4~7) | c:(8~) |
| pN0 | gN0 | | | |
| pN1 | | gN1 | gN2 | gN3 |
| pN2 | | gN2 | gN3 | |
| pN3 | | gN3 | | |
| pN4 | | | gN4 | |

Fig. 10) Pathological Stage of JSED (1998 ~)

| | gN0 | gN1 | gN2 | gN3 | gN4 | M1 |
|-----|-----|-----|-----|-----|-----|-----|
| Tis | 0 | | | | | |
| T1a | 0 | I | | | | |
| T1b | I | | | | | |
| T2 | | II | | | | |
| T3 | | | III | | IVa | IVb |
| T4 | III | | | | | |

Table 46) Pathological findings of resected specimen (distant metastasis, stage, grade of dissection, and curability)

| Distant metastasis (pM) | Cases | (%) |
|-------------------------|-------------|---------------|
| pM0 | 1753 | (93.1%) |
| pM1 | 52 | (2.8%) |
| Unknown | 78 | (4.1%) |
| Total | 1883 | (100%) |

| Pathological stage | Cases | (%) |
|--------------------|-------------|---------------|
| 0 | 132 | (7.0%) |
| I | 215 | (11.4%) |
| II | 453 | (24.1%) |
| III | 459 | (24.4%) |
| IVa | 326 | (17.3%) |
| IVb | 42 | (2.2%) |
| Unknown | 256 | (13.6%) |
| Total | 1883 | (100%) |

| Grade of dissection (D) | Cases | (%) |
|-------------------------|-------------|---------------|
| D0 | 156 | (8.3%) |
| DI | 212 | (11.3%) |
| DII | 667 | (35.4%) |
| DIII | 757 | (40.2%) |
| Unknown | 91 | (4.8%) |
| Total | 1883 | (100%) |

| Curability | Cases | (%) |
|-----------------------------|-------------|---------------|
| Absolutely curative (a) | 1048 | (55.7%) |
| Relatively curative (b) | 556 | (29.5%) |
| Absolutely non-curative (c) | 208 | (11.0%) |
| Unknown | 71 | (3.8%) |
| Total | 1883 | (100%) |

Table 47) Pathological findings of resected specimen (residual tumor, multiple cancers, and multiple lesions)

| Residual tumor (R) | Cases (%) |
|--------------------|--------------------|
| R0 | 1529 (81.2%) |
| R1 | 125 (6.6%) |
| R2 | 134 (7.1%) |
| Rx | 95 (5.1%) |
| Total | 1883 (100%) |

| Primary multiple cancers | Cases (%) |
|--------------------------|--------------------|
| (-) | 1587 (84.3%) |
| (+) | 242 (12.9%) |
| Unknown | 54 (2.9%) |
| Total | 1883 (100%) |

| Multiple malignant lesions | Cases (%) |
|----------------------------|--------------------|
| (-) | 1496 (79.4%) |
| (+) | 258 (13.7%) |
| Unknown | 129 (6.9%) |
| Total | 1883 (100%) |

| Number of malignant lesions | Cases (%) |
|-----------------------------|--------------------|
| 0 | 1496 (79.4%) |
| 1 | 47 (2.5%) |
| 2 | 139 (7.4%) |
| 3 | 42 (2.2%) |
| 4 | 7 (0.4%) |
| 5 ~ | 7 (0.4%) |
| Unknown | 145 (7.7%) |
| Total | 1883 (100%) |

Table 48) Adjuvant therapy for cases of esophagectomy

| Radiotherapy | Cases | (%) |
|-------------------------|-------------|---------------|
| (-) | 941 | (50.0%) |
| Preoperative | 343 | (18.2%) |
| Pre+intraoperative(IOR) | 1 | (0.05%) |
| Pre+postoperative | 17 | (0.9%) |
| IOR | 4 | (0.2%) |
| IOR+postoperative | 22 | (1.2%) |
| Postoperative | 406 | (21.6%) |
| Time to recurrence | 147 | (7.8%) |
| Unknown | 2 | (0.1%) |
| Total | 1883 | (100%) |

| Doses of irradiation (Gy) | Cases | (%) |
|---------------------------|-------------|---------------|
| 0 | 941 | (68.0%) |
| 1 ~ 19 | 4 | (1.7%) |
| 20 ~ 39 | 78 | (5.6%) |
| 40 ~ 59 | 195 | (13.8%) |
| 60 ~ 79 | 78 | (6.8%) |
| 80 ~ 99 | 6 | (0.5%) |
| 100~ | 3 | (0.2%) |
| Unknown | 578 | (3.4%) |
| Total | 1883 | (100%) |

| Chemotherapy | Cases | (%) |
|-------------------------|-------------|---------------|
| (-) | 1262 | (67.0%) |
| Preoperative | 271 | (14.4%) |
| Pre+intraoperative(IOR) | 1 | (0.05%) |
| Pre+IOR+postoperative | 1 | (0.05%) |
| Pre+postoperative | 39 | (2.1%) |
| Intraoperative (IOR) | 1 | (0.05%) |
| IOR+postoperative | 1 | (0.05%) |
| Postoperative | 244 | (13.0%) |
| Time to recurrence | 39 | (2.1%) |
| Unknown | 24 | (1.3%) |
| Total | 1883 | (100%) |

| Type of chemotherapy | Cases | (%) |
|------------------------------|-------------|---------------|
| (-) | 1262 | (67.0%) |
| Chemotherapy alone | 282 | (47.2%) |
| Concurrent chemoradiotherapy | 132 | (22.1%) |
| Sequential chemoradiotherapy | 146 | (24.5%) |
| Others | 8 | (1.3%) |
| Unknown | 29 | (4.9%) |
| Total | 1883 | (100%) |

Table 49) Outcome of cases with esophagectomy

| Outcome | Cases (%) |
|---------------------|--------------------|
| Alive | 1040 (55.2%) |
| Dead | 686 (36.4%) |
| Lost of information | 62 (3.3%) |
| Unknown | 95 (5.1%) |
| Total | 1883 (100%) |

| Courses of death | Cases (%) |
|-----------------------------------|-------------------|
| Death due to recurrence | 499 (72.7%) |
| Death due to other cancer | 8 (1.2%) |
| Death due to other diseases(rec+) | 10 (1.5%) |
| Death due to other diseases(rec-) | 39 (5.7%) |
| Death due to other diseases(rec?) | 5 (0.7%) |
| Operative death* | 30 (4.4%) |
| Postoperative hospital death** | 53 (7.7%) |
| Unknown | 42 (6.1%) |
| Total death cases | 686 (100%) |

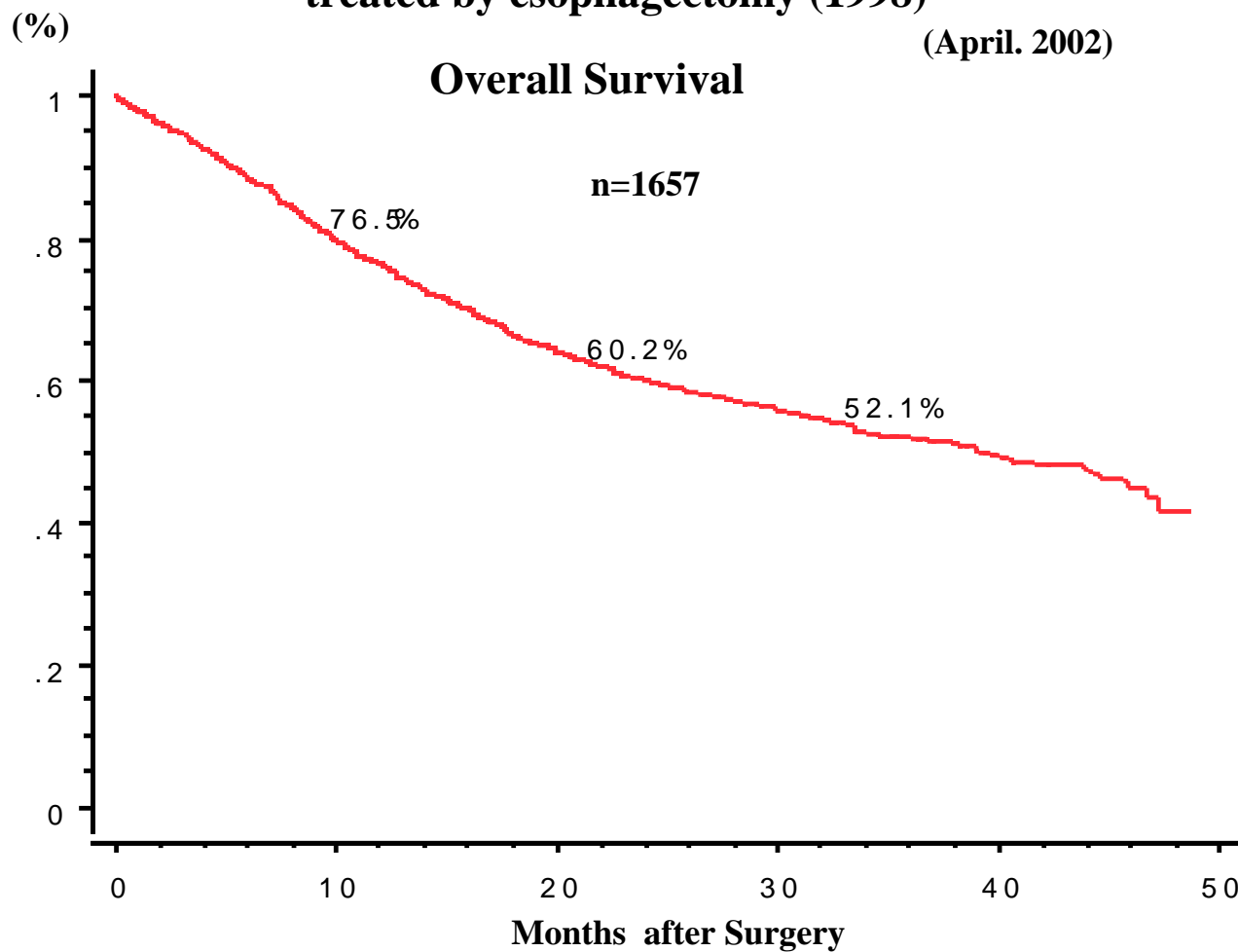
| Initial recurrence lesion of death cases | Cases (%) |
|------------------------------------------|-------------------|
| None | 105 (11.0%) |
| Lymph node | 250 (26.2%) |
| Lung | 102 (10.7%) |
| Liver | 107 (11.2%) |
| Bone | 69 (7.2%) |
| Brain | 9 (0.8%) |
| Primary lesion | 104 (10.9%) |
| Dissemination | 62 (6.5%) |
| Anastomotic region | 7 (0.7%) |
| Others | 37 (3.9%) |
| Unknown | 104 (10.9%) |
| Total of recurrence lesion | 955 (100%) |
| Total death cases | 686 |

* Death within 30 days

** Death over 30 days

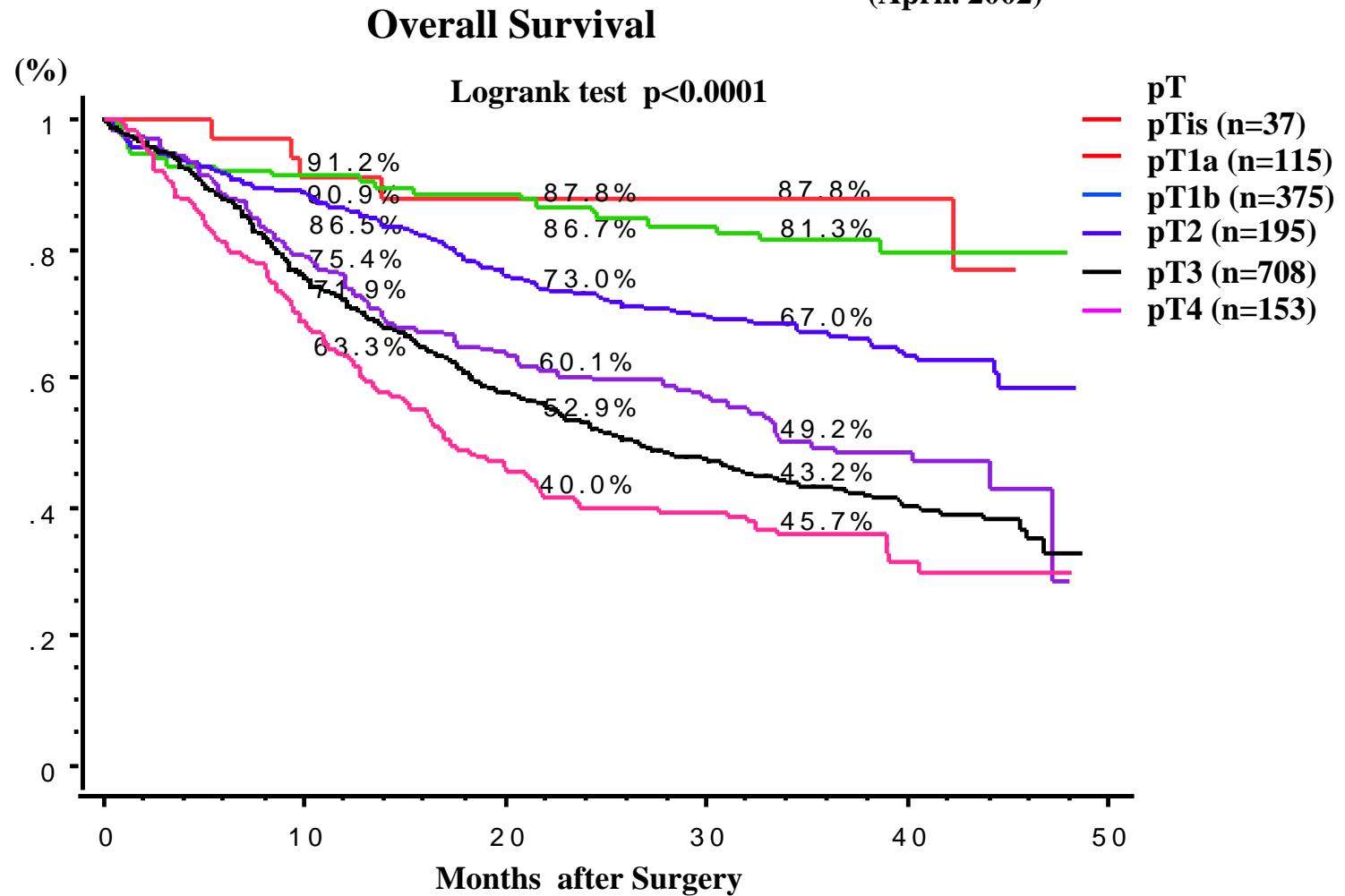
**Figure 11) Overall survival curves of patients
treated by esophagectomy (1998)**

(April, 2002)



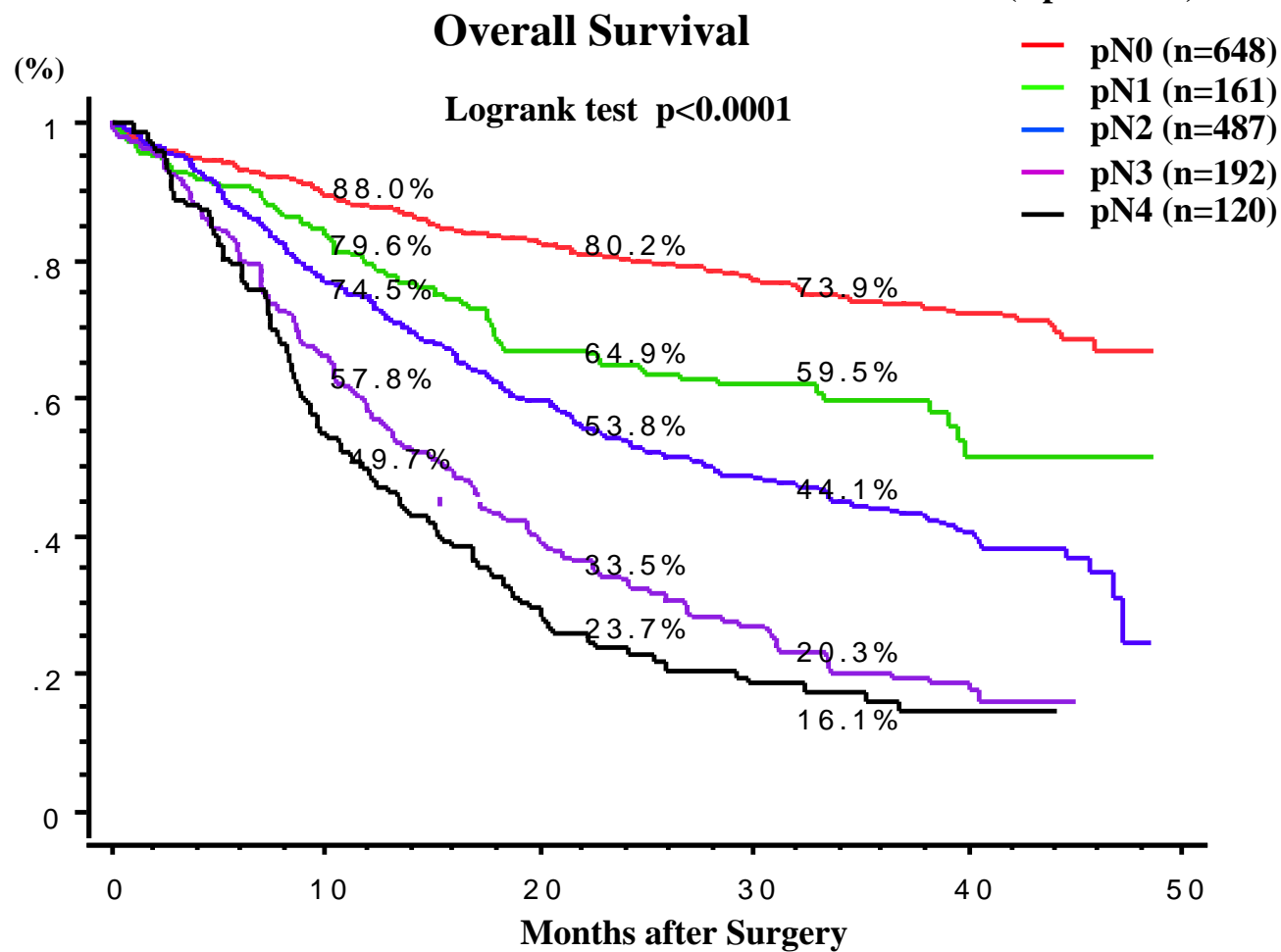
**Figure 12) Survival of patients treated by esophagectomy
in relation to depth of tumor invasion (pT)**

(April, 2002)



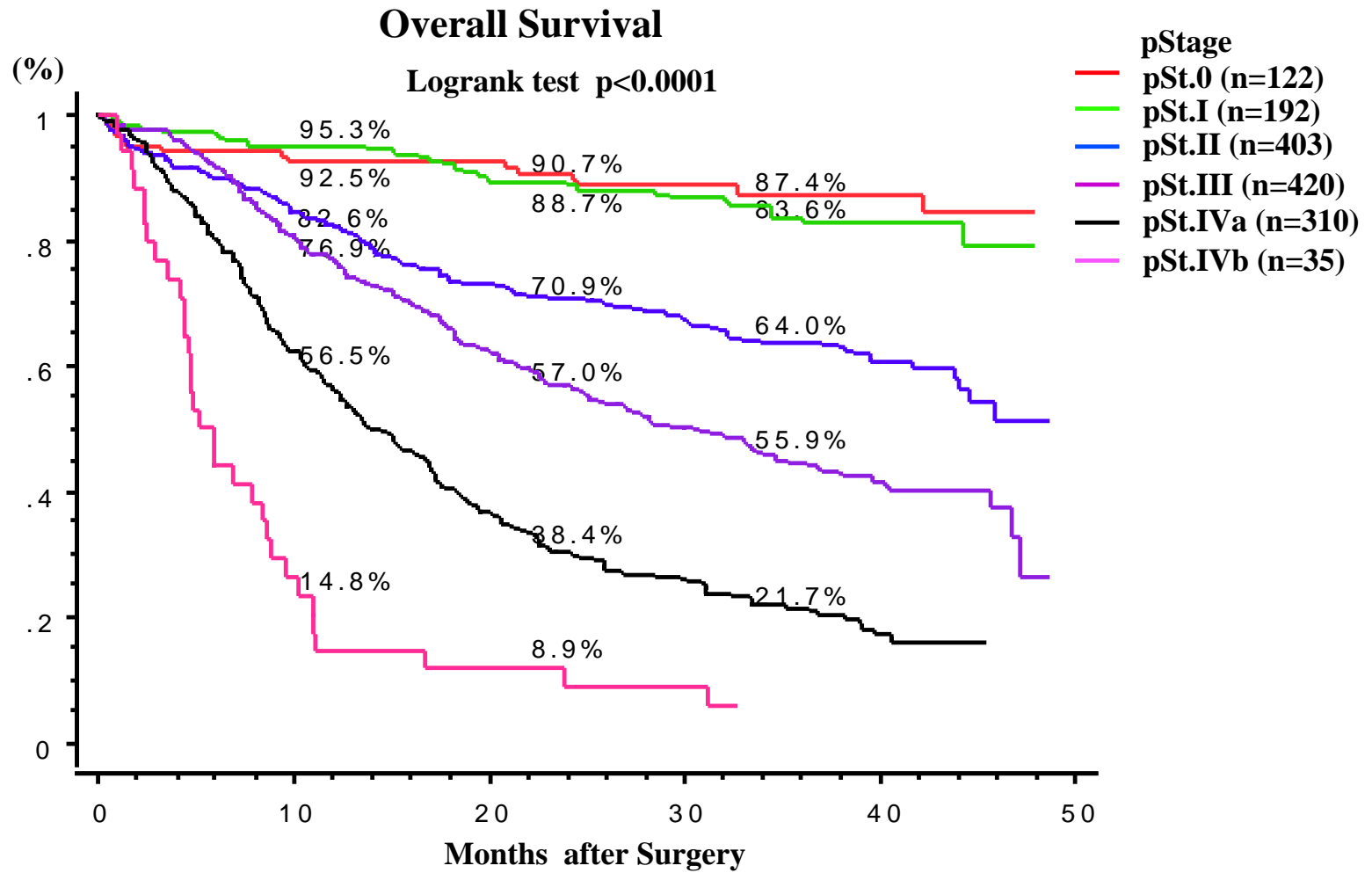
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in relation to lymph node metastasis (pN)**

(April, 2002)



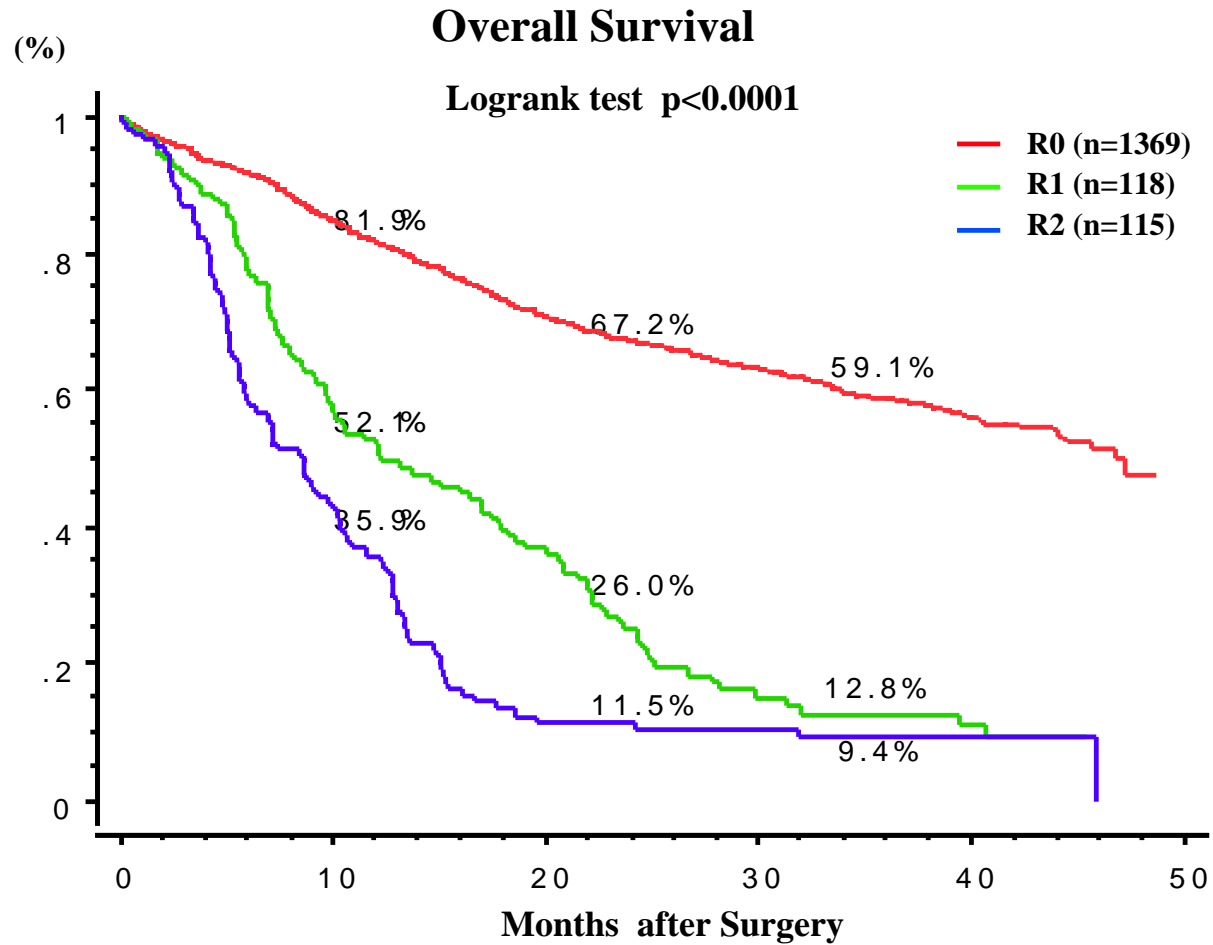
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(April, 2002)



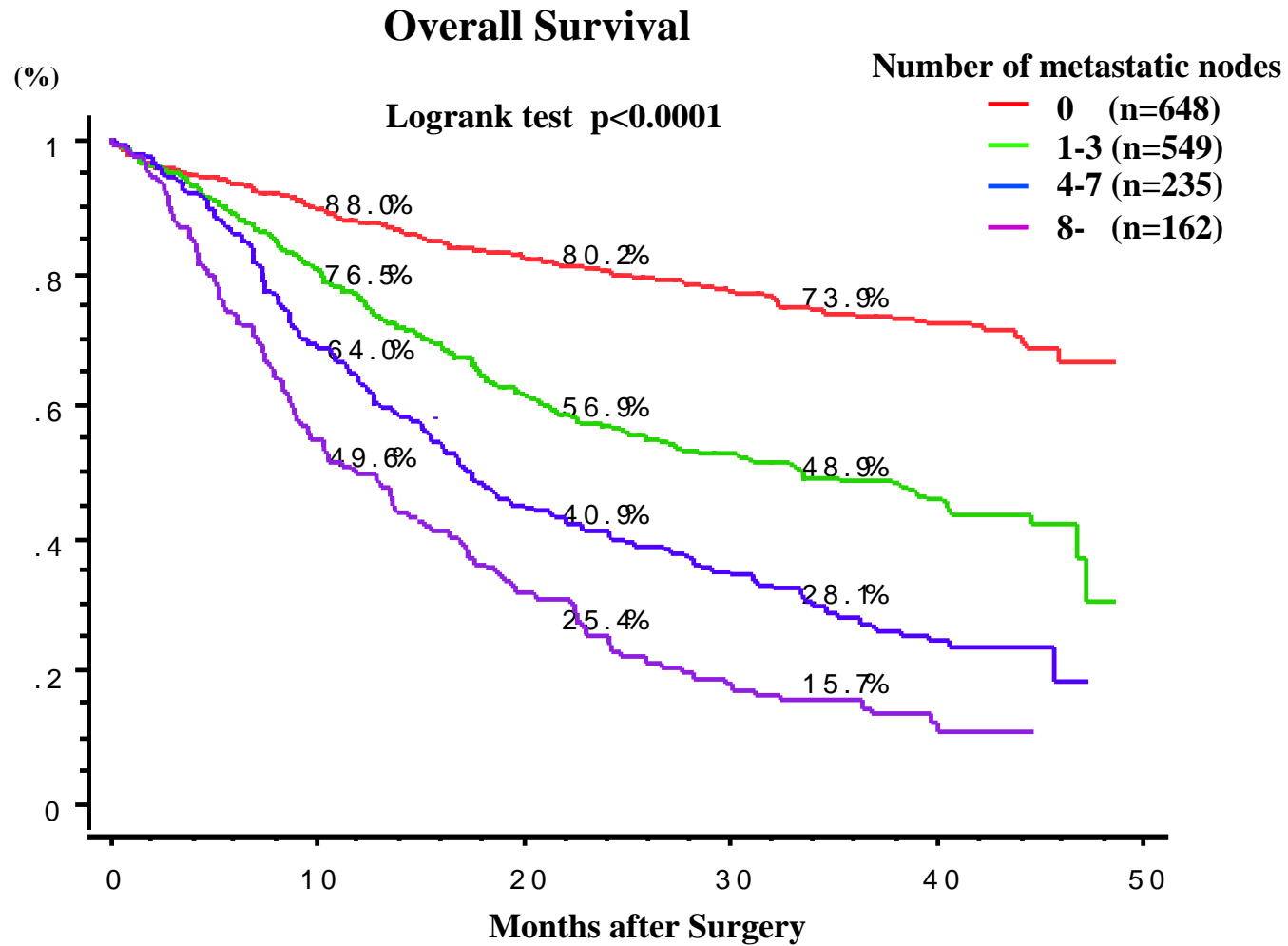
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(April. 2002)



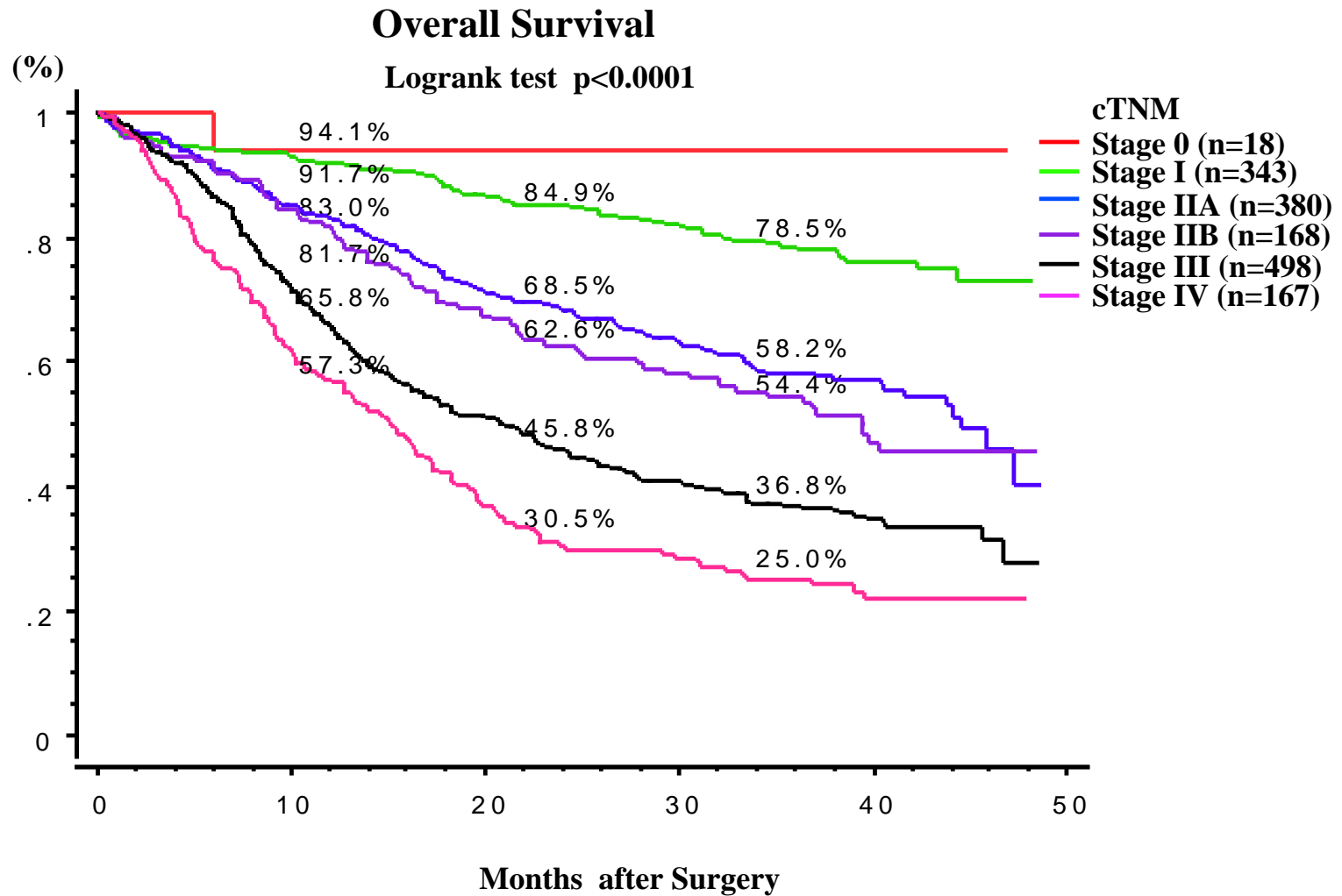
**Figure 16) Survival of patients treated by esophagectomy
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(April. 2002)



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(April, 2002)



**Comprehensive Registry of
Esophageal Cancer in Japan
(1999)**

JSED

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Figure 4) Cumulative survival curves of patients treated by chemotherapy and/or radiotherapy

Figure 5) Cumulative survival curves of patients treated by chemotherapy and/or radiotherapy

Figure 6) Cumulative survival curves of patients treated by chemotherapy and/or radiotherapy

IV. Clinical Results in Patients treated by Palliative Operation in 1999

Table 28) Palliative operation cases without esophagectomy

Table 29) Effectiveness of treatments (Palliative operation cases without esophagectomy)

Figure 7) Cumulative survival curves of patients treated by palliative surgery (cTNM)

V. Clinical Results in Patients treated with Esophagectomy in 1999

Table 30) Cases of esophagectomy (treatment, surgical procedure, and location of the tumor)

Table 31) Cases of esophagectomy (surgical approach and region of lymphadenectomy)

Table 32) Cases of esophagectomy (esophageal reconstruction)

Table 33) Cases of intrathoracic esophagectomy (location of the tumor and reconstruction route)

Table 34) Cases of esophagectomy for external lesion of the thorax (location of the tumor and reconstruction route)

Table 35) Cases of intrathoracic esophagectomy (location of the tumor and lymph node dissection)

Table 36) Cases of esophagectomy for external lesion of the thorax (location of the tumor and lymph node dissection)

Table 37) Cases of esophagectomy (vascular anastomosis and endoscopic surgery)

Table 38) Cases of esophagectomy (operative findings of cT and combined resected organs)

Table 39) Cases of esophagectomy (operative findings of the tumor feature and size)

Table 40) Histologic types of resected specimen and multiple primary cancer

Table 41) Pathological findings of resected specimen (residual cancer, intraepithelial spread, and infiltrative growth pattern)

Table 42) Pathological findings of resected specimen (vessel invasion and skip metastasis)

Table 43) Pathological findings of resected specimen (pT)

Table 44) Pathological findings of resected specimen (pN)

Table 45) Pathological findings of resected specimen (grade of lymph node metastasis corrected using number of metastasis and fields of lymph node metastasis)

Figure 8) N-category in Japanese Classification (JSED 1998 ~)

Figure 9) Grade of metastasis (gN) corrected by number of metastatic node (JSED 1998 ~)

Figure10) Pathological Stage of JSED (1998 ~)

Table 46) Pathological findings of resected specimen (distant metastasis, stage, grade of dissection, and curability)

Table 47) Pathological findings of resected specimen (residual tumor, multiple cancers, and multiple lesions)

Table 48) Adjuvant therapy for cases of esophagectomy

Table 49) Outcome of cases with esophagectomy

Figure11) Overall survival curves of patients treated by esophagectomy (1999)

Figure12) Survival of patients treated by esophagectomy in relation to depth of tumor invasion (pT)

Figure13) Survival of patients treated by esophagectomy in relation to lymph node metastasis (pN)

Figure14) Survival of patients treated by esophagectomy in relation to pathological stage

Figure15) Survival of patients treated by esophagectomy in relation to residual tumor (R)

Figure16) Survival of patients treated by esophagectomy in relation to number of metastatic node

Figure17) Survival of patients treated by esophagectomy in relation to clinical TMN-Stage

I. Clinical Factors of Esophageal Cancer Patients treated in 1999

1. Institutions registrating cases in 1999

Institutions (No.1)

| Inst# | Institutions | Inst# | Institutions |
|-------|----------------------------------------------------------------------|-------|--------------------------------------------------------------------------|
| 03e01 | Dept. of Surg. Tokai Univ. School of Med. Tokyo Hospital | 3811 | Dept. Surg. Institute of Gastroenterology Tokyo Wemen's Medical Univ. |
| 1102 | Second Dept. of Surg. Hokkaido Univ. School of Med. | 3821 | Dept. Surg. Tokyo Wemen's Medical Univ. Second Hospital |
| 1202 | First Dept. of Surg. Sapporo Med. Univ. | 3901 | First Dept. of Surg. The Jikei Univ. School of Med. |
| 1203 | First Dept. of Medicne. Sapporo Med. Univ. | 4001 | First Dept. of Surg. Yamanashi Med. Univ. School of Med. |
| 1302 | Second Dept. of Surg. Asahikawa Med. Univ. | 4201 | Dept of Surg. Tokai Univ. School of Med. |
| 1401 | First Dept. of Surg. Hirosaki Med. Univ. School of Med. | 4302 | Second Dept. of Surg. Yokohama City Univ. School of Med. |
| 1406 | First Dept. of Medicine Hirosaki Med. Univ. School of Med. | 4402 | Second Dept. of Surg. St. Marianna Univ. School of Med. |
| 1501 | First Dept. of Surg. Iwate Med. Univ. School of Med. | 4501 | Dept of Surg. Kitazato Univ. School of Med. |
| 1601 | First Dept. of Surg. Yamagata Univ. School of Med. | 4511 | Dept. of Digestive Surg. Kitazato Univ. East Hospital |
| 1802 | Second Dept. of Surg. Akita Univ. School of Med. | 4601 | Dept. of Surg. Juntendo Univ. Nagaoka Hospital |
| 1901 | First Dept. of Surg. Fukushima Medical School | 5202 | Second Dept. of Surg., Toyama Med. and Pharmaceutical Univ. |
| 2101 | First Dept. of Surg. Gunma Univ. School of Med. | 5301 | First Dept. of Surg. Shinsyu Univ. School of Med. |
| 2102 | Second Dept. of Surg. Gunma Univ. School of Med. | 5302 | Second Dept. of Surg. Juntendo Univ. School of Med. |
| 2106 | First Dept. of Medicne. Gunma Univ. School of Med. | 5501 | First Dept. of Surg. Nagoya Univ. School of Med. |
| 2301 | First Dept. of Surg. Dokkyo Med. Univ. School of Med. | 5502 | Secondt Dept. of Surg. Nagoya Univ. School of Med. |
| 2311 | Dept of Surg. Dokkyo Med. Univ. School of Med. Koshigaya Hospital | 5506 | Second Dept. of Medicine. Nagoya Univ. School of Med. |
| 2401 | Dept. of Surg. Tsukuba Univ. School of Med. | 5601 | First Dept. of Surg., Nagoya City Univ. School of Med. |
| 2502 | Second Dept. of Surg. Saitama Medical Univ. | 5602 | Second Dept. of Surg., Nagoya City Univ. School of Med. |
| 2602 | Second Dept. of Surg National Defense Medical College | 5701 | First Dept. of Surg. Gifu Univ. School of Med. |
| 2702 | Second Dept. of Surg. Chiba Univ. School of Med. | 5803 | Dept. of Funabiki-Surg. Fujita Health Univ. School of Med. |
| 2705 | Dept. of Endoscopic Diagnostics & Therapautics, Chiba Univ. | 5811 | Fujita Health Univ. School of Med. Houtokukai Hospital |
| 3301 | First Dept. of Surg. Tokyo Univ. School of Med. | 6101 | First Dept. of Surg. Shiga Univ. School of Med. |
| 3303 | First Dept. of Surg. Tokyo Med. & Dental Univ. School of Med. | 6207 | Third Dept. of Kyoto Prefectural Univ. of Med. |
| 3401 | First. Dept. of Surg. Juntendo Univ. School of Med. | 6304 | Dept. of Radiology Kyoto Univ. School of Med. |
| 3501 | First Dept. of Surg. Juntendo Univ. School of Med. | 6311 | Dept. of Surgical oncology Kyoto Univ. School of Med. |
| 3703 | Therd Dept. of Surg. Tokyo Medical Univ. | 6502 | Second Dept. of Surg. Kansai Medical Univ. |
| 3804 | Dept. of Ragiol. Tokyo Women's Medical Univ. | 6601 | Div. of General & Gastroenterological Surg. Osaka Univ. |

Institutions (No.2)

| Inst# | Institutions | Inst# | Institutions |
|-------|------------------------------------------------------------------------------|-------|-------------------------------------------------------------|
| 6602 | Dept. of Surg. and Clinical Oncology(E2) Graduate School of Med. Osaka Univ. | 9502 | Second Dept. of Surg. Nagasaki Univ. School of Med |
| 6701 | First Dept. of Surg. Osaka City Univ. School of Med. | 9602 | Second Dept. of Surg., Kumamoto Univ., School of Med. |
| 6704 | Dept. of Radiology Osaka City Univ. School of Med. | 9802 | First Dept. of Second Dept. of Surg. Miyazaki Medical Univ. |
| 6801 | First Dept. of Surg. Kinki Univ. School of Med. | 9901 | First Dept. of Surg. Kagoshima Univ. School of Med. |
| 6802 | Second Dept. of Surg. Kinki Univ. School of Med. | 9991 | First Dept. of Surg. Univ. of the Ryukyu school of Med. |
| 7002 | Second Dept. of Surg. Wakayama Medical Univ. School of Med. | 9994 | Dept. of Radiology. Ryukyu Univ. School of Med. |
| 7102 | Second Dept. of Surg. Kanazawa Univ. School of Med. | 10011 | Sapporo National Hospital |
| 7201 | First Dept. of Surg. Fukui Med. Univ. | 10014 | Sapporo National Hospital Hokkaido Cancer Center |
| 7301 | First Dept. of Surg. Kobe Univ. School of Med. | 10021 | National Cancer Center Central Hospital |
| 7302 | Second Dept. of Surg. Kobe Univ. School of Med. | 10031 | National Cancer Center East Hospital |
| 7304 | Dept. of Radiology, Kobe Univ. School of Med. | 10081 | National Shikoku Cancer Center Hospital |
| 7401 | First Dept. of Surg. Hyogo Medical Univ. | 10101 | Dept of Surg. Hakodate National Hospital |
| 8001 | First Dept. of Surg. Okayama Univ. School of Med. | 11201 | Dept of Surg. Sendai National Hospital |
| 8002 | Second Dept. of Surg. Okayama Univ. School of Med. | 11301 | Dept of Surg. Mito National Hospital |
| 8302 | Second Dept. of Surg. Shimane Medical Univ. | 12101 | Dept of Surg. Numata National Hospital |
| 8402 | Second Dept. of Surg. Hiroshima Univ. School of Med. | 13301 | Dept of Surg. International Medical Center In Japan |
| 8411 | Dept. of Surg. Reserch Inst. foir Nucler Med. & Biology Hiroshima Univ. | 14401 | Dept of Surg. Kasumigaura National Hospital |
| 8502 | Dept. of Surg. 2, Yamaguchi Univ. School of Med. | 14801 | National Kanazawa Hospital |
| 8507 | First dept. of Int. Med., Yamaguchi Univ. School of Med. | 19041 | Beppu National Hospital |
| 8601 | First Dept. of Surg. Tokushima Univ. School of Med. | 19061 | Dept of Surg. Miyakonojo National Hospital |
| 9102 | Second Dept. of Surg. Kyushu Univ. School of Med. | 19071 | Dept of Surg. Ibusuki National Hospital |
| 9104 | Dept of Radiology Kyushu Univ. School of Med. | 21061 | Dept of Surg. Fukushima Prefectural Aizu Sogo Hospital |
| 9201 | First Dept. of Surg. Fukuoka Univ. School of Med. | 21091 | Dept of Surg. Iwaki City Sogo Iwakikyoritul Hospital |
| 9202 | Second Dept. of Surg. Fukuoka Univ. School of Med. | 21101 | Dept. of Surg. Iwate Prefectural Isawa Hospital |
| 9211 | Dept. of Surg. Fukuoka Univ. School of Med. Tukushi Hospital | 22011 | Dept of Surg. Niigata Cancer Center Hospital |
| 9301 | Dept. of Surg. Kurume Univ. School of Med. | 22021 | Dept of Surg. Niigata Prefectural Shibata Hospital |
| 9302 | Dept. of Medicalcenter Kurume Univ. School of Med. | 23011 | Metropolitan Komagome General Hospital |
| | | 23021 | Dept of Surg. Metroporitan Hiroo Hospital |
| | | 23031 | Dept of Surg. Metroporitan Futyu Hospital |

Institutions (No.3)

| Inst# | Institutions | Inst# | Institutions |
|--------------|----------------------------------------------------------|--------------|-----------------------------------------------------------------|
| 24011 | Dept of Surg. Gunma Cancer Center Toumou Hospital | 36041 | Dept of Surg. Suita City Hospital |
| 24031 | Dept of Surg. Tochigi Cancer Center | 36081 | Dept of Surg. Izumi City Hospital |
| 24051 | Dept of Digestive Surg. Chiba Cancer Center | 37111 | Dept of Surg. Kobe City Central Hospital |
| 24061 | Dept. Surg. 1 Kanagawa Pref. Cancer Center | 37121 | Nishinomiya Municipal Central Hospital |
| 24101 | Dept of Surg. West Hamamatsu Medical Cancer Center | 37200 | Hiroshima City Asa Hospital |
| 25021 | Dept. of Digestive Surg. Ishikawa Pref. Central Hospital | 37211 | Dept of Surg. Matsue City Hospital |
| 25032 | Dept of Thoracic Surg. Aichi Cancer Center | 39111 | Dept of Surg. Kitakyusyu City Medical Center Hospital |
| 25041 | Dept of Surg. Fukui Prefectural Hospital | 39121 | Dept of Surg. Kitakyusyu City Yahata Hospital |
| 26011 | Osaka Adult Disease Center | 40011 | Dept of Surg. Tonan Hospital |
| 27014 | Dept of Radiology Hyogo Adult Disease Center | 40311 | Dept of Surg. Toranomom Hospital |
| 27031 | Dept of Surg. Hyogo Prefectural Kakogawa Hospital | 40711 | Dept of Surg. Kinki Center Hospital |
| 27041 | Dept of Surg. Tottori Prefectural Central Hospital | 41411 | Gunmaken Saiseikai Maebashi Hospital |
| 28021 | Dept of Surg. Kochi Prefectural Central Hospital | 41512 | Aich-Saiseikai Hospital |
| 29011 | Dept of Surg. Saga Prefectural Kouseikan Hospital | 41731 | Dept of Surg. Okayama Rousai Hospital |
| 29041 | Miyazaki Prefectural Nichinan Hospital | 42121 | Akita Red Cross Hospital |
| 30011 | Sapporo City General Hospital | 42211 | Dept of Surg. Nagaoka Red Cross Hospital |
| 31031 | Hachinohe City Hospital | 42311 | Japanese Red Cross Medical Center |
| 31051 | Sakata City Hospital | 42651 | Dept of Surg. Yamada Red Cross Hospital |
| 31061 | Dept of Surg. Tsuruoka City Syounai Hospital | 42711 | Dept of Surg. Oncol. Res. Inst. Rad. Biol. Med. Hiroshima Univ. |
| 34021 | Urawa Municipal Hospital | 42831 | Dept. of Surg. Matsuyama Red Cross Hospital |
| 34051 | Dept of Surg. Numazu City Hospital | 43021 | Dept of Surg. Kushiro Rosai Hospital |
| 34061 | Kakegawa Municipal Hospital | 43621 | Wakayama Rosai Hospital |
| 34121 | Yamato Municipal Hospital | 43711 | Dept of Surg. Kansai Rosai Hospital |
| 34131 | Hiratsuka City Hospital | 44011 | Sapporo Social Insurance General Hospital |
| 35031 | Dept of Surg. Ogaki City Hospital | 44311 | Dept of Surg. Social Insurance General Center Hospital |
| 35041 | Dept of Surg. Gifu City Hospital | 44541 | Social Insurance Chukyo Hospital |
| 35081 | Dept of Surg. Nagahama City Hospital | 44721 | Dept of Surg. Social Insurance Shimonoseki Kosei Hospital |

Institutions (No.4)

| Inst# | Institutions | Inst# | Institutions |
|--------------|-------------------------------------------------------------------------------------|--------------|------------------------|
| 44911 | Dept of Surg. Social Insurance Ogura Memorial Hospital | 69211 | Mitsui Ohmuta Hospital |
| 45111 | Dept of Medicine Yamamoto Union General Hospital | | |
| 45411 | Dept of Surg. Kokuho Seitou Hospital | | |
| 46011 | Obihiro Kousei Hospital | | |
| 46111 | Dept. of Surg. Sendai Kousei Hospital | | |
| 46311 | Tohoku Welfare Pension Hospital | | |
| 46421 | Dept. of Surg. Kiryu Kousei Hospital | | |
| 47111 | Dept. of Surg. Tohokukosai Hospital | | |
| 47311 | Dept. of Surg. Tachikawa Hospital | | |
| 48111 | Dept. of Surg. NTT Tohoku Hospital | | |
| 48611 | Dept. of Surg. Osaka Teishin Hospital | | |
| 52301 | Tokyo Metropolitan Police Hospital | | |
| 53302 | Dept. of Surg. Tamananbu-Chiiki Hospital | | |
| 60019 | Dept. of Surg. Nikko Memorial Hospital | | |
| 60041 | Dept. of Surg. Keiyukai Sapporo Hospital | | |
| 61011 | Dept. of Surg. Ota nishinouchi Hospital | | |
| 61041 | Dept. of Surg. Takeda Sogo Hospital | | |
| 61051 | Dept. of Surg. Hirashika Sogo Hospital | | |
| 63041 | Fed. of National Public Services and Personnel Mutual Aid Assoc Mishuku Hospital | | |
| 64441 | Dept. of Surg. NKK Hospital | | |
| 64521 | Dept. of Surg. Showainan Sogo Hospital | | |
| 66211 | Dept. of Abdominal Surg. Tenri Hospital | | |
| 66351 | Dept. of Surg. Matsushita Memorial Hospital | | |
| 67111 | Dept. of Surg. Kobekogyo(Koko) Hospital | | |
| 67411 | Inst. of Gastroenterol. Hofu Digestive Center | | |
| 68111 | Sumitomo Besshi Hospital | | |

2. Patient Background

Table 1) Age, gender and treatment

| Age | Cases (%) | Male | Female | Unknown | EMR*/ Stenting | Chemotherapy/ Radiotherapy | Palliative operation | Esopha- gectomy | Unknown |
|--------------|--------------------|-------------------------|------------------------|----------|-----------------------|-------------------------------|-------------------------|-------------------------|----------------------|
| ~29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30~39 | 4 (0.1%) | 3 | 1 | 0 | 0 | 2 | 0 | 2 | 0 |
| 40~49 | 146 (4.8%) | 122 | 24 | 0 | 4 | 42 | 4 | 96 | 0 |
| 50~59 | 763 (25.2%) | 665 | 98 | 0 | 56 | 172 | 18 | 506 | 11 |
| 60~69 | 1111 (36.8%) | 992 | 119 | 0 | 85 | 267 | 22 | 724 | 13 |
| 70~79 | 806 (26.7%) | 700 | 106 | 0 | 83 | 263 | 16 | 424 | 20 |
| 80~89 | 130 (4.3%) | 112 | 18 | 0 | 18 | 64 | 3 | 41 | 4 |
| 90~ | 8 (0.3%) | 6 | 2 | 0 | 1 | 6 | 0 | 1 | 0 |
| Unknown | 54 (1.8%) | 47 | 7 | 0 | 3 | 24 | 2 | 23 | 2 |
| Total | 3022 (100%) | 2647 (87.6%) | 375 (12.4%) | 0 | 250 (8.3%) | 840 (27.8%) | 65 (2.2%) | 1817 (60.1%) | 50 (1.7%) |

*EMR:endoscopic mucosal resection

Table 2) Area of patient's residence and occupation

| Area | No. of cases (%) | Area | No. of cases (%) | Occupation | Cases (%) |
|--------------|--------------------|-----------|------------------|---------------------------------|--------------------|
| Total | 3022 (100%) | Miyazaki | 29 (1.0%) | None | 390 (12.9%) |
| Aichi | 93 (3.1%) | Nagano | 37 (1.2%) | Professional | 355 (11.7%) |
| Akita | 61 (2.0%) | Nagasaki | 30 (1.0%) | Management | 244 (8.1%) |
| Aomori | 22 (0.7%) | Nara | 23 (0.8%) | Office worker | 476 (15.8%) |
| Chiba | 160 (5.3%) | Niigata | 47 (1.6%) | Sales worker | 136 (4.5%) |
| Ehime | 21 (0.7%) | Oita | 10 (0.3%) | Farm/Forestry/Marine product | 182 (6.0%) |
| Fukui | 21 (0.7%) | Okayama | 38 (1.3%) | Mining and Quarrying | 10 (0.3%) |
| Fukuoka | 158 (5.2%) | Okinawa | 34 (1.1%) | Transport and communication | 80 (2.6%) |
| Fukushima | 35 (1.2%) | Osaka | 247 (8.2%) | Industrial technician | 198 (6.6%) |
| Gifu | 36 (1.2%) | Saga | 19 (0.6%) | General worker/Service industry | 166 (5.5%) |
| Gunma | 77 (2.5%) | Saitama | 105 (3.5%) | Others | 58 (1.9%) |
| Hiroshima | 47 (1.6%) | Shiga | 32 (1.1%) | Unclassified | 18 (0.6%) |
| Hokkaido | 251 (8.3%) | Shimane | 24 (0.8%) | Unknown | 709 (23.5%) |
| Hyogo | 149 (4.9%) | Shizuoka | 45 (1.5%) | | |
| Ibaraki | 51 (1.7%) | Tochigi | 55 (1.8%) | | |
| Ishikawa | 19 (0.6%) | Tokushima | 7 (0.2%) | | |
| Iwate | 54 (1.8%) | Tokyo | 416 (13.8%) | | |
| Kagawa | 7 (0.2%) | Tottori | 4 (0.1%) | | |
| Kagoshima | 47 (1.6%) | Toyama | 16 (0.5%) | | |
| Kanagawa | 236 (7.8%) | Wakayama | 8 (0.3%) | | |
| Kochi | 13 (0.4%) | Yamagata | 22 (0.7%) | | |
| Kumamoto | 14 (0.5%) | Yamaguchi | 37 (1.2%) | | |
| Kyoto | 43 (1.4%) | Yamanashi | 13 (0.4%) | | |
| Mie | 16 (0.5%) | Others | 0 (0.0%) | | |
| Miyagi | 46 (1.5%) | Unknown | 47 (1.6%) | | |
| | | | | Total | 3022 (100%) |

Table 3) Familial history of carcinoma

| Familial history | Cases (%) |
|------------------|--------------|
| No | 1656 (54.8%) |
| Yes | 882 (29.2%) |
| Unknown | 484 (16.0%) |
| Total | 3022 (100%) |

Table 4) Tumors of familial history of carcinoma

| Diseases | No. of cases (%) | Diseases | No. of cases (%) |
|---------------------|------------------|------------------|------------------|
| Malig. lymphoma | 2 (0.2%) | Gallbladder ca. | 5 (0.4%) |
| Leukemya | 20 (1.7%) | Pancreas ca. | 55 (4.6%) |
| Brain tumor | 12 (1.0%) | Colon ca. | 63 (5.3%) |
| Mandibular ca. | 1 (0.1%) | Rectal ca. | 42 (3.5%) |
| Paranasal sinus ca. | 2 (0.2%) | Uterus ca. | 64 (5.3%) |
| Thyroid ca. | 2 (0.2%) | Ovarian ca. | 3 (0.3%) |
| Breast ca. | 48 (4.0%) | Seminoma | 4 (0.3%) |
| Lung ca. | 158 (13.2%) | Renal ca. | 11 (0.9%) |
| Maxilla ca. | 3 (0.3%) | Bladder ca. | 20 (1.7%) |
| Tongue ca. | 12 (1.0%) | Prostate ca. | 5 (0.4%) |
| Oral ca. | 1 (0.1%) | Osteosarcoma | 2 (0.2%) |
| Pharyngeal ca. | 8 (0.7%) | Spinal tumor | 2 (0.2%) |
| Laryngeal ca. | 41 (3.4%) | Malaig. melanoma | 1 (0.1%) |
| Esophgeal ca. | 86 (7.2%) | Skin ca. | 7 (0.6%) |
| Stomach ca. | 361 (30.1%) | Others | 2 (0.2%) |
| Hepatoma | 84 (7.0%) | Unknown | 66 (5.5%) |
| Cholangioma | 4 (0.3%) | Total cases(%) | 1200 (100%) |
| Jejunal ca. | 1 (0.1%) | No. of patients | 882 |
| Duodenal ca.. | 2 (0.2%) | | |

Table 5) Chance and basis of diagnosis according to clinical T-category

| Chances of diagnosis | Superficial cancer (cTis,cT1) | Advanced cancer (cT2,cT3,cT4) | Total (%) |
|-------------------------------|----------------------------------|----------------------------------|---------------------|
| Chief complains | 123 (30.4%) | 1709 (82.5%) | 1832 (74.0%) |
| Detection survey / dock | 122 (30.1%) | 161 (7.8%) | 283 (11.4%) |
| Examination for other disease | 143 (35.3%) | 93 (4.5%) | 236 (9.5%) |
| Unknown | 17 (4.2%) | 108 (5.2%) | 125 (5.0%) |
| Total | 405 (100%) | 2071 (100%) | 2476* (100%) |

| Detection methods | Superficial cancer (cTis,cT1) | Advanced cancer (cT2,cT3,cT4) | Total (%) |
|-------------------|----------------------------------|----------------------------------|---------------------|
| Esohagography | 35 (8.6%) | 540 (26.1%) | 575 (23.2%) |
| Esohagoscopy | 339 (83.7%) | 1355 (65.4%) | 1694 (68.4%) |
| CT-scan | 5 (1.2%) | 34 (1.6%) | 39 (1.6%) |
| US | 0 | 1 (0.05%) | 1 (0.04%) |
| Biopsy | 1 (0.2%) | 4 (0.2%) | 5 (0.2%) |
| Others | 1 (0.2%) | 4 (0.2%) | 5 (0.2%) |
| Unknown | 24 (5.9%) | 133 (6.4%) | 157 (6.3%) |
| Total | 405 (100%) | 2071 (100%) | 2476* (100%) |

*: excluding 546 cTX, cT0, cT unknown cases

Table 6) Symptoms according to clinical T-category

| Symptom | cTis, cT1 | | cT2,cT3,cT4 | | Total (%) | |
|-----------------------|------------|---------------|-------------|---------------|--------------|---------------|
| | Cases (%) | Cases (%) | Cases (%) | Cases (%) | Cases (%) | Cases (%) |
| None | 247 | (61.0%) | 193 | (9.3%) | 440 | (17.8%) |
| Chest pain | 24 | (5.9%) | 185 | (8.9%) | 209 | (8.4%) |
| Sense of stricture | 31 | (7.7%) | 870 | (42.0%) | 901 | (36.4%) |
| Unusual sensation | 28 | (6.9%) | 109 | (5.3%) | 137 | (5.5%) |
| Dysphagia | 10 | (2.5%) | 428 | (20.7%) | 438 | (17.7%) |
| Nausea / Vomiting | 5 | (1.2%) | 31 | (1.5%) | 36 | (1.5%) |
| Appetite loss | 5 | (1.2%) | 23 | (1.1%) | 28 | (1.1%) |
| Weight loss | 3 | (0.7%) | 7 | (0.3%) | 10 | (0.4%) |
| Swollen of lymph node | 5 | (1.2%) | 9 | (0.4%) | 14 | (0.6%) |
| Hoarseness | 4 | (1.0%) | 24 | (1.2%) | 28 | (1.1%) |
| Others | 21 | (5.2%) | 86 | (4.2%) | 107 | (4.3%) |
| Unknown | 22 | (5.4%) | 106 | (5.1%) | 128 | (5.2%) |
| Total | 405 | (100%) | 2071 | (100%) | 2476* | (100%) |

*; excluding 546 cTX, cT0, cT unknown cases

Table 7) Double / multiple primary cancers

| | Endoscopical treatment (EMR/Stenting) | Chemotherapy and/or radiotherapy | Surgery | | Total (%) |
|--------------|---------------------------------------|----------------------------------|----------------------|---------------------|----------------------|
| | | | Palliative operation | Esophagectomy | |
| None | 167 (66.8%) | 678 (80.7%) | 50 (76.9%) | 1477 (81.3%) | 2372 (79.8%) |
| Double | 25 (10.0%) | 65 (7.7%) | 8 (12.3%) | 165 (9.1%) | 263 (8.8%) |
| Metachronous | | | | | |
| Before E-Ca | 38 (15.2%) | 71 (8.5%) | 2 (3.1%) | 128 (7.0%) | 239 (8.0%) |
| After E-Ca | 4 (1.6%) | 5 (0.6%) | 1 (1.5%) | 11 (0.6%) | 21 (0.7%) |
| Multiple | 7 (2.8%) | 8 (1.0%) | 0 | 11 (0.6%) | 26 (0.9%) |
| Unknown | 9 (3.6%) | 13 (1.5%) | 4 (6.2%) | 25 (1.4%) | 51 (1.7%) |
| Total | 250 (100 %) | 840 (100 %) | 65 (100 %) | 1817 (100 %) | 2972* (100 %) |

*; excluding 50 treatment unknown cases

Table 8) Double / multiple primary cancers and Organs

| Organs | Synchronous | Metachronous | Multiple | Total |
|-------------------------|-------------------|-------------------|------------------|-------------------|
| Larynx/Maxilla | 19 (6.7%) | 18 (6.5%) | 4 (7.3%) | 41 (6.7%) |
| Pharynx | 51 (17.9%) | 22 (8.0%) | 9 (16.4%) | 82 (13.3%) |
| Oral cavity/Gum/Tongue | 5 (1.8%) | 10 (3.6%) | 2 (3.6%) | 17 (2.8%) |
| Stomach | 124 (43.5%) | 98 (35.6%) | 14 (25.5%) | 236 (38.4%) |
| Colon/Rectum | 33 (11.6%) | 37 (13.5%) | 5 (9.1%) | 75 (12.2%) |
| Liver | 8 (2.8%) | 8 (2.9%) | 2 (3.6%) | 18 (2.9%) |
| Choledochus/Gallbladder | 1 (0.4%) | 3 (1.1%) | 1 (1.8%) | 5 (0.8%) |
| Pancreas | 2 (0.7%) | 3 (1.1%) | 0 | 5 (0.8%) |
| Lung/Trachea/Bronchus | 10 (3.5%) | 22 (8.0%) | 8 (14.5%) | 40 (6.5%) |
| Remnant esophagus | 0 | 4 (1.5%) | 0 | 4 (0.7%) |
| Uterus/Ovarium | 0 | 1 (0.4%) | 1 (1.8%) | 2 (0.3%) |
| Breast | 2 (0.7%) | 12 (4.4%) | 0 | 14 (2.3%) |
| Prostate | 1 (0.4%) | 10 (3.6%) | 1 (1.8%) | 12 (2.0%) |
| Urinary bladder | 2 (0.7%) | 11 (4.0%) | 1 (1.8%) | 14 (2.3%) |
| Leukemia | 2 (0.7%) | 2 (0.7%) | 0 | 4 (0.7%) |
| Skin | 1 (0.4%) | 1 (0.4%) | 0 | 2 (0.3%) |
| Brain | 0 | 0 | 0 | 0 |
| Thyroid | 10 (3.5%) | 1 (0.4%) | 0 | 11 (1.8%) |
| Bone | 0 | 1 (0.4%) | 0 | 1 (0.2%) |
| Kidney | 2 (0.7%) | 1 (0.4%) | 1 (1.8%) | 4 (0.7%) |
| Others | 12 (4.2%) | 10 (3.6%) | 5 (9.1%) | 27 (4.4%) |
| Unknown | 0 | 0 | 1 (1.8%) | 1 (0.2%) |
| Lesions | 285 (100%) | 275 (100%) | 55 (100%) | 615 (100%) |
| Cases | 263 | 260 | 26 | 549 |

Table 9) Double primary cancer - Organs (in endoscopically treated cases)

| Organs | Synchronous | Metachronous | | Multiple |
|-------------------------|-------------|--------------|------------|-----------|
| | | Before E-Ca | After E-Ca | |
| Larynx/Maxilla | | 2 (5.0%) | | 1 (6.7%) |
| Pharynx | 9 (31.0%) | 4 (10.0%) | 2 (50.0%) | 2 (13.3%) |
| Oral cavity/Gum/Tongue | | | |) |
| Stomach | 13 (44.8%) | 22 (55.0%) | | 4 (26.7%) |
| Colon/Rectum | 2 (6.9%) | 5 (12.5%) | 1 (25.0%) | 1 (6.7%) |
| Liver | 1 (3.4%) | 3 (7.5%) | 1 (25.0%) | |
| Choledochus/Gallbladder | | 1 (2.5%) | | 1 (6.7%) |
| Pancreas | | | | |
| Lung/Trachea/Bronchus | | 1 (2.5%) | | 3 (20.0%) |
| Remnant esophagus | | | | |
| Uterus/Ovarium | | | | |
| Breast | | | | |
| Prostate | | 2 (5.0%) | | |
| Urinary bladder | | | | 1 (6.7%) |
| Leukemia | | | | |
| Skin | 1 (3.4%) | | | |
| Brain | | | | |
| Thyroid | | | | |
| Bone | | | | |
| Kidney | | | | |
| Others | 3 (10.3%) | | | 2 (13.3%) |
| Unknown | | | | |
| Lesions | 29 (100%) | 40 (100%) | 4 (100%) | 15 (100%) |
| Cases | 25 | 38 | 4 | 7 |

Table 10) Double primary cancer - Organs (in cases of chemotherapy and/or radiotherapy)

| Organs | Synchronous | Metachronous | | Multiple |
|------------------------|-------------|--------------|------------|-----------|
| | | Before E-Ca | After e-Ca | |
| Larynx/Maxillary | 6 (8.8%) | 6 (7.8%) | | |
| Pharynx | 10 (14.7%) | 1 (1.3%) | | 1 (5.6%) |
| Oral cavity/Gum/Tongue | 2 (2.9%) | 2 (2.6%) | | |
| Stomach | 25 (36.8%) | 21 (27.3%) | 1 (20.0%) | 4 (22.2%) |
| Colon/Rectum | 7 (10.3%) | 13 (16.9%) | 1 (20.0%) | 3 (16.7%) |
| Liver | 4 (5.9%) | 3 (3.9%) | | 2 (11.1%) |
| Choledocus/Gallbladder | | 1 (1.3%) | | |
| Pancreas | 1 (1.5%) | 1 (1.3%) | | |
| Lung/Trachea/Bronchus | 4 (5.9%) | 8 (10.4%) | 1 (20.0%) | 5 (27.8%) |
| Remnant esophagus | | 2 (2.6%) | 1 (20.0%) | |
| Uterus/Ovarium | | | | 1 (5.6%) |
| Breast | 1 (1.5%) | 6 (7.8%) | 1 (20.0%) | |
| Prostate | 1 (1.5%) | 3 (3.9%) | | 1 (5.6%) |
| Urinary bladder | 1 (1.5%) | 4 (5.2%) | | |
| Leukemia | 1 (1.5%) | 1 (1.3%) | | |
| Skin | | 1 (1.3%) | | |
| Brain | | | | |
| Thyroid | 1 (1.5%) | | | |
| Bone | | | | |
| Kidney | | | | |
| Others | 4 (5.9%) | 4 (5.2%) | | |
| Unknown | | | | 1 (5.6%) |
| Lesions | 68 (100%) | 77 (100%) | 5 (100%) | 18 (100%) |
| Cases | 65 | 71 | 5 | 8 |

Table 11) Double primary cancer - Organs (in cases of palliative operation)

| Organs | Synchronous | Metachronous | | Multiple |
|----------------------------------------------------------------------------------------------------------------------|------------------------|--------------|------------|----------|
| | | Before E-Ca | After E-Ca | |
| Larynx/Maxillary Pharynx Oral cavity/Gum/Tongue | 1 (11.1%) | 1 (50.0%) | | |
| Stomach Colon/Rectum | 6 (66.7%) 1 (11.1%) | | 1 (50.0%) | |
| Liver Choledocus/Gallbladder Pancreas | | 1 (50.0%) | | |
| Lung/Trachea/Bronchus Remnant esophagus Uterus/Ovarium | 1 (11.1%) | | | |
| Breast Prostate Urinary bladder Leukemia Skin Brain Thyroid Bone Kidney Others Unknown | | | 1 (50.0%) | |
| Lesions | 9 (100%) | 2 (100%) | 2 (100%) | 0 (0%) |
| Cases | 8 | 2 | 1 | 0 |

Table 12) Double primary cancer - Organs (in cases of esophagectomy)

| Organs | Synchronous | Metachronous | | Multiple |
|------------------------|-------------|--------------|------------|-----------|
| | | Before E-Ca | After E-Ca | |
| Larynx/Maxillary | 12 (6.7%) | 8 (6.0%) | 1 (8.3%) | 3 (14.3%) |
| Pharynx | 32 (17.9%) | 12 (9.0%) | 3 (25.0%) | 5 (23.8%) |
| Oral cavity/Gum/Tongue | 3 (1.7%) | 7 (5.3%) | 1 (8.3%) | 2 (9.5%) |
| Stomach | 80 (44.7%) | 51 (38.3%) | 3 (25.0%) | 6 (28.6%) |
| Colon/Rectum | 23 (12.8%) | 17 (12.8%) | | 1 (4.8%) |
| Liver | 3 (1.7%) | | | |
| Choledocus/Gallbladder | 1 (0.6%) | | 1 (8.3%) | |
| Pancreas | 1 (0.6%) | 1 (0.8%) | 1 (8.3%) | |
| Lung/Trachea/Bronchus | 5 (2.8%) | 10 (7.5%) | 1 (8.3%) | |
| Remnant esophagus | | 1 (0.8%) | | |
| Uterus/Ovarium | | 1 (0.8%) | | |
| Breast | 1 (0.6%) | 5 (3.8%) | | |
| Prostate | | 5 (3.8%) | | |
| Urinary bladder | 1 (0.6%) | 7 (5.3%) | | |
| Leukemia | 1 (0.6%) | 1 (0.8%) | | |
| Skin | | | | |
| Brain | | | | |
| Thyroid | 9 (5.0%) | 1 (0.8%) | | |
| Bone | | | | |
| Kidney | 2 (1.1%) | 1 (0.8%) | 1 (8.3%) | 1 (4.8%) |
| Others | 5 (2.8%) | 5 (3.8%) | | 3 (14.3%) |
| Unknown | | | | |
| Lesions | 179 (100%) | 133 (100%) | 12 (100%) | 21 (100%) |
| Cases | 165 | 128 | 11 | 11 |

Table 13) Location of tumor

| Location | Endoscopic treatment | Chemotherapy and/or radiotherapy | Surgery | | Total (%) |
|----------------------|----------------------|----------------------------------|----------------------|--------------------|--------------------|
| | | | Palliative operation | Esophagectomy | |
| Not detected | 1 (0.4%) | 1 (0.1%) | | 2 (0.1%) | 4 (0.1%) |
| Pharynx | | 4 (0.5%) | 2 (3.1%) | 7 (0.4%) | 13 (0.4%) |
| Cervical esophagus | 2 (0.8%) | 47 (5.6%) | 2 (3.1%) | 80 (4.4%) | 131 (4.4%) |
| Upper thoracic eso. | 29 (11.6%) | 148 (17.6%) | 12 (18.4%) | 174 (9.6%) | 363 (12.2%) |
| Middle thoracic eso. | 153 (61.2%) | 453 (53.9%) | 31 (47.7%) | 938 (51.6%) | 1575 (53.0%) |
| Lower thoracic eso. | 43 (17.2%) | 151 (18.0%) | 14 (21.5%) | 499 (27.5%) | 707 (23.8%) |
| Abdominal esophagus | 4 (1.6%) | 23 (2.7%) | 1 (1.5%) | 98 (5.4%) | 126 (4.2%) |
| EG-Junction (E=G) | 1 (0.4%) | 1 (0.1%) | | 14 (0.8%) | 16 (0.5%) |
| Cardia (G) | | | | 2 (0.1%) | 2 (0.07%) |
| Unknown | 17 (6.8%) | 12 (1.4%) | 3 (4.6%) | 3 (0.2%) | 35 (1.2%) |
| Total | 250 (100%) | 840 (100%) | 65 (100%) | 1817 (100%) | 2972 (100%) |

Table 14) Longitudinal tumor length on esophagography

| Length | Endoscopic treatment | Chemotherapy and/or radiotherapy | Surgery | | Total (%) |
|--------------|----------------------|----------------------------------|----------------------|--------------------|--------------------|
| | | | Palliative operation | Esophagectomy | |
| not examined | 105 (42.0%) | 61 (7.6%) | 8 (12.3%) | 53 (2.9%) | 227 (7.6%) |
| ~1cm | 7 (2.8%) | 7 (0.8%) | 1 (1.5%) | 38 (2.1%) | 52 (1.8%) |
| ~2cm | 27 (10.8%) | 28 (3.3%) | 4 (6.2%) | 77 (4.2%) | 133 (4.5%) |
| ~3cm | 26 (10.4%) | 44 (5.2%) | 4 (6.2%) | 173 (9.5%) | 247 (8.3%) |
| ~4cm | 12 (4.8%) | 52 (6.2%) | 3 (4.6%) | 225 (12.4%) | 293 (9.9%) |
| ~5cm | 6 (2.4%) | 72 (8.6%) | 9 (13.8%) | 241 (13.3%) | 322 (10.8%) |
| ~6cm | 5 (2.0%) | 78 (9.3%) | 7 (10.8%) | 247 (13.6%) | 339 (11.4%) |
| ~7cm | 3 (1.2%) | 103 (12.3%) | 7 (10.8%) | 201 (11.1%) | 314 (10.6%) |
| ~8cm | 4 (1.6%) | 105 (12.5%) | 7 (10.8%) | 146 (8.0%) | 262 (8.8%) |
| ~9cm | 1 (0.4%) | 75 (8.9%) | 1 (1.5%) | 94 (5.2%) | 177 (6.0%) |
| ~10cm | 1 (0.4%) | 36 (4.3%) | 3 (4.6%) | 53 (2.9%) | 91 (3.1%) |
| ~11cm | 2 (0.8%) | 45 (5.4%) | 1 (1.5%) | 49 (2.7%) | 99 (3.3%) |
| ~12cm | 0 | 19 (2.3%) | 3 (4.6%) | 22 (1.2%) | 42 (1.4%) |
| ~13cm | 2 (0.8%) | 19 (2.3%) | 0 | 15 (0.8%) | 39 (1.3%) |
| ~14cm | 1 (0.4%) | 11 (1.3%) | 0 | 7 (0.4%) | 19 (0.6%) |
| ~15cm | 0 | 3 (0.4%) | 0 | 5 (0.3%) | 8 (0.3%) |
| ~16cm | 2 (0.8%) | 5 (0.6%) | 0 | 5 (0.3%) | 12 (0.4%) |
| ~17cm | 0 | 2 (0.2%) | 0 | 3 (0.2%) | 5 (0.2%) |
| 17.1cm~ | 1 (0.4%) | 4 (0.5%) | 2 (3.1%) | 1 (0.06%) | 8 (0.3%) |
| Unknown | 45 (20.3%) | 71 (8.5%) | 5 (7.7%) | 162 (8.9%) | 283 (9.5%) |
| Total | 250 (100%) | 840 (100%) | 65 (100%) | 1817 (100%) | 2972 (100%) |

Table 15) Endoscopic features

| Type | Endoscopic treatment | Chemotherapy and/or radiotherapy | Surgery | | Total (%) |
|--------------|----------------------|----------------------------------|----------------------|--------------------|--------------------|
| | | | Palliative operation | Esophagectomy | |
| Not examined | 0 | 6 (0.7%) | 1 (1.5%) | 5 (0.3%) | 12 (0.4%) |
| 0-I | 5 (2.0%) | 29 (3.5%) | 1 (1.5%) | 102 (5.6%) | 137 (4.6%) |
| 0-IIa | 25 (10.0%) | 21 (2.5%) | 1 (1.5%) | 100 (5.5%) | 147 (4.9%) |
| 0-IIb | 53 (21.2%) | 12 (1.4%) | 0 | 27 (1.5%) | 92 (3.1%) |
| 0-IIc | 130 (52.0%) | 70 (8.3%) | 1 (1.5%) | 248 (13.6%) | 449 (15.1%) |
| 0-III | 0 | 8 (1.0%) | 0 | 22 (1.2%) | 30 (1.0%) |
| 0-V | 0 | 4 (0.5%) | 0 | 6 (0.3%) | 10 (0.3%) |
| 1 | 0 | 47 (5.6%) | 4 (6.2%) | 135 (7.4%) | 186 (6.3%) |
| 2 | 10 (4.0%) | 239 (28.5%) | 16 (24.6%) | 553 (30.4%) | 818 (27.5%) |
| 3 | 10 (4.0%) | 279 (33.2%) | 24 (36.9%) | 504 (27.7%) | 817 (27.5%) |
| 4 | 2 (0.8%) | 28 (3.3%) | 6 (9.2%) | 31 (1.7%) | 67 (2.3%) |
| 5 | 2 (0.8%) | 12 (1.4%) | 0 | 26 (1.4%) | 40 (1.3%) |
| Unknown | 13 (5.2%) | 85 (10.1%) | 11 (16.9%) | 58 (3.2%) | 167 (5.6%) |
| Total | 250 (100%) | 840 (100%) | 65 (100%) | 1817 (100%) | 2972 (100%) |

0- I : superficial and protruding type
 0- IIa : superficial and slight elevated type
 0- IIb : superficial and flat type
 0- IIc : superficial and slightly depressed
 0- III : superficial and distinctly depressed

1 : protruding type
 2 : ulcerative and localized type
 3 : ulcerative and infiltrating type
 4 : diffusely infiltrating type
 5 : miscellaneous type

Table 16) Histologic types of biopsy

| Histologic types | | Endoscopic treatment | Chemotherapy and/or radiotherapy | Surgery | | Total (%) |
|--------------------------|-----------------|----------------------|----------------------------------|----------------------|---------------|--------------|
| | | | | Palliative operation | Esophagectomy | |
| Not examined | | 18 (7.2%) | 13 (1.5%) | 2 (3.1%) | 13 (0.7%) | 46 (1.5%) |
| SCC | SCC | 138 (55.2%) | 385 (45.8%) | 30 (46.2%) | 796 (43.8%) | 1349 (45.4%) |
| | Well diff. | 20 (8.0%) | 52 (6.2%) | 5 (7.7%) | 170 (9.4%) | 247 (8.3%) |
| | Moderately diff | 36 (14.4%) | 234 (27.9%) | 18 (27.7%) | 530 (29.2%) | 818 (27.5%) |
| | Poorly diff. | 11 (4.4%) | 111 (13.2%) | 4 (6.2%) | 212 (11.7%) | 338 (11.4%) |
| Adenocarcinoma | | 3 (1.2%) | 9 (1.1%) | 0 | 36 (2.0%) | 48 (1.6%) |
| Undifferentiated | | 0 | 9 (1.1%) | 0 | 15 (0.8%) | 24 (0.8%) |
| So-called carcinosarcoma | | 0 | 0 | 0 | 3 (0.2%) | 3 (0.1%) |
| Malignant melanoma | | 0 | 1 (0.1%) | 0 | 1 (0.06%) | 2 (0.07%) |
| Others | | 2 (0.8%) | 5 (0.6%) | 1 (1.5%) | 16 (0.9%) | 24 (0.8%) |
| Dysplasia | | 4 (1.6%) | 1 (0.1%) | 1 (1.5%) | 1 (0.06%) | 7 (0.2%) |
| Unknown | | 18 (7.2%) | 20 (2.4%) | 4 (6.2%) | 24 (1.3%) | 66 (2.2%) |
| Total | | 250 (100%) | 840 (100%) | 65 (100%) | 1817 (100%) | 2972 (100%) |

Table 17) Depth of tumor invasion cT (Clinical TNM-classification)

| cT | Endoscopic treatment | Chemotherapy and/or radiotherapy | Surgery | | Total (%) |
|--------------|----------------------|----------------------------------|----------------------|--------------------|--------------------|
| | | | Palliative operation | Esophagectomy | |
| cTx | 4 (1.6%) | 1 (0.1%) | 2 (3.1%) | 3 (0.2%) | 10 (0.3%) |
| cT0 | 3 (1.2%) | 0 | 0 | 3 (0.2%) | 6 (0.2%) |
| cTis | 64 (25.6%) | 6 (0.7%) | 0 | 15 (0.8%) | 85 (2.9%) |
| cT1 | 31 (12.4%) | 55 (6.5%) | 2 (3.1%) | 81 (4.6%) | 169 (5.7%) |
| cT1a | 84 (33.6%) | 17 (2.0%) | 0 | 45 (2.5%) | 146 (4.9%) |
| cT1b | 18 (7.2%) | 61 (7.3%) | 2 (3.1%) | 327 (18.0%) | 408 (13.7%) |
| cT2 | 2 (0.8%) | 87 (10.4%) | 7 (10.8%) | 355 (19.5%) | 451 (15.2%) |
| cT3 | 10 (4.0%) | 297 (35.4%) | 23 (35.4%) | 778 (42.8%) | 1108 (37.3%) |
| cT4 | 9 (3.6%) | 284 (33.8%) | 25 (38.5%) | 159 (8.8%) | 477 (16.1%) |
| Unknown | 25 (10.0%) | 32 (3.8%) | 4 (6.2%) | 51 (2.8%) | 112 (3.8%) |
| Total | 250 (100%) | 840 (100%) | 65 (100%) | 1817 (100%) | 2972 (100%) |

Table 18) Lymph node metastasis, cN; and Organ metastasis, cM (Clinical TNM-classification)

| cN | Endoscopic treatment | Chemotherapy and/or radiotherapy | Surgery | | Total (%) |
|--------------|----------------------|----------------------------------|----------------------|--------------------|--------------------|
| | | | Palliative operation | Esophagectomy | |
| cNx | 16 (6.4%) | 26 (3.1%) | 4 (6.2%) | 28 (1.5%) | 74 (2.5%) |
| cN0 | 193 (77.2%) | 262 (31.2%) | 9 (13.8%) | 845 (46.5%) | 1309 (44.0%) |
| cN1 | 13 (5.2%) | 522 (62.1%) | 46 (70.8%) | 885 (48.7%) | 1466 (49.3%) |
| Unknown | 28 (11.2%) | 30 (3.6%) | 6 (9.2%) | 59 (3.2%) | 123 (4.1%) |
| Total | 250 (100%) | 840 (100%) | 65 (100%) | 1817 (100%) | 2972 (100%) |

| cM | Endoscopic treatment | Chemotherapy and/or radiotherapy | Surgery | | Total (%) |
|--------------|----------------------|----------------------------------|----------------------|--------------------|--------------------|
| | | | Palliative operation | Esophagectomy | |
| cMx | 9 (3.6%) | 20 (2.4%) | 2 (3.1%) | 1 (0.06%) | 32 (1.1%) |
| cM0 | 206 (82.4%) | 542 (64.5%) | 36 (55.4%) | 1618 (89.0%) | 2402 (80.8%) |
| cM1 | 2 (0.8%) | 55 (6.5%) | 7 (10.8%) | 18 (1.0%) | 82 (2.8%) |
| cM1a | 0 | 45 (5.4%) | 4 (6.2%) | 44 (2.4%) | 93 (3.1%) |
| cM1b | 6 (2.4%) | 151 (18.0%) | 11 (16.9%) | 84 (4.6%) | 252 (8.5%) |
| Unknown | 27 (10.8%) | 27 (3.2%) | 5 (7.7%) | 52 (2.9%) | 111 (3.7%) |
| Total | 250 (100%) | 840 (100%) | 65 (100%) | 1817 (100%) | 2972 (100%) |

Table 19) Metastatic Organs of cM1 (Clinical TNM classification)

| Metastatic organs | Endoscopic treatment | Chemotherapy and/or radiotherapy | Surgery | | Total (%) |
|-------------------|----------------------|----------------------------------|----------------------|---------------|-------------|
| | | | Palliative operation | Esophagectomy | |
| PUL | 6 (66.7%) | 52 (16.4%) | 7 (26.9%) | 4 (2.6%) | 69 (13.7%) |
| OSS | 0 (11.1%) | 17 (5.4%) | 1 (3.8%) | 0 | 18 (3.6%) |
| HEP | 2 (11.1%) | 64 (20.2%) | 2 (7.7%) | 17 (11.2%) | 85 (16.9%) |
| BRA | 0 | 5 (1.6%) | 0 | 1 (0.7%) | 6 (1.2%) |
| LYM | 1 (11.1%) | 148 (46.7%) | 12 (46.2%) | 109 (71.7%) | 270 (53.6%) |
| MAR | 0 | 1 (0.3%) | 0 | 1 (0.7%) | 2 (0.4%) |
| PLE | 0 | 1 (0.3%) | 1 (3.8%) | 2 (1.3%) | 4 (0.8%) |
| PER | 0 | 0 | 0 | 0 | 0 |
| SKI | 0 | 0 | 0 | 0 | 0 |
| OTH | 0 | 5 (1.6%) | 0 | 3 (2.0%) | 8 (1.6%) |
| Unknown | 0 | 20 (6.3%) | 3 (11.5%) | 15 (9.9%) | 38 (7.5%) |
| Lesions | 9 (100%) | 317 (100%) | 26 (100%) | 152 (100%) | 504 (100%) |
| One organ | 7 (87.5%) | 178 (70.9%) | 15 (68.2%) | 124 (84.9%) | 324 (75.9%) |
| Two organs | 1 (12.5%) | 40 (15.9%) | 4 (18.2%) | 7 (4.8%) | 52 (12.2%) |
| Three organs | 0 | 10 (4.0%) | 0 | 0 | 10 (2.3%) |
| Four organs~ | 0 | 3 (1.2%) | 0 | 0 | 3 (0.7%) |
| Unknown | 0 | 20 (8.0%) | 3 (13.6%) | 15 (10.3%) | 38 (8.9%) |
| Total cases | 8 (100%) | 251 (100%) | 22 (100%) | 146 (100%) | 427 (100%) |

Table 20) Clinical Stage (Clinical TNM-classification)

| cStage | Endoscopic treatment | Chemotherapy and/or radiotherapy | Surgery | | Total (%) |
|--------------|----------------------|----------------------------------|----------------------|--------------------|--------------------|
| | | | Palliative operation | Esophagectomy | |
| 0 | 63 (25.2%) | 5 (0.6%) | 0 | 18 (1.0%) | 86 (2.9%) |
| I | 125 (50.0%) | 103 (12.3%) | 3 (4.6%) | 365 (20.1%) | 596 (20.1%) |
| IIA | 3 (1.2%) | 99 (11.8%) | 3 (4.6%) | 419 (23.1%) | 524 (17.6%) |
| IIB | 1 (0.4%) | 42 (5.0%) | 5 (7.7%) | 214 (11.8%) | 262 (8.8%) |
| III | 6 (2.4%) | 274 (32.6%) | 25 (38.5%) | 564 (31.0%) | 869 (29.2%) |
| IV | 2 (0.8%) | 52 (6.2%) | 5 (7.7%) | 17 (0.9%) | 76 (2.6%) |
| IVA | 0 | 48 (5.7%) | 5 (7.7%) | 45 (2.5%) | 98 (3.3%) |
| IVB | 5 (2.0%) | 150 (17.9%) | 11 (16.9%) | 83 (4.6%) | 249 (8.4%) |
| Unknown | 45 (18.0%) | 67 (8.0%) | 8 (12.3%) | 92 (5.1%) | 212 (7.1%) |
| Total | 250 (100%) | 840 (100%) | 65 (100%) | 1817 (100%) | 2972 (100%) |

II. Clinical Results of Patients treated with Endoscopically in 1999

Table 21) Treatment details in patients with endoscopic treatment

| Treatment details | Cases (%) |
|------------------------------------------|-------------------|
| Endoscopic treatment only | 250 (100%) |
| Endoscopic treatment + Radiotherapy | 0 |
| Endoscopic treatment + Chemotherapy | 0 |
| Endoscopic treatment + Hyperthermia | 0 |
| Endoscopic treatment + Chemoradiotherapy | 0 |
| Total | 231 (100%) |

| Treatment details | Cases (%) |
|-----------------------------------------|-------------------|
| EMR | 214 (85.6%) |
| EMR+PDT | 4 (1.6%) |
| EMR+YAG laser | 2 (0.8%) |
| EMR+MCT | 0 |
| EMR+Esophageal stenting | 2 (0.8%) |
| EMR+Other treatment | 2 (0.8%) |
| Esophageal stenting | 21 (8.4%) |
| Esophageal stenting+YAG laser | 1 (0.4%) |
| Esophageal stenting + tracheal stenting | 1 (0.4%) |
| Others | 3 (1.2%) |
| Total | 250 (100%) |

EMR: endoscopic mucosal resection
PDT: photodynamic therapy
MCT:microwave coaguration therapy

Table 22) Endoscopic mucosal resection (EMR)

| Method of EMR | Cases (%) |
|---------------------|-------------------|
| One piece resection | 82 (36.6%) |
| Piecemeal resection | 138 (61.6%) |
| Unknown | 4 (1.8%) |
| Total | 224 (100%) |

| No. of lesions treated by EMR | Cases (%) |
|-------------------------------|-------------------|
| 1 | 137 (61.2%) |
| 2 | 42 (18.8%) |
| 3 | 18 (8.0%) |
| 4 | 3 (1.3%) |
| 5 | 3 (1.3%) |
| 6 | 0 |
| 7 | 1 (0.4%) |
| 8 | 2 (0.9%) |
| 9 | 0 (0.9%) |
| 10 and/or over | 2 (0.9%) |
| Unknown | 16 (7.1%) |
| Total | 224 (100%) |

| Radicality of EMR | Cases (%) |
|------------------------|-------------------|
| Complete resection | 165 (73.7%) |
| Non-complete resection | 34 (15.2%) |
| Unknown | 25 (11.2%) |
| Total | 224 (100%) |

| Complications of EMR | Cases (%) |
|----------------------|-------------------|
| None | 192 (85.7%) |
| Perforation | 3 (1.3%) |
| Bleeding | 5 (2.2%) |
| Mediastinitis | 0 |
| Stenosis | 9 (4.0%) |
| Others | 1 (0.4%) |
| Unknown | 14 (6.3%) |
| Total | 224 (100%) |

Table 23) Prognosis of patients underwent endoscopic mucosal resection (EMR)

| Outcome | Cases | (%) |
|-------------------|------------|---------------|
| Alive | 203 | (90.6%) |
| Dead | 14 | (6.2%) |
| Lost of follow up | 2 | (0.9%) |
| Unknown | 5 | (2.2%) |
| Total | 224 | (100%) |

| Type of recurrence | Cases | (%) |
|--------------------|------------|---------------|
| None | 201 | (89.7%) |
| Lymph node | 0 | |
| Lung | 0 | |
| Liver | 0 | |
| Bone | 0 | |
| Brain | 0 | |
| Local | 10 | (4.5%) |
| Dissemination | 0 | |
| Stump | 0 | |
| Other | 1 | (0.4%) |
| Unknown | 12 | (5.4%) |
| Total | 224 | (100%) |

| Causes of Death | Cases | (%) |
|------------------------------------------|-----------|---------------|
| Death due to esophageal cancer | 1 | (7.1%) |
| Death due to other cancer | 3 | (21.4%) |
| Death due to other disease (rec+) | 0 | |
| Death due to other disease (rec-) | 5 | (35.7%) |
| Death due to other disease (rec?) | 0 | |
| Death related to treatment within 30days | 0 | |
| Death related to treatment after 30 days | 0 | |
| Unknown | 5 | (35.7%) |
| Total | 14 | (100%) |

rec : recurrence

Table 24) Histologic findings of EMR specimen (tumor size, histologic type, and depth of tumor invasion)

| Size of lesion | Cases (%) |
|----------------|-------------------|
| ~ 9mm | 16 (7.1%) |
| 10 ~19mm | 59 (26.3%) |
| 20~29mm | 33 (14.7%) |
| 30~39mm | 8 (3.6%) |
| 40~49mm | 1 (0.4%) |
| 50~59mm | 6 (2.7%) |
| 60~69mm | 1 (0.4%) |
| 70mm~` | 1 (0.4%) |
| Unknown | 99 (44.2%) |
| Total | 224 (100%) |

| Histologic type of EMR specimen | Cases (%) |
|---------------------------------|-------------------|
| Squamous cell ca (SCC) | 108 (48.2%) |
| Well diff. SCC | 14 (6.3%) |
| Moderately diff. SCC | 51 (22.8%) |
| Poorly diff. SCC | 5 (2.2%) |
| Adenocarcinoma | 2 (0.9%) |
| Barrett's carcinoma | 0 |
| Dysplasia | 3 (1.3%) |
| Others | 4 (1.8%) |
| Unknown | 37 (16.5%) |
| Total | 224 (100%) |

| Pathological depth of tumor invasion (pT) | Cases (%) |
|-------------------------------------------|-------------------|
| pT0 | 1 (0.4%) |
| pTis | 60 (26.8%) |
| pT1a(lpm) | 41 (18.3%) |
| pT1a(mm) | 43 (19.2%) |
| pt1b | 14 (6.3%) |
| Unknown | 65 (29.0%) |
| Total | 224 (100%) |

| Sub-classification of histological depth of invasion in superficial cancer | Cases (%) |
|----------------------------------------------------------------------------|-------------------|
| m1(ep) | 71 (31.7%) |
| m2(lpm) | 48 (21.4%) |
| m3(mm) | 44 (19.6%) |
| sm1 | 10 (4.5%) |
| sm2 | 1 (0.4%) |
| sm3 | 1 (0.4%) |
| Unknown | 49 (21.9%) |
| Total | 224 (100%) |

ep: epithelium
lpm: lamina propria mucosa
mm: muscularis mucosa

Table 25) Histologic findings of EMR specimen (intraepithelial spread, vessel invasion, multiple cancer, and multiple lesion)

| Intraepithelial spread (ie) | Cases (%) |
|-----------------------------|-------------------|
| (-) | 53 (23.7%) |
| (+) | 10 (4.5%) |
| (+++) superficial spread | 0 |
| Unknown | 161 (71.9%) |
| Total | 224 (100%) |

| Lymphatic vessel invasion (ly) | Cases (%) |
|--------------------------------|-------------------|
| (-) | 133 (59.4%) |
| (+) | 10 (4.5%) |
| Unknown | 81 (36.2%) |
| Total | 224 (100%) |

| Blood vessel invasion (v) | Cases (%) |
|---------------------------|-------------------|
| (-) | 141 (62.9%) |
| (+) | 5 (2.2%) |
| Unknown | 78 (34.8%) |
| Total | 224 (100%) |

| Multiple primary cancer | Cases (%) |
|-------------------------|-------------------|
| (-) | 69 (30.8%) |
| (+) | 21 (9.4%) |
| Unknown | 134 (59.8%) |
| Total | 224 (100%) |

| Multiple malignant lesions | Cases (%) |
|----------------------------|-------------------|
| (-) | 70 (31.2%) |
| (+) | 22 (9.8%) |
| Unknown | 132 (58.9%) |
| Total | 224 (100%) |

| No. of multiple primary lesions | Cases (%) |
|---------------------------------|------------------|
| 2 | 14 (60.8%) |
| 3 | 1 (4.3%) |
| 5 | 2 (8.7%) |
| Unknown | 6 (26.1%) |
| Total | 23 (100%) |

Figure 1) Survival of patients treated with endoscopy

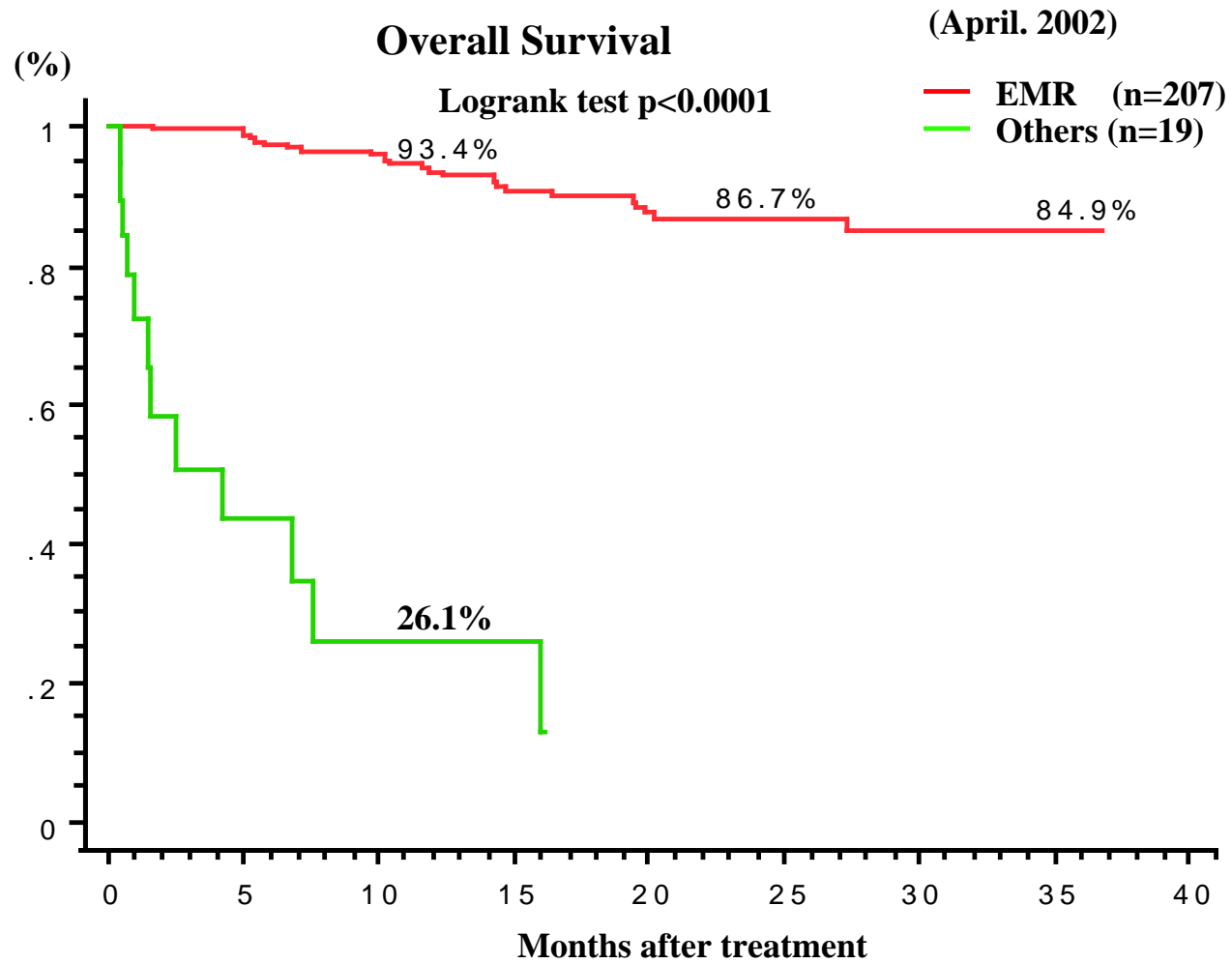


Figure 2) Survival of patients treated with EMR

(April, 2002)

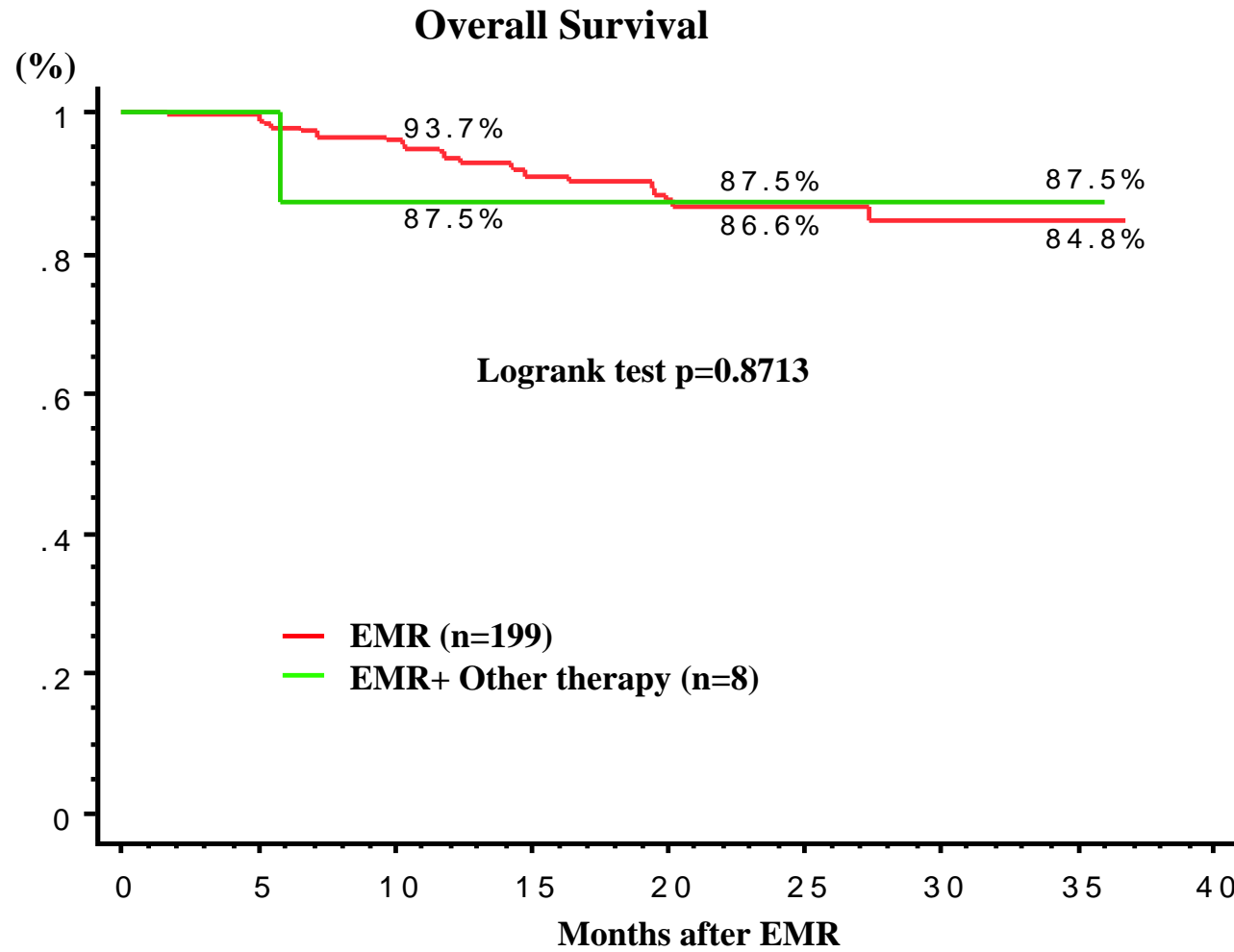
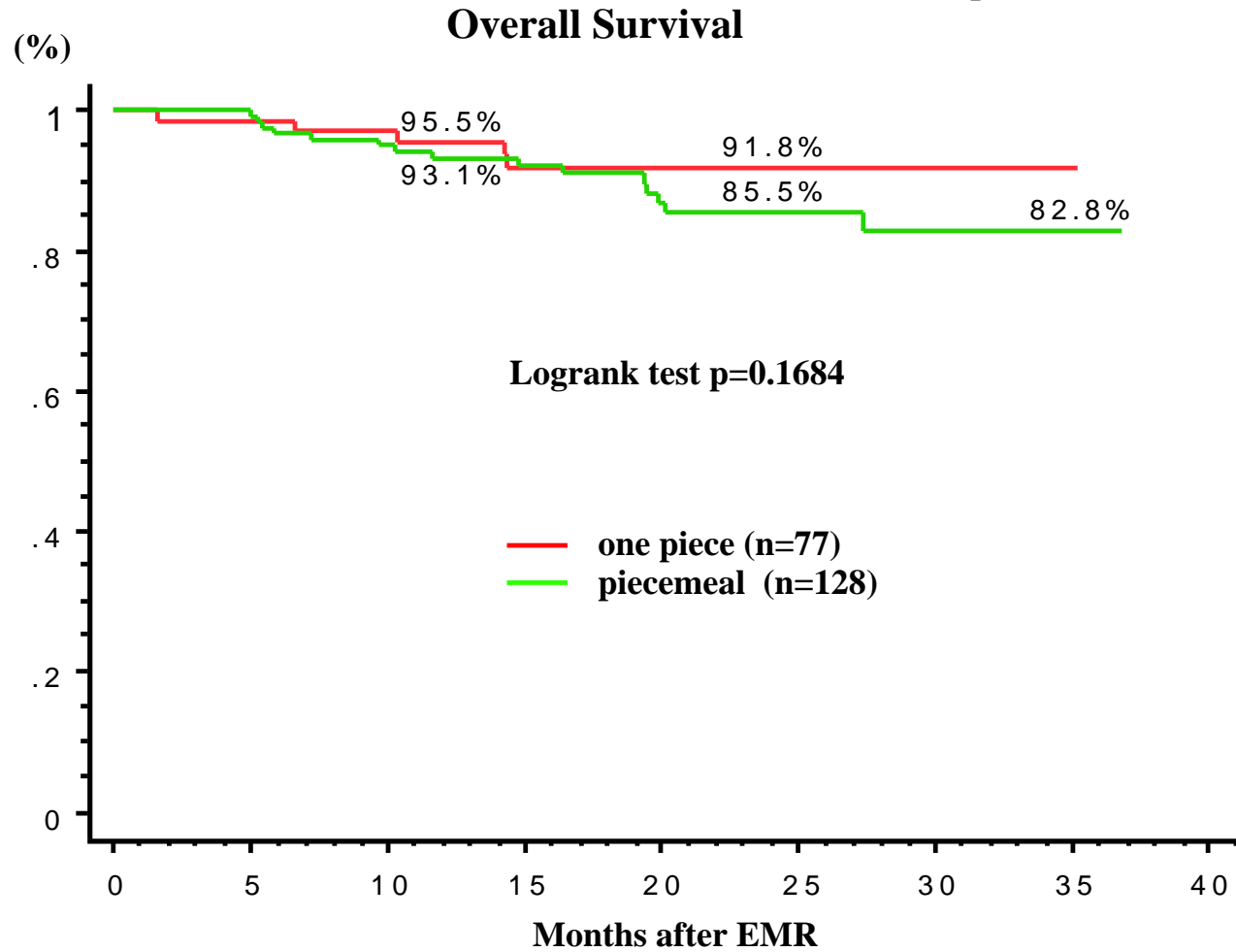


Figure 3) Survival of patients according to type of EMR

(April, 2002)



**III. Clinical Results in Patients treated with
Chemotherapy and/or Radiotherapy
in 1999**

Table 26) Radiotherapy and/or chemotherapy (non surgically treated cases)

| Treatment | Cases (%) |
|--------------------|-------------------|
| Radiotherapy alone | 232 (27.6%) |
| Chemoradiotherapy | 526 (62.6%) |
| Chemotherapy alone | 82 (9.8%) |
| Total | 840 (100%) |

| Radiotherapy | Cases (%) |
|----------------------|-------------------|
| Curative radiation | 611 (80.6%) |
| Palliative radiation | 141 (18.6%) |
| Others | 1 (0.7%) |
| Unknown | 5 (0.1%) |
| Total | 758 (100%) |

| Endo-irradiation | Cases (%) |
|------------------|-------------------|
| (-) | 652 (86.0%) |
| (+) | 61 (8.0%) |
| Unknown | 45 (5.9%) |
| Total | 758 (100%) |

| Doses of irradiation (Gy) | Cases (%) |
|---------------------------|-------------------|
| 0 | 0 |
| ~ 19 | 21 (2.8%) |
| 20 ~ 39 | 50 (6.6%) |
| 40 ~ 59 | 123 (16.2%) |
| 60 ~ 79 | 511 (67.4%) |
| 80 ~ 99 | 7 (0.9%) |
| 100 ~ | 1 (0.1%) |
| Unknown | 45 (5.9%) |
| Total | 758 (100%) |

Table 27) Effectiveness of radiotherapy and/or chemotherapy (non surgically treated cases)

| Chemotherapy | Cases (%) |
|--------------|-------------------|
| (-) | 0 |
| (+) | 607 (99.8%) |
| Unknown | 1 (0.2%) |
| Total | 608 (100%) |

| Response to radiotherapy | Cases (%) |
|--------------------------|-------------------|
| CR | 35 (15.1%) |
| PR | 64 (27.6%) |
| NC | 20 (8.6%) |
| PD | 7 (3.0%) |
| Not evaluated | 17 (7.3%) |
| Unknown | 89 (38.4%) |
| Total | 232 (100%) |

| Response to chemoradiotherapy | Cases (%) |
|-------------------------------|-------------------|
| CR | 115 (21.9%) |
| PR | 204 (38.8%) |
| NC | 60 (11.4%) |
| PD | 44 (8.4%) |
| Not evaluated | 26 (4.9%) |
| Unknown | 77 (14.6%) |
| Total | 526 (100%) |

| Response to chemotherapy | Cases (%) |
|--------------------------|------------------|
| CR | 1 (1.2%) |
| PR | 21 (25.6%) |
| NC | 26 (31.7%) |
| PD | 14 (17.1%) |
| Not evaluated | 5 (6.1%) |
| Unknown | 15 (18.3%) |
| Total | 82 (100%) |

**Figure 4) Cumulative survival curves of patients
treated by chemotherapy and/or radiotherapy**

(April, 2002)

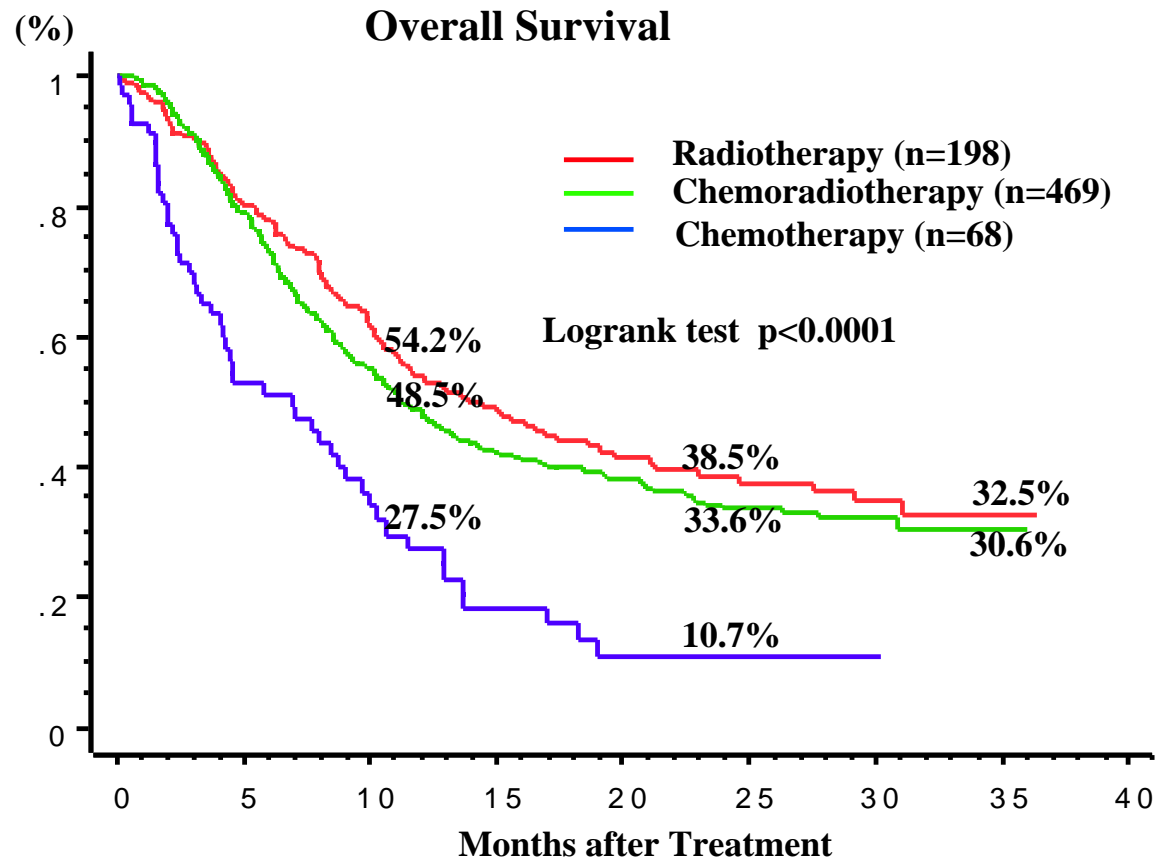


Figure 5) Cumulative survival curves of patients treated by chemotherapy and/or radiotherapy (cStage I-IIA)

(April, 2002)

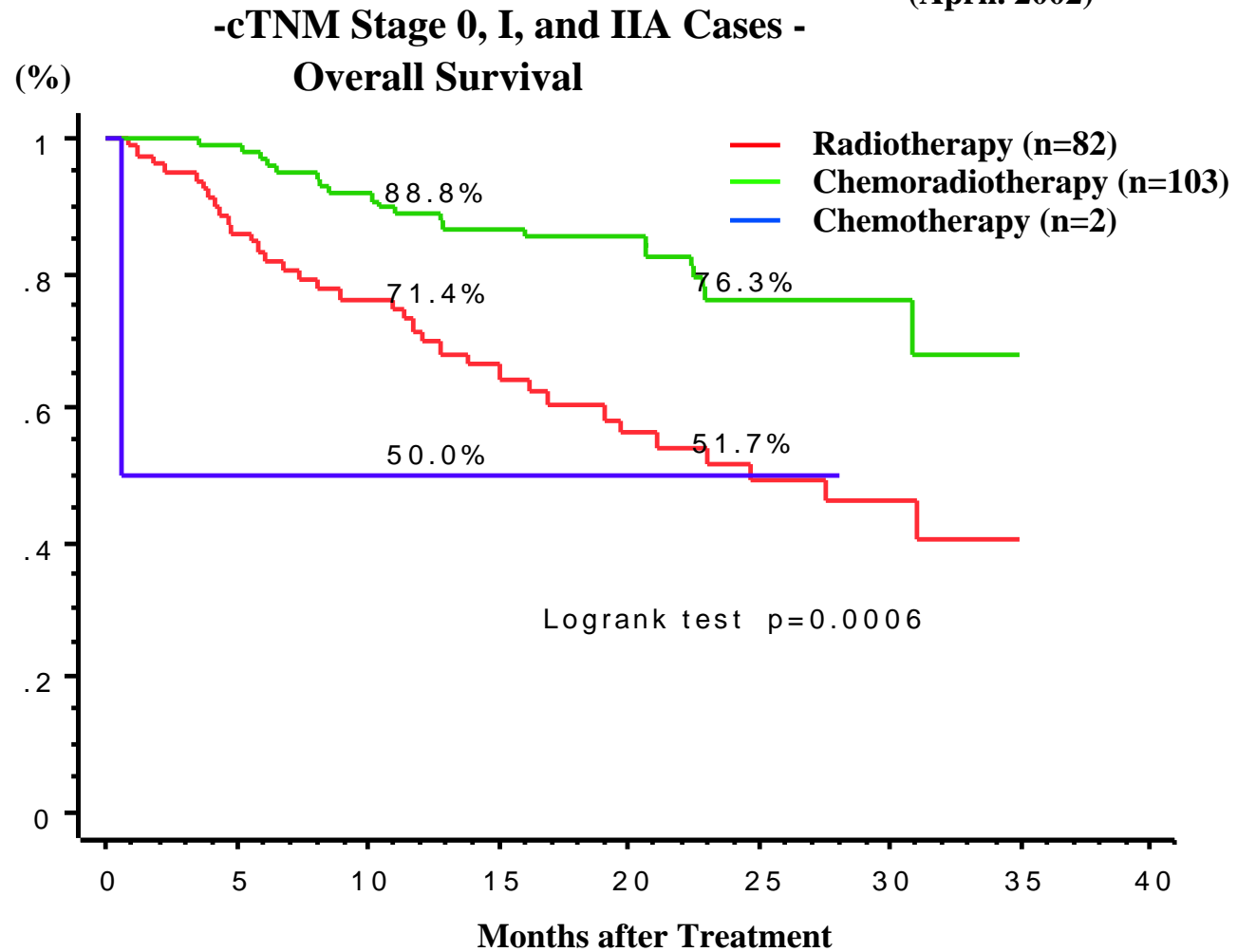
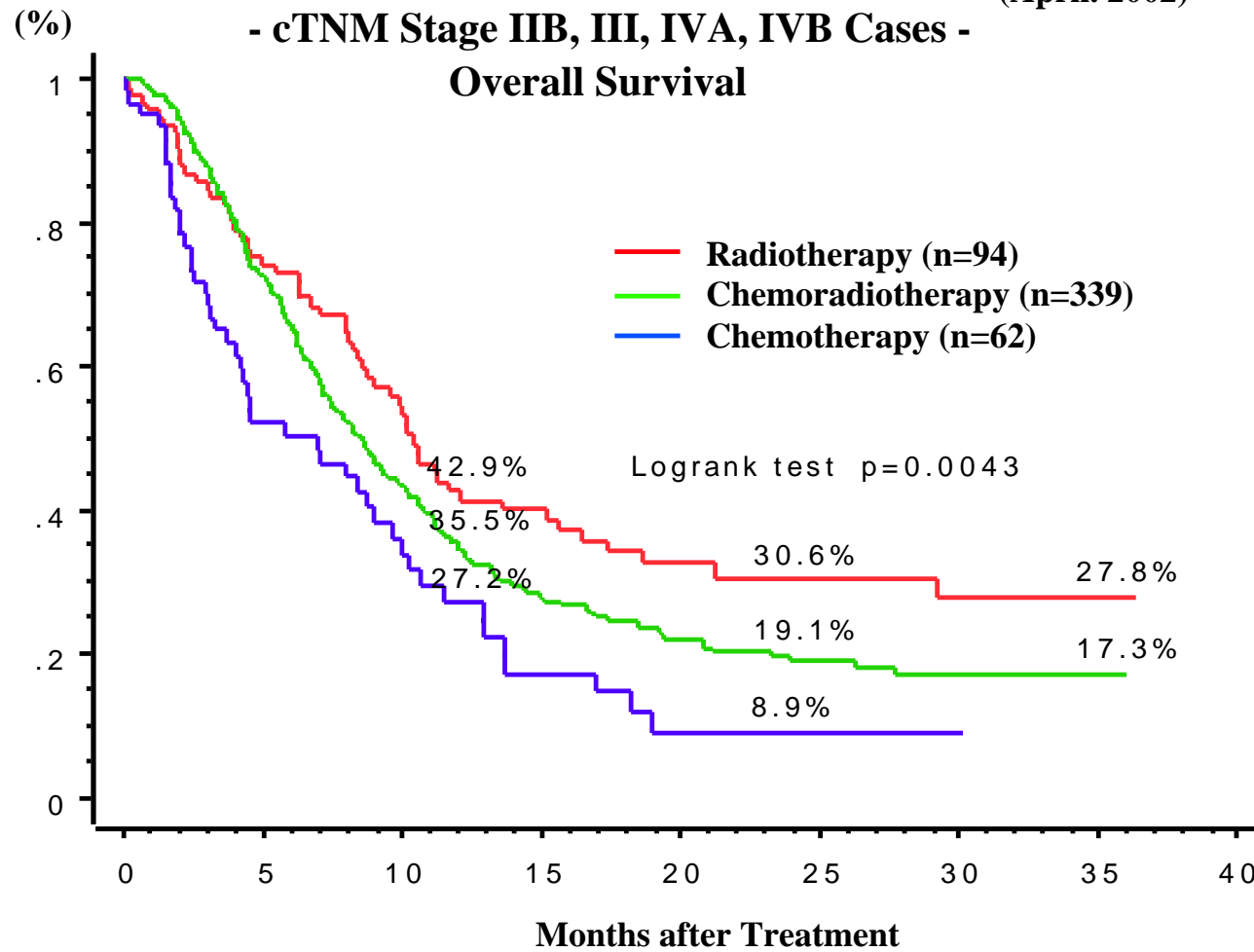


Figure 6) Cumulative survival curves of patients treated by chemotherapy and/or radiotherapy (cStage IIB-IVB)

(April. 2002)



IV. Clinical Results in Patients treated by Palliative Operation in 1999

Table 28) Palliative operation cases without esophagectomy

| Treatment | Cases (%) |
|--------------------------------------------------|------------------|
| Surgery | 11 (16.9%) |
| Surgery +radiotherapy | 9 (13.8%) |
| Surgery + radiotherapy + endoscopic treatment | 1 (1.5%) |
| Surgery + chemoradiotherapy | 35 (53.8%) |
| Surgery + chemotherapy | 7 (10.8%) |
| Surgery + endoscopic treatment | 2 (3.1%) |
| Total | 65 (100%) |

| Radiotherapy | Cases (%) |
|------------------------|------------------|
| No-irradiation | 20 (30.8%) |
| Curative irradiation | 33 (50.8%) |
| Palliative irradiation | 12 (18.5%) |
| Unknown | 0 |
| Total | 65 (100%) |

| Surgical treatment | Cases (%) |
|----------------------------|------------------|
| Probe thoraco / laparotomy | 24 (36.9%) |
| Bypass-operation | 12 (18.5%) |
| Gastrostomy / Jejunostomy | 14 (21.5%) |
| Lymph adenectomy | 6 (9.2%) |
| Others | 5 (7.7%) |
| Unknown | 4 (6.2%) |
| Total | 65 (100%) |

| Total doses (Gy) | Cases (%) |
|------------------|------------------|
| 0 | 20 (30.8%) |
| 2 - 19 | 2 (3.1%) |
| 20 - 39 | 6 (9.2%) |
| 40 - 59 | 12 (18.5%) |
| 60 - 79 | 20 (30.8%) |
| 80 - 99 | 0 |
| 100 - ` | 1 (1.5%) |
| Unknown | 4 (6.2%) |
| Total | 65 (100%) |

Table 29) Effectiveness of treatments (Palliative operation cases without esophagectomy)

| Chemotherapy | Cases (%) |
|--------------|------------------|
| (-) | 23 (35.4%) |
| (+) | 42 (64.6%) |
| Unknown | 0 |
| Total | 65 (100%) |

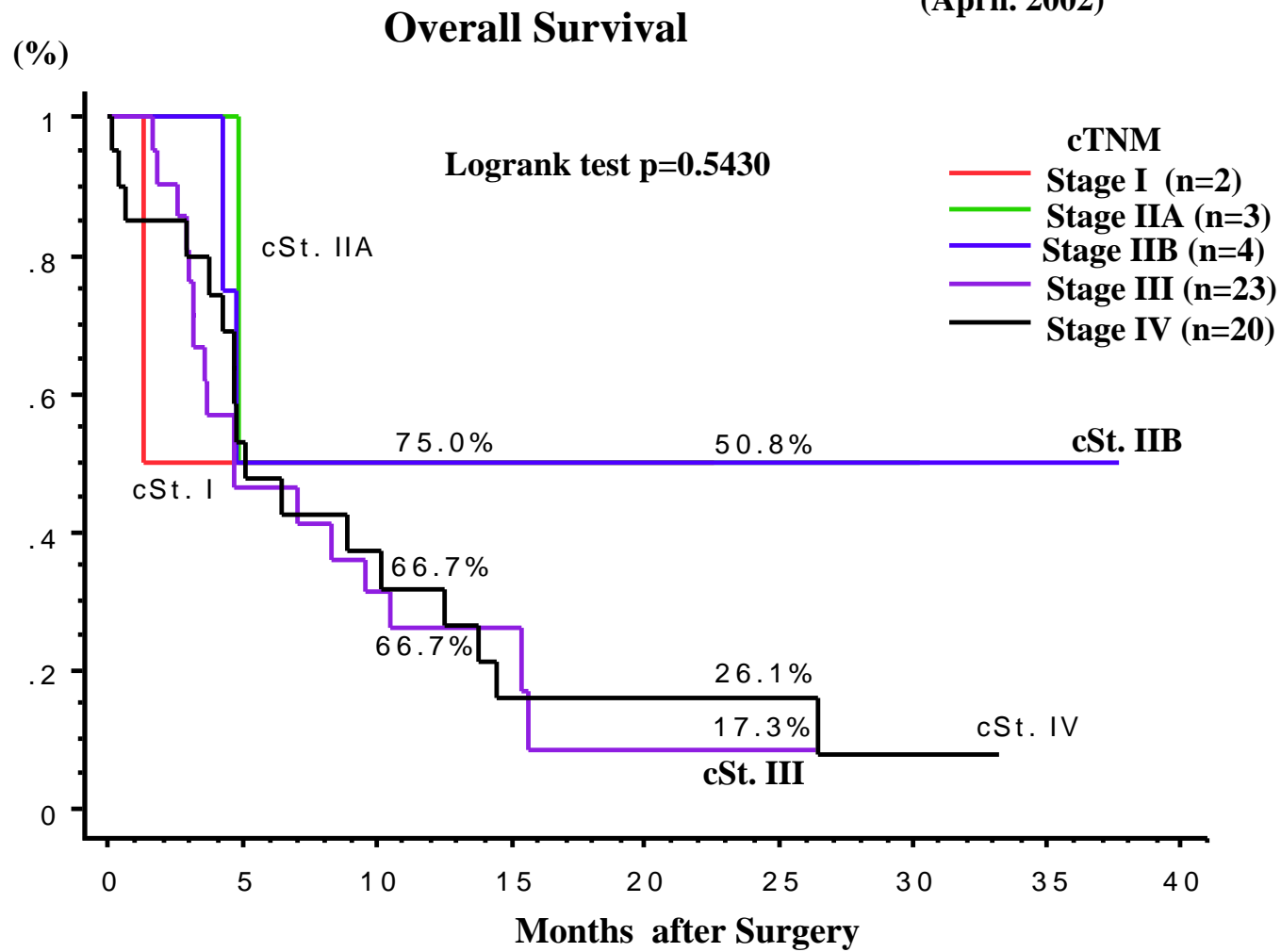
| Surg + radiotherapy | Cases (%) |
|---------------------|------------------|
| CR | 0 |
| PR | 1 (10.0%) |
| NC | 2 (20.0%) |
| PD | 1 (10.0%) |
| Not evaluated | 1 (10.0%) |
| Unknown | 5 (50.0%) |
| Total | 10 (100%) |

| Surg + chemoradiotherapy | Cases (%) |
|--------------------------|------------------|
| CR | 2 (5.7%) |
| PR | 15 (42.9%) |
| NC | 10 (28.6%) |
| PD | 4 (11.4%) |
| Not evaluated | 0 |
| Unknown | 4 (11.4%) |
| Total | 35 (100%) |

| Surg + chemotherapy | Cases (%) |
|---------------------|-----------------|
| CR | 0 |
| PR | 1 (14.3%) |
| NC | 3 (42.9%) |
| PD | 2 (28.6%) |
| Not evaluated | 0 |
| Unknown | 1 (14.3%) |
| Total | 7 (100%) |

Figure 7) Cumulative survival curves of patients treated by palliative surgery (cTNM)

(April, 2002)



V. Clinical Results in Patients treated with Esophagectomy in 1999

Table 30) Cases of esophagectomy (treatment, surgical procedure, and location of the tumor)

| Treatment | Cases (%) |
|--------------------------------------|--------------------|
| Esophagectomy | 971 (53.4%) |
| Esophagectomy + radiotherapy* | 170 (9.4%) |
| Esophagectomy + chemoradiotherapy** | 326 (17.9%) |
| Esophagectomy + chemotherapy*** | 318 (17.5%) |
| Esophagectomy + endoscopic treatment | 31 (1.7%) |
| Esophagectomy + other treatment | 1 (0.06%) |
| Total | 1817 (100%) |

* : + endoscopic treatment (1 cases)

** : + hyperthermia (9 cases), + endoscopic treatment (3 cases), + other treatment (1 case)
+ other treatment (1 case)

***: + hyperthermia (2 cases), + endoscopic treatment (3 cases), + hyperthermia + endoscopic treatment (1 case), + other treatment (1 case)

| Surgical procedures | Cases (%) |
|----------------------------------------------------|--------------------|
| Esophagectomy without reconstruction | 3 (0.2%) |
| Esophagectomy + reconstruction (2-stage operation) | 37 (2.0%) |
| Esophagectomy with reconstruction | 1777 (97.8%) |
| Unknown | 0 |
| Total | 1817 (100%) |

| Location | Cases (%) |
|---------------------------|--------------------|
| Pharynx | 5 (0.3%) |
| Cervical esophagus | 78 (4.3%) |
| Upper thoracic esophagus | 181 (10.0%) |
| Middle thoracic esophagus | 902 (49.6%) |
| Lower thoracic esophagus | 490 (27.0%) |
| Abdominal esophagus | 100 (5.5%) |
| EG Junction | 15 (0.8%) |
| Cardia | 3 (0.2%) |
| Unknown | 43 (2.4%) |
| Total | 1817 (100%) |

Table 31) Cases of esophagectomy (surgical approach and region of lymphadenectomy)

| Approach | Cases | (%) |
|----------------------------------------|-------------|---------------|
| Cervical approach | 51 | (2.8%) |
| Right thoracotomy | 1464 | (80.6%) |
| Left thoracotomy | 27 | (1.5%) |
| Left thoracoabdominal approach | 60 | (3.3%) |
| Laparotomy | 28 | (1.5%) |
| Transhiatal (without blunt dissection) | 7 | (0.4%) |
| Transhiatal (with blunt dissection) | 95 | (5.2%) |
| Sternotomy | 15 | (0.8%) |
| Others | 15 | (0.8%) |
| Unknown | 55 | (3.0%) |
| Total | 1817 | (100%) |

| Region of lymphadenectomy | Cases | (%) |
|---------------------------|-------------|---------------|
| (-) | 39 | (2.1%) |
| C | 56 | (3.1%) |
| C+UM | 23 | (1.3%) |
| C+UM+MLM | 36 | (2.0%) |
| C+UM+MLM+A | 638 | (35.1%) |
| C+UM+A | 4 | (0.2%) |
| C+MLM | 0 | |
| C+MLM+A | 4 | (0.2%) |
| C+A | 15 | (0.8%) |
| UM | 4 | (0.2%) |
| UM+MLM | 25 | (1.4%) |
| UM+MLM+A | 599 | (33.0%) |
| UM+A | 6 | (0.3%) |
| MLM | 23 | (1.3%) |
| MLM+A | 196 | (10.8%) |
| A | 67 | (3.7%) |
| Unknown | 82 | (4.5%) |
| Total | 1817 | (100%) |

C: bilateral cervical nodes

UM: upper mediastinal nodes

MLM: middle-lower mediastinal nodes

A: abdominal nodes

Table 32) Cases of esophagectomy (esophageal reconstruction)

| Reconstruction route | Cases | (%) |
|-----------------------|-------------|---------------|
| (-) | 5 | (0.3%) |
| Antethoracic | 193 | (10.6%) |
| Retrosternal | 648 | (35.7%) |
| Posterior mediastinal | 465 | (25.6%) |
| High intrathoracic* | 245 | (13.5%) |
| Low intrathoracic** | 113 | (6.2%) |
| Transhiatal | 33 | (1.8%) |
| Cervical | 26 | (1.4%) |
| Others | 5 | (0.3%) |
| Unknown | 84 | (4.6%) |
| Total | 1817 | (100%) |

* with upper mediastinal anastomosis

** with middle/lower mediastinal anastomosis

| Organs for esophageal replacement | Cases | (%) |
|-----------------------------------|-------------|---------------|
| (-) | 5 | (0.3%) |
| Whole stomach* | 91 | (5.0%) |
| Gastric tube** | 1409 | (77.5%) |
| Jejunum*** | 97 | (5.3%) |
| Free jejunum | 28 | (1.5%) |
| Colon | 122 | (6.7%) |
| Free colon | 5 | (0.3%) |
| Skin graft | 0 | |
| Others | 0 | |
| Unknown | 60 | (3.3%) |
| Total | 1817 | (100%) |

* : Free jejunum+Whole stomach (1 case)

** : Gastric tube+Jejunum (7 cases), Free jejunum+Gastric tube (2 cases)
Colon+Gastric tube(1 case), Free Colon+Gastric tube(1 case),
Skin roll+Gastric tube (1case)

***: Jejunum+Colon (2 case)

Table 33) Cases of intrathoracic esophagectomy (location of the tumor and reconstruction route)

| Location | Upper thoracic | Middle thortacic | Lower thoracic | Total thoracic |
|-----------------------|-------------------|-------------------|-------------------|--------------------|
| Reconstruction route | Cases (%) | Cases (%) | Cases (%) | Cases (%) |
| (-) | 0 | 3 (0.3%) | 1 (0.2%) | 4 (0.3%) |
| Antethoracic | 24 (13.3%) | 107 (11.9%) | 57 (11.6%) | 188 (12.0%) |
| Retrosternal | 73 (40.3%) | 374 (41.5%) | 172 (35.1%) | 619 (39.4%) |
| Posterior mediastinal | 70 (38.7%) | 238 (26.4%) | 100 (20.4%) | 408 (25.9%) |
| High intrathoracic* | 9 (5.0%) | 121 (13.4%) | 95 (19.4%) | 225 (14.3%) |
| Low intrathoracic** | 0 | 25 (2.8%) | 51 (10.4%) | 76 (4.8%) |
| Transhiatal | 0 | 0 | 7 (1.4%) | 7 (0.4%) |
| Cervical | 0 | 2 (0.2%) | 0 | 2 (0.1%) |
| Others | 0 | 1 (0.1%) | 0 | 1 (0.06%) |
| Unknown | 5 (2.8%) | 31 (3.4%) | 7 (1.4%) | 43 (2.7%) |
| Total | 181 (100%) | 902 (100%) | 490 (100%) | 1573 (100%) |

Table 34) Cases of esophagectomy for external lesion of the thorax (location of the tumor and reconstruction route)

| Location | Pharynx | Cervical esophagus | Abdominal esophagus | EGJ/Cardia |
|-----------------------|-----------------|--------------------|---------------------|--------------------|
| Reconstruction route | Cases (%) | Cases (%) | Cases (%) | Cases (%) |
| (-) | 0 | 1 (1.3%) | 0 | 0 |
| Antethoracic | 0 | 2 (2.6%) | 2 (2.0%) | 0 |
| Retrosternal | 0 | 9 (11.5%) | 15 (15.0%) | 1 (5.6%) |
| Posterior mediastinal | 1 (20.0%) | 41 (52.6%) | 12 (12.0%) | 0 |
| High intrathoracic* | 0 | 0 | 19 (19.0%) | 1 (5.6%) |
| Low intrathoracic** | 0 | 0 | 30 (30.0%) | 7 (38.9%) |
| Transhiatal | 0 | 0 | 17 (17.0%) | 9 (50.0%) |
| Cervical | 3 (60.0%) | 21 (26.9%) | 0 | 0 |
| Others | 1 (20.0%) | 1 (1.3%) | 2 (2.0%) | 0 |
| Unknown | 0 | 3 (3.8%) | 3 (3.0%) | 0 |
| Total | 5 (100%) | 78 (100%) | 100 (100%) | 18 * (100%) |

* E=G:15cases, G:3 cases

Table 35) Cases of intrathoracic esophagectomy (location of the tumor and lymph node dissection)

| Location | Upper thoracic | | Middle thoracic | | Lower thoracic | | Total | |
|---------------------------|----------------|---------------|-----------------|---------------|----------------|---------------|-------------|---------------|
| Region of lymphadenectomy | Cases | (%) | Cases | (%) | Cases | (%) | Cases | (%) |
| (-) | 9 | (5.0%) | 14 | (1.6%) | 9 | (1.8%) | 32 | (2.0%) |
| C | 5 | (2.8%) | 16 | (1.8%) | 6 | (1.2%) | 27 | (1.7%) |
| C+UM | 2 | (1.1%) | 0 | | 1 | (0.2%) | 3 | (0.2%) |
| C+UM+MLM | 8 | (4.4%) | 17 | (1.9%) | 9 | (1.8%) | 34 | (2.2%) |
| C+UM+MLM+A | 90 | (49.7%) | 382 | (42.4%) | 138 | (28.2%) | 610 | (38.8%) |
| C+UM+A | 0 | | 0 | | 0 | | 0 | |
| C+MLM | 0 | | 0 | | 0 | | 0 | |
| C+MLM+A | 1 | (0.6%) | 2 | (0.2%) | 0 | | 3 | (0.2%) |
| C+A | 2 | (1.1%) | 3 | (0.3%) | 2 | (0.4%) | 7 | (0.4%) |
| UM | 1 | (0.6%) | 2 | (0.2%) | 1 | (0.2%) | 4 | (0.3%) |
| UM+MLM | 3 | (1.7%) | 16 | (1.8%) | 5 | (1.0%) | 24 | (1.5%) |
| UM+MLM+A | 42 | (23.2%) | 339 | (37.6%) | 196 | (40.0%) | 577 | (36.7%) |
| UM+A | 1 | (0.6%) | 3 | (0.3%) | 2 | (0.4%) | 6 | (0.4%) |
| MLM | 3 | (1.7%) | 9 | (1.0%) | 6 | (1.2%) | 18 | (1.1%) |
| MLM+A | 4 | (2.2%) | 55 | (6.1%) | 82 | (16.7%) | 141 | (9.0%) |
| A | 3 | (1.7%) | 20 | (2.2%) | 22 | (4.5%) | 45 | (2.9%) |
| Unknown | 7 | (3.9%) | 24 | (2.7%) | 11 | (2.2%) | 42 | (2.7%) |
| Total | 181 | (100%) | 902 | (100%) | 490 | (100%) | 1573 | (100%) |

C: bilateral cervical nodes

UM: upper mediastinal nodes

MLM: middle-lower mediastinal nodes

A: abdominal nodes

Table 36) Cases of esophagectomy for external lesion of the thorax (location of the tumor and lymph node dissection)

| Location | Pharynx | Cervical esophagus | Abdominal esophagus | EGJ/Cardia |
|---------------------------|-----------------|--------------------|---------------------|-------------------|
| Region of lymphadenectomy | Cases (%) | Cases (%) | Cases (%) | Cases (%) |
| (-) | 0 | 4 (5.1%) | 1 (1.0%) | 0 |
| C | 5 (100%) | 22 (28.2%) | 0 | 0 |
| C+UM | 0 | 20 (25.6%) | 0 | 0 |
| C+UM+MLM | 0 | 1 (1.3%) | 0 | 0 |
| C+UM+MLM+A | 0 | 19 (24.4%) | 9 (9.0%) | 0 |
| C+UM+A | 0 | 4 (5.1%) | 0 | 0 |
| C+MLM | 0 | 0 | 0 | 0 |
| C+MLM+A | 0 | 0 | 1 (1.0%) | 0 |
| C+A | 0 | 6 (7.7%) | 2 (2.0%) | 0 |
| UM | 0 | 0 | 0 | 0 |
| UM+MLM | 0 | 1 (1.3%) | 0 | 0 |
| UM+MLM+A | 0 | 0 | 18 (18.0%) | 1 (5.6%) |
| UM+A | 0 | 0 | 0 | 0 |
| MLM | 0 | 0 | 3 (3.0%) | 2 (11.1%) |
| MLM+A | 0 | 0 | 46 (46.0%) | 9 (50.0%) |
| A | 0 | 1 (1.3%) | 16 (16.0%) | 5 (27.8%) |
| Unknown | 0 | 0 | 4 (4.0%) | 1 (5.6%) |
| Total | 5 (100%) | 78 (100%) | 100 (100%) | 18* (100%) |

*E=G:15cases, G:3cases

Table 37) Cases of esophagectomy (vascular anastomosis and endoscopic surgery)

| Vascular anastomosis | Cases (%) |
|----------------------|--------------------|
| (-) | 1636 (90.0%) |
| (+) | 105 (5.8%) |
| Unknown | 76 (4.2%) |
| Total | 1817 (100%) |

| Endoscopic surgery | Cases (%) |
|--------------------------------------|--------------------|
| (-) | 1557 (85.7%) |
| Thoracoscopy | 64 (3.5%) |
| Thoracoscopy assist | 85 (4.7%) |
| Mediastinoscopy assist | 30 (1.7%) |
| Laparoscopy assist | 6 (0.3%) |
| Thoracoscopy & Laparoscopy assist | 1 (0.06%) |
| Unknown | 74 (4.1%) |
| Total | 1817 (100%) |

Table 38) Cases of esophagectomy (operative findings of cT and combined resected organs)

| Macroscopic T-category (cT) | Cases | (%) |
|-----------------------------|-------------|---------------|
| T0 | 58 | (3.2%) |
| T1 | 418 | (23.0%) |
| T2 | 397 | (21.8%) |
| T3 | 683 | (37.6%) |
| T4 | 197 | (10.8%) |
| Unknown | 64 | (3.5%) |
| Total | 1817 | (100%) |

| cT4 by lymphatic metastasis | Cases | (%) |
|-----------------------------|-------------|---------------|
| (-) | 1692 | (93.1%) |
| N1(T4) | 13 | (0.7%) |
| N2(T4) | 19 | (1.0%) |
| N3(T4) | 6 | (0.3%) |
| N4(T4) | 8 | (0.4%) |
| Nx(T4) | 3 | (0.2%) |
| Unknown | 76 | (4.2%) |
| Total | 1817 | (100%) |

| Organs* | Cases | (%) |
|---------------------------------|------------|---------------|
| (-) | 76 | (26.2%) |
| Larynx | 28 | (9.7%) |
| Trachea | 21 | (7.2%) |
| Aorta | 5 | (1.7%) |
| Lung | 29 | (10.0%) |
| Pericardium | 21 | (7.2%) |
| Diaphragm | 23 | (7.9%) |
| Stomach | 8 | (2.8%) |
| Pancreas+spleen | 16 | (5.5%) |
| Thoracic duct | 21 | (7.2%) |
| Recurrent nerve | 11 | (3.8%) |
| Recurrent nerve (main trunk) | 6 | (2.1%) |
| Others | 20 | (6.9%) |
| Unknown | 5 | (1.7%) |
| Total of resected organs | 290 | (100%) |
| Total of cT4 cases | 197 | |

*: Organs resected in addition to the esophagus

Table 39) Cases of esophagectomy (operative findings of the tumor feature and size)

| Macroscopic type | Cases (%) |
|------------------|--------------------|
| 0-Ip | 34 (1.9%) |
| 0-Ipl | 71 (3.9%) |
| 0-Isep | 19 (1.0%) |
| 0-IIa | 108 (5.9%) |
| 0-IIb | 38 (2.1%) |
| 0-IIc | 236 (13.0%) |
| 0-III | 28 (1.5%) |
| 0-V | 17 (0.9%) |
| 1p | 29 (1.6%) |
| 1c | 9 (0.5%) |
| 1pl | 59 (3.2%) |
| 1sep | 3 (0.2%) |
| 2 | 505 (27.8%) |
| 3 | 455 (25.0%) |
| 4s | 20 (1.1%) |
| 4ns | 4 (0.2%) |
| 5c | 13 (0.7%) |
| 5s | 6 (0.3%) |
| 5u | 73 (4.0%) |
| Unknown | 90 (5.0%) |
| Total | 1817 (100%) |

| Size of Tumor (mm) | Cases (%) |
|--------------------|--------------------|
| - 9 | 27 (1.5%) |
| 10 - 19 | 129 (7.1%) |
| 20 - 29 | 227 (12.5%) |
| 30 - 39 | 224 (12.3%) |
| 40 - 49 | 296 (16.3%) |
| 50 - 59 | 292 (16.1%) |
| 60 - 69 | 184 (10.1%) |
| 70 - 79 | 135 (7.4%) |
| 80 - 89 | 79 (4.3%) |
| 90 - 99 | 35 (1.9%) |
| 100 -109 | 32 (1.8%) |
| 110 -119 | 11 (0.6%) |
| 120 -129 | 14 (0.8%) |
| 130 -139 | 8 (0.4%) |
| 140 -149 | 5 (0.3%) |
| 150 - | 11 (0.6%) |
| Unknown | 108 (5.9%) |
| Total | 1817 (100%) |

Table 40) Histologic types of resected specimen and multiple primary cancer

| Histologic types | | Cases (%) |
|---------------------------------|------------------|-------------|
| Not examined | | 1 (0.06%) |
| SCC | SCC | 106 (5.8%) |
| | Well diff. | 400 (22.0%) |
| | Moderately diff. | 774 (42.6%) |
| | Poorly diff. | 341 (18.8%) |
| Adenocarcinoma | | 29 (1.6%) |
| Barrett's adenocarcinoma | | 9 (0.5%) |
| Adenosquamous cell carcinoma | | 10 (0.6%) |
| Epidermoid carcinoma | | 4 (0.2%) |
| Adenoid cystic carcinoma | | 3 (0.2%) |
| Basoloid carcinoma | | 26 (1.4%) |
| Undiff. carcinoma (small cell) | | 14 (0.8%) |
| Undiff. carcinoma | | 5 (0.3%) |
| Sarcoma | | 0 |
| So-called carcinosarcoma | | 12 (0.7%) |
| Pseudosarcoma | | 1 (0.06%) |
| True carcinosarcoma | | 0 |
| Malignant melanoma | | 2 (0.1%) |
| Dysplasia | | 3 (0.2%) |
| Other | | 11 (0.6%) |
| Unknown | | 66 (3.6%) |
| Total | | 1817 (100%) |

| Multiple primary cancer | Cases (%) |
|-------------------------|--------------|
| (-) | 1524 (83.9%) |
| (+) | 220 (12.1%) |
| Unknown | 73 (4.0%) |
| Total | 1817 (100%) |

Table 41) Pathological findings of resected specimen (residual cancer, intraepithelial spread, and infiltrative growth pattern)

Residual cancer cells at the transected stump

| proximal (p)/distal (d) | Cases (%) |
|-------------------------|--------------------|
| p / d (-) | 1695 (93.3%) |
| p / d (+) | 59 (3.2%) |
| Unknown | 63 (3.5%) |
| Total | 1817 (100%) |

Residual cancer cell in the cut surface of the esophageal wall (ew) of the resected specimen

| ew | Cases (%) |
|--------------|--------------------|
| ew(-) | 1620 (89.2%) |
| ew(+) | 121 (6.7%) |
| Unknown | 76 (4.2%) |
| Total | 1817 (100%) |

Intraepithelial spread (ie)

| ie | Cases (%) |
|---------------------|--------------------|
| ie(-) | 1017 (56.0%) |
| ie(+) | 641 (35.3%) |
| ie(++)(superficial) | 40 (2.2%) |
| Unknown | 119 (6.5%) |
| Total | 1817 (100%) |

Infiltrative growth pattern (inf)

| inf | Cases (%) |
|--------------|--------------------|
| inf | 264 (14.5%) |
| inf | 981 (54.0%) |
| inf | 206 (11.3%) |
| Unknown | 366 (20.1%) |
| Total | 1817 (100%) |

Table 42) Pathological findings of resected specimen (vessel invasion and skip metastasis)

| Lymphatic vessel invasion (ly) | | Cases | (%) |
|--------------------------------|-------|-------|---------|
| ly0 | | 550 | (30.3%) |
| ly(+) | ly(+) | 52 | (2.9%) |
| | ly1 | 542 | (29.8%) |
| | ly2-3 | 563 | (31.0%) |
| Unknown | | 110 | (6.1%) |
| Total | | 1817 | (100%) |

| Blood vessel invasion (v) | | Cases | (%) |
|---------------------------|------|-------|---------|
| v0 | | 885 | (48.7%) |
| v(+) | v(+) | 17 | (0.9%) |
| | v1 | 456 | (25.1%) |
| | v2-3 | 345 | (19.0%) |
| Unknown | | 114 | (6.3%) |
| Total | | 1817 | (100%) |

| Skip metastasis in the esophageal wall (im-e) | | Cases | (%) |
|-----------------------------------------------|--|-------|---------|
| im-e (-) | | 1566 | (86.2%) |
| im-e (+) | | 166 | (9.1%) |
| Unknown | | 85 | (4.7%) |
| Total | | 1817 | (100%) |

| Skip metastasis in the stomach wall (im-st) | | Cases | (%) |
|---------------------------------------------|--|-------|---------|
| im-st (-) | | 1664 | (91.6%) |
| im-st (+) | | 60 | (3.3%) |
| Unknown | | 93 | (5.1%) |
| Total | | 1817 | (100%) |

Table 43) Pathological findings of resected specimen (pT)

Depth of tumor invasion

| pT-category | Cases (%) |
|--------------|--------------------|
| Not examined | 0 |
| pT0 | 21 (1.2%) |
| pTis | 24 (1.3%) |
| pT1a | 130 (7.2%) |
| pT1b | 410 (22.6%) |
| pT2 | 248 (13.6%) |
| pT3 | 757 (41.7%) |
| pT4 | 162 (8.9%) |
| Unknown | 65 (3.6%) |
| Total | 1817 (100%) |

Subclassification of superficial carcinoma

| Subclassification | Cases (%) |
|-------------------|-------------------|
| m1 (pTis)* | 24 (6.2%) |
| m2 (pT1a)** | 49 (3.8%) |
| m3 (pT1a)*** | 81 (17.4%) |
| sm1(pT1b) | 70 (10.5%) |
| sm2 (pT1b) | 111 (20.2%) |
| sm3 (pT1b) | 176 (26.2%) |
| Unknown (pT1b) | 53 (15.7%) |
| Total | 564 (100%) |

* ep = epithel

** lpm = lamina proplia mucosa

*** mm = muscularis mucosa

Table 44) Pathological findings of resected specimen (pN)

| Lymph node metastasis | Cases | (%) |
|-----------------------|-------------|---------------|
| n(-) | 715 | (39.4%) |
| n1(+) | 231 | (12.7%) |
| n2(+) | 509 | (28.0%) |
| n3(+) | 168 | (9.2%) |
| n4(+) | 131 | (7.2%) |
| Unknown | 63 | (3.5%) |
| Total | 1817 | (100%) |

| Number of lymph node metastasis | Cases | (%) |
|---------------------------------|-------------|---------------|
| 0 | 715 | (39.4%) |
| 1~3 | 594 | (32.7%) |
| 4~7 | 259 | (14.3%) |
| 8~ | 154 | (8.5%) |
| Unknown | 95 | (5.2%) |
| Total | 1817 | (100%) |

Table 45) Pathological findings of resected specimen (grade of lymph node metastasis corrected using number of metastasis and fields of lymph node metastasis)

**Grade of lymph node metastasis
(corrected using number of metastasis)**

| Grade of metastasis | Cases (%) |
|---------------------|--------------------|
| gN0 | 715 (39.4%) |
| gN1(n1a) | 200 (11.0%) |
| gN2(n1b) | 15 (0.8%) |
| gN2(n2a) | 309 (17.0%) |
| gN3(n1c) | 5 (0.3%) |
| gN3(n2b) | 149 (8.2%) |
| gN3(n3a) | 58 (3.2%) |
| gN4(n2c) | 42 (2.3%) |
| gN4(n3b) | 61 (3.4%) |
| gN4(n3c) | 41 (2.3%) |
| gN4(n4a) | 25 (1.4%) |
| gN4(n4b) | 34 (1.9%) |
| gN4(n4c) | 68 (3.7%) |
| Unknown | 95 (5.2%) |
| Total | 1817 (100%) |

Number of lymph node metastasis

a : 1~3

b : 4~7

c : 8~

Fields of lymph node metastasis

| Field of metastasis | Cases (%) |
|---------------------|--------------------|
| n(-) | 715 (39.4%) |
| C | 65 (3.6%) |
| A+C | 73 (4.0%) |
| A+B+C | 81 (4.5%) |
| C+B | 25 (1.4%) |
| A | 239 (13.2%) |
| A+B | 264 (14.5%) |
| B | 260 (14.3%) |
| Unknown | 95 (5.2%) |
| Total | 1817 (100%) |

A: mediastinal lymph nodes

B: abdominal lymph nodes

C: cervical lymph nodes

Fig. 8) N-category in Japanese Classification (JSED 1998 ~)

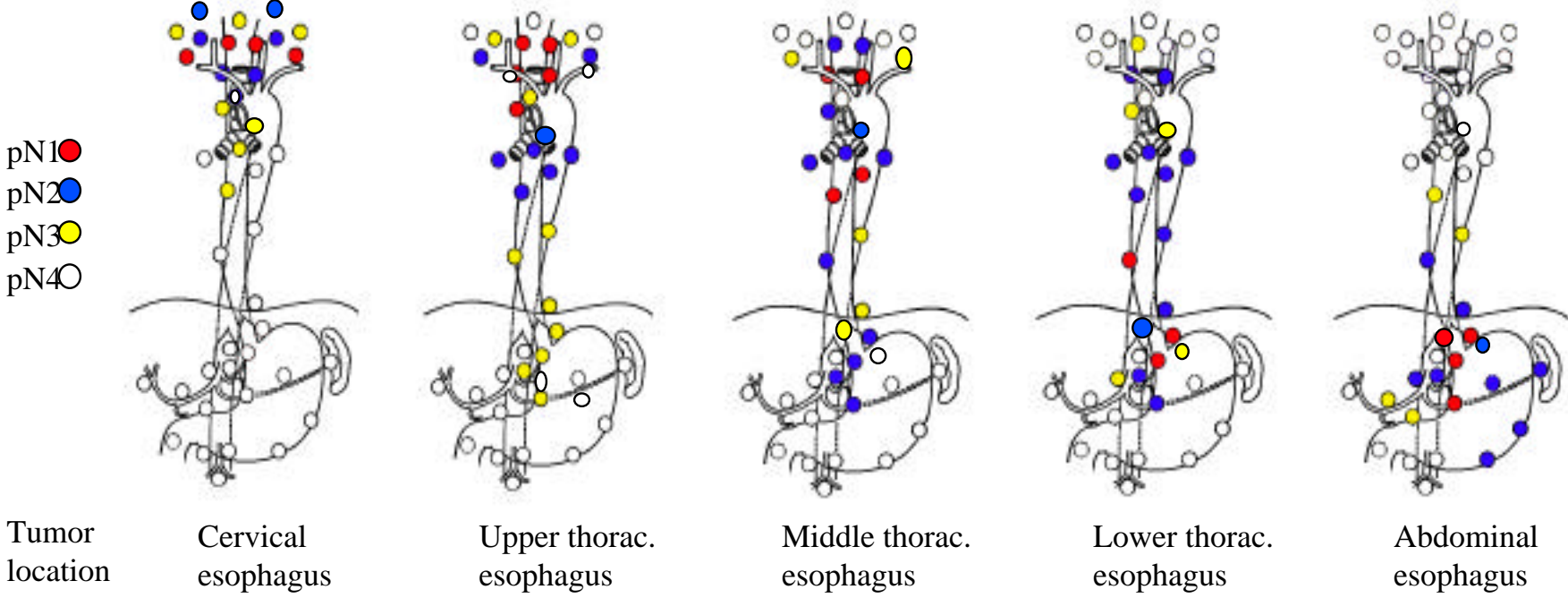


Fig. 9) Grade of metastasis (gN) corrected by number of metastatic node (JSED 1998 ~)

| pN-category of JSED | Number of lymph node metastasis | | | |
|------------------------|---------------------------------|-----------|-----------|----------|
| | 0 | a:(1~3) | b:(4~7) | c:(8~) |
| pN0 | gN0 | | | |
| pN1 | | gN1 | gN2 | gN3 |
| pN2 | | gN2 | gN3 | gN4 |
| pN3 | | gN3 | | |
| pN4 | | | | |

Fig. 10) Pathological Stage of JSED (1998 ~)

| | gN0 | gN1 | gN2 | gN3 | gN4 | M1 |
|-----|-----|-----|-----|-----|-----|-----|
| Tis | 0 | | | | | |
| T1a | 0 | I | II | III | IVa | IVb |
| T1b | I | | | | | |
| T2 | II | | | | | |
| T3 | | | | | | |
| T4 | III | | | | | |

Table 46) Pathological findings of resected specimen (distant metastasis, stage, grade of dissection, and curability)

| Distant metastasias (pM) | Cases | (%) |
|--------------------------|-------------|---------------|
| pM0 | 1675 | (92.2%) |
| pM1 | 43 | (2.4%) |
| Unknown | 99 | (5.4%) |
| Total | 1817 | (100%) |

| Pathological stage | Cases | (%) |
|--------------------|-------------|---------------|
| 0 | 151 | (8.3%) |
| I | 241 | (13.3%) |
| II | 435 | (23.9%) |
| III | 486 | (26.7%) |
| IVa | 305 | (16.8%) |
| IVb | 41 | (2.3%) |
| Unknown | 158 | (8.7%) |
| Total | 1817 | (100%) |

| Grade of dissection (D) | Cases | (%) |
|-------------------------|-------------|---------------|
| D0 | 136 | (7.5%) |
| DI | 224 | (12.3%) |
| DII | 719 | (39.6%) |
| DIII | 651 | (35.8%) |
| Unknown | 87 | (4.8%) |
| Total | 1817 | (100%) |

| Curability | Cases | (%) |
|-----------------------------|-------------|---------------|
| Absolutely curative (a) | 1023 | (56.3%) |
| Relatively curative (b) | 521 | (28.7%) |
| Absolutely non-curative (c) | 170 | (9.4%) |
| Unknown | 103 | (5.7%) |
| Total | 1817 | (100%) |

Table 47) Pathological findings of resected specimen (residual tumor, multiple cancers, and multiple lesions)

| Residual tumor (R) | Cases (%) |
|--------------------|--------------------|
| R0 | 1490 (82.0%) |
| R1 | 105 (5.8%) |
| R2 | 120 (6.6%) |
| Rx | 31 (1.7%) |
| Total | 1817 (100%) |

| Primary multiple cancers | Cases (%) |
|--------------------------|--------------------|
| (-) | 1524 (83.9%) |
| (+) | 220 (12.1%) |
| Unknown | 73 (4.0%) |
| Total | 1883 (100%) |

| Multiple malignant lesions | Cases (%) |
|----------------------------|--------------------|
| (-) | 1358 (74.7%) |
| (+) | 350 (19.3%) |
| Unknown | 109 (6.0%) |
| Total | 1817 (100%) |

| Number of malignant lesions | Cases (%) |
|-----------------------------|--------------------|
| 0 | 1358 (74.7%) |
| 1 | 119 (6.5%) |
| 2 | 102 (5.6%) |
| 3 | 31 (1.7%) |
| 4 | 7 (0.4%) |
| 5 ~ | 10 (0.6%) |
| Unknown | 190 (10.5%) |
| Total | 1817 (100%) |

Table 48) Adjuvant therapy for cases of esophagectomy

| Radiotherapy | Cases | (%) |
|------------------------------|-------------|---------------|
| (-) | 1256 | (69.1%) |
| Preoperative | 201 | (11.1%) |
| Pre+intraoperative(IOR)+Post | 1 | (0.06%) |
| Pre+postoperative | 2 | (0.1%) |
| IOR | 3 | (0.2%) |
| IOR+postoperative | 1 | (0.6%) |
| Postoperative | 312 | (17.2%) |
| Time to recurrence | 39 | (2.1%) |
| Unknown | 2 | (0.1%) |
| Total | 1817 | (100%) |

| Doses of irradiation (Gy) | Cases | (%) |
|---------------------------|-------------|---------------|
| 0 | 1256 | (69.1%) |
| 1 ~ 19 | 19 | (1.0%) |
| 20 ~ 39 | 89 | (4.9%) |
| 40 ~ 59 | 283 | (15.6%) |
| 60 ~ 79 | 106 | (5.8%) |
| 80 ~ 99 | 3 | (0.2%) |
| 100~ | 5 | (0.3%) |
| Unknown | 56 | (3.1%) |
| Total | 1817 | (100%) |

| Chemotherapy | Cases | (%) |
|-------------------------|-------------|---------------|
| (-) | 1128 | (62.1%) |
| Preoperative | 276 | (15.2%) |
| Pre+intraoperative(IOR) | 1 | (0.06%) |
| Pre+postoperative | 52 | (2.9%) |
| Intraoperative (IOR) | 0 | |
| IOR+postoperative | 0 | |
| Postoperative | 309 | (17.0%) |
| Time to recurrence | 49 | (2.7%) |
| Unknown | 2 | (0.1%) |
| Total | 1817 | (100%) |

| Type of chemotherapy | Cases | (%) |
|------------------------------|-------------|---------------|
| (-) | 1128 | (62.1%) |
| Chemotherapy alone | 371 | (20.4%) |
| Concurrent chemoradiotherapy | 238 | (13.1%) |
| Sequential chemoradiotherapy | 36 | (2.0%) |
| Others | 8 | (0.4%) |
| Unknown | 36 | (2.0%) |
| Total | 1817 | (100%) |

Table 49) Outcome of cases with esophagectomy

| Outcome | Cases (%) |
|---------------------|--------------------|
| Alive | 1022 (56.2%) |
| Dead | 700 (38.5%) |
| Lost of information | 38 (2.1%) |
| Unknown | 57 (3.1%) |
| Total | 1817 (100%) |

| Courses of death | Cases (%) |
|-----------------------------------|-------------------|
| Death due to recurrence | 532 (76.0%) |
| Death due to other cancer | 13 (1.9%) |
| Death due to other diseases(rec+) | 10 (1.4%) |
| Death due to other diseases(rec-) | 43 (6.1%) |
| Death due to other diseases(rec?) | 10 (1.4%) |
| Operative death* | 25 (3.6%) |
| Postoperative hospital death** | 35 (5.0%) |
| Unknown | 32 (4.6%) |
| Total death cases | 700 (100%) |

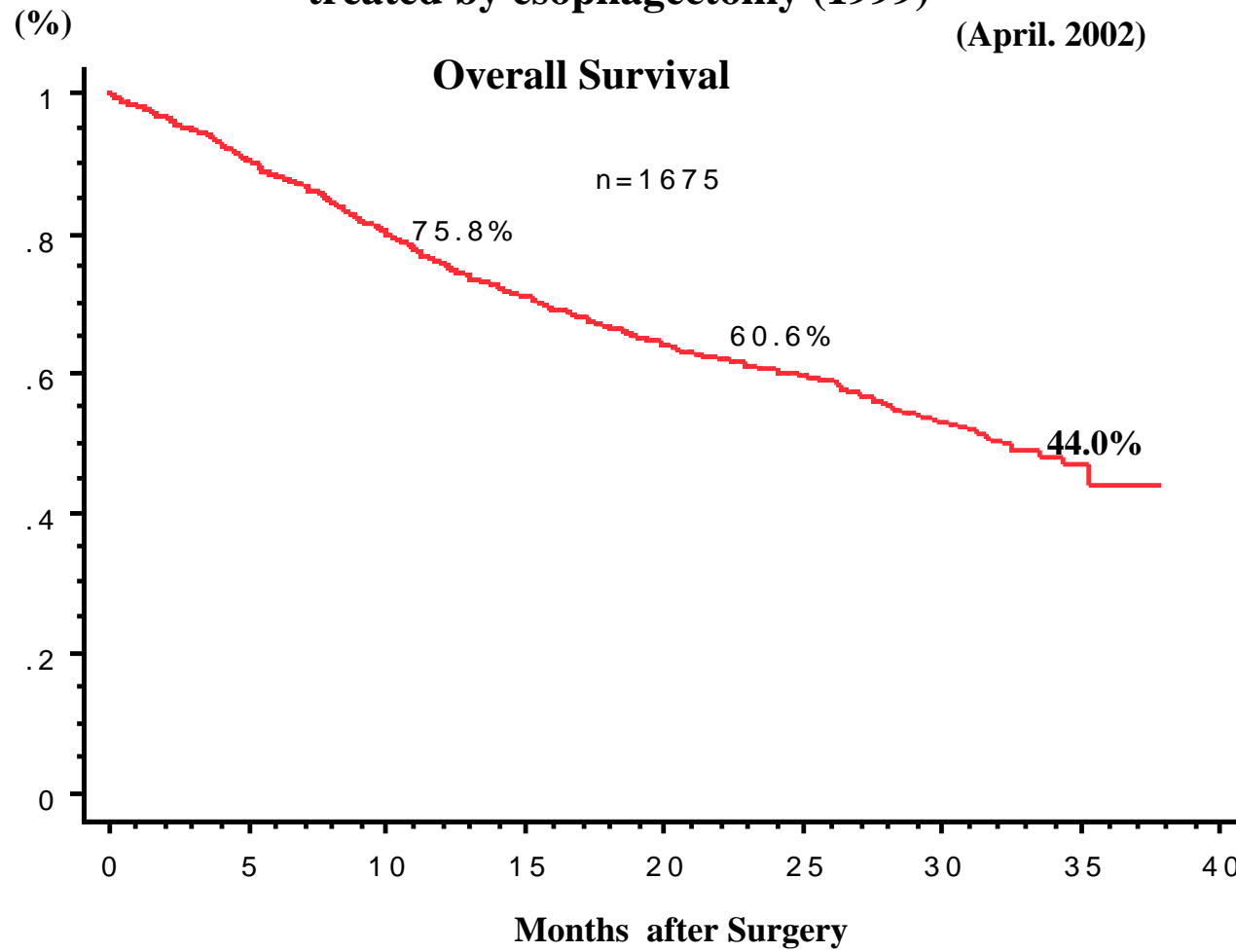
| Initial recurrence lesion of death cases | Cases (%) |
|------------------------------------------|-------------------|
| None | 193 (21.8%) |
| Lymph node | 186 (21.0%) |
| Lung | 70 (7.9%) |
| Liver | 92 (10.4%) |
| Bone | 61 (6.9%) |
| Brain | 13 (1.5%) |
| Primary lesion | 83 (6.4%) |
| Dissemination | 31 (3.5%) |
| Anastomotic region | 2 (0.2%) |
| Others | 21 (2.4%) |
| Unknown | 135 (15.2%) |
| Total of recurrence lesion | 887 (100%) |
| Total death cases | 700 |

* Death within 30 days

** Death over 30 days

Figure 11) Overall survival curves of patients treated by esophagectomy (1999)

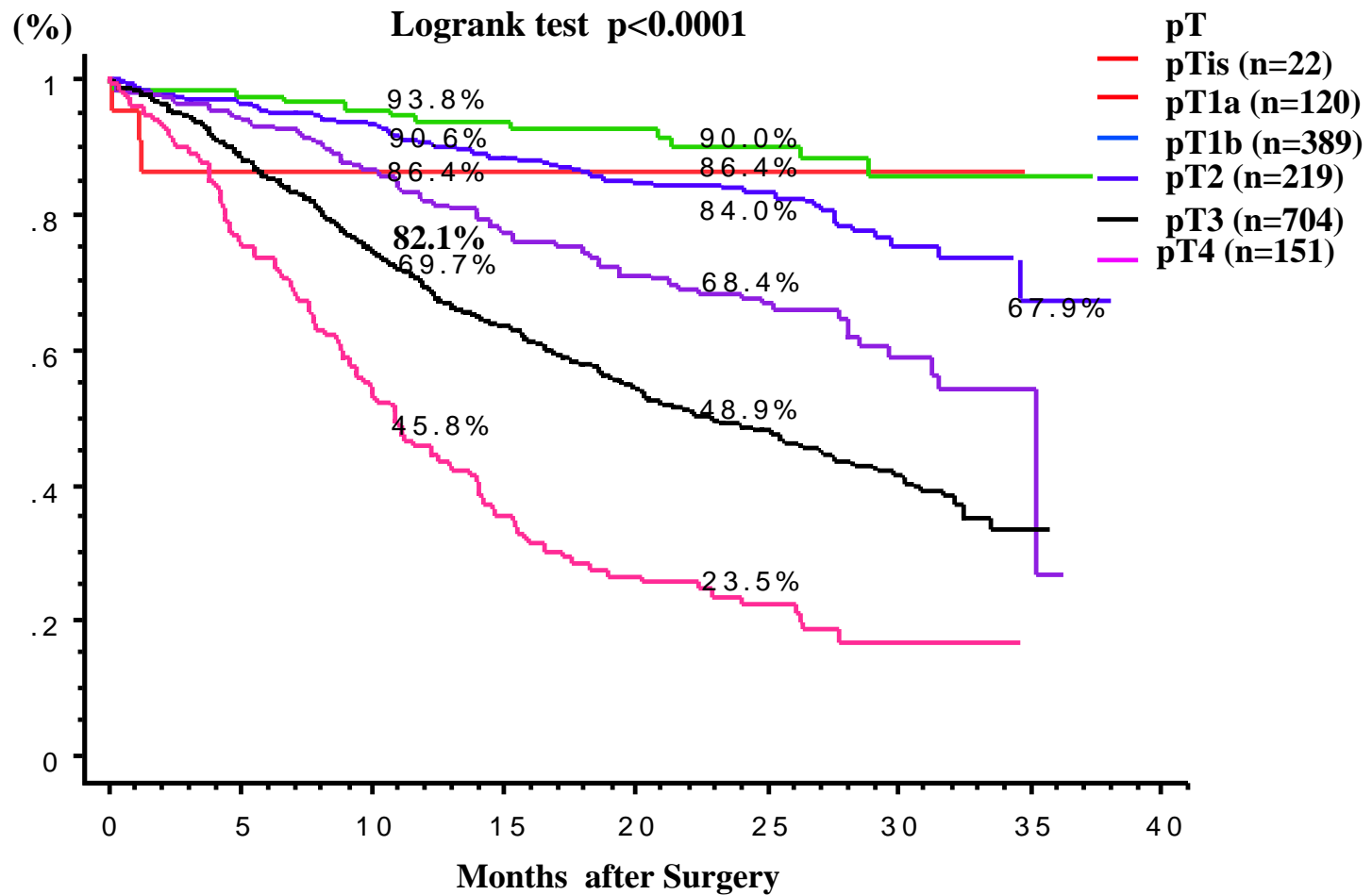
(April. 2002)



**Figure12) Survival of patients treated by esophagectomy
in relation to depth of tumor invasion (pT)**

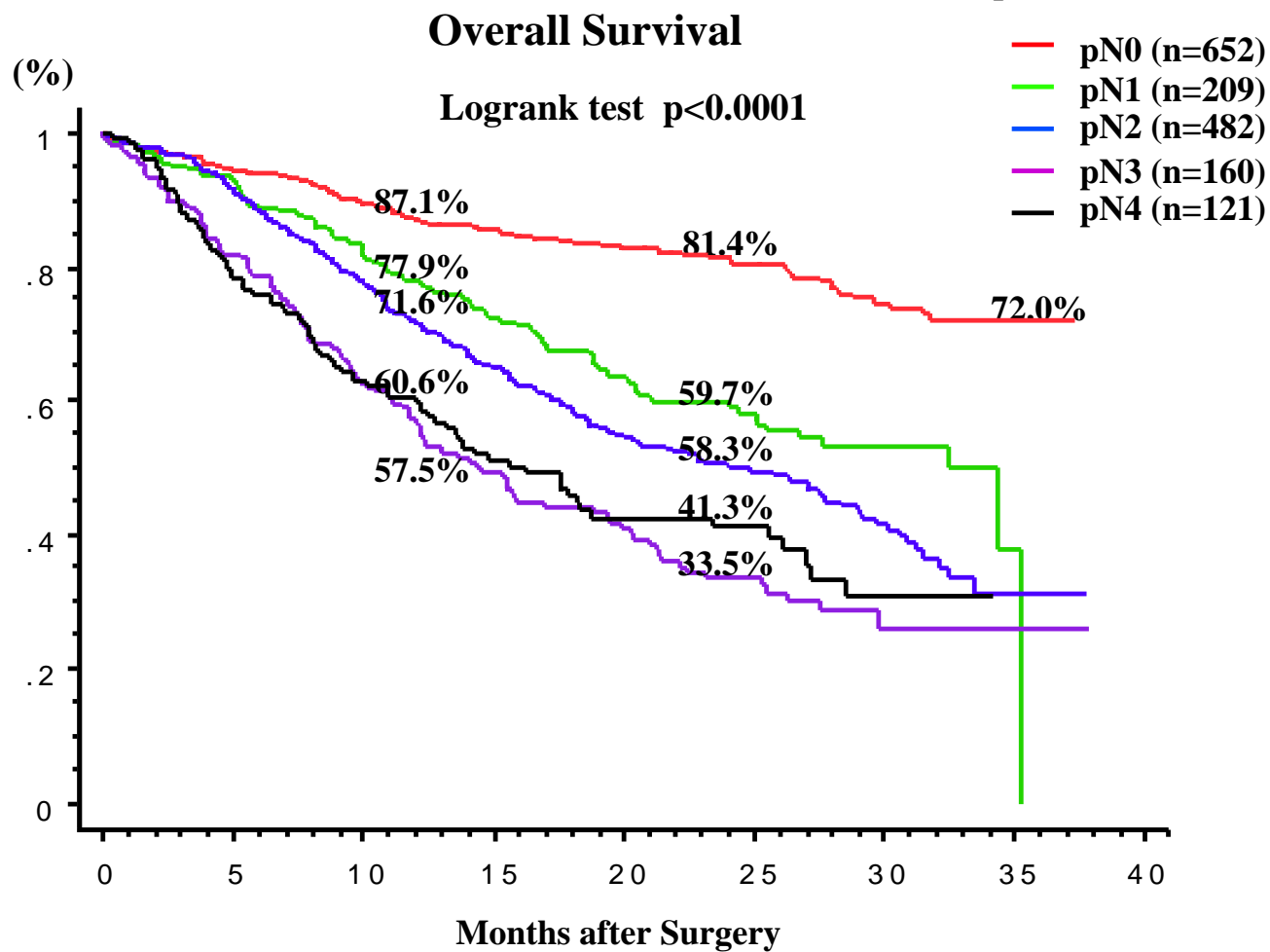
Overall Survival

(April. 2002)



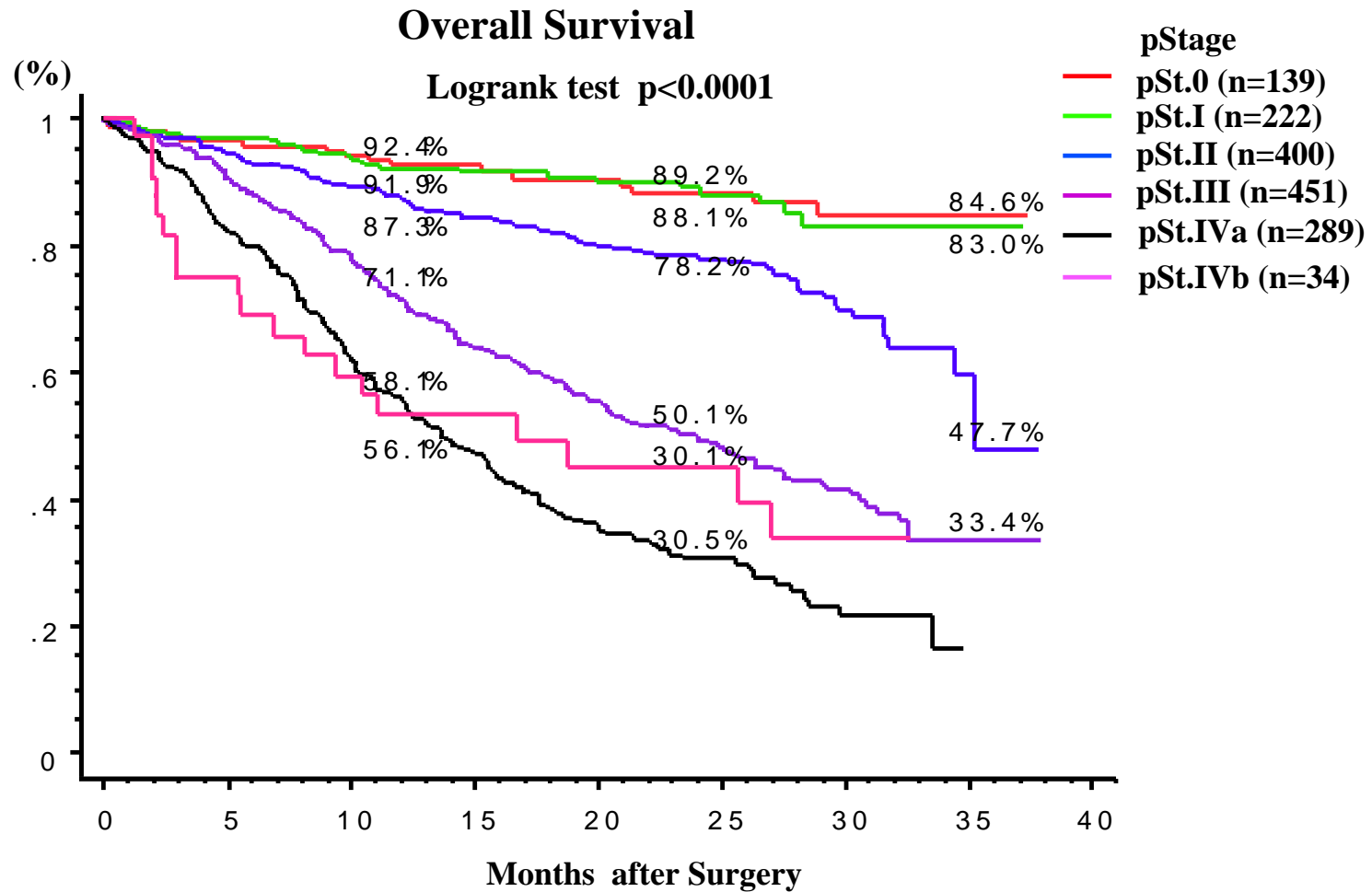
**Figure 13) Survival of patients treated by esophagectomy
in relation to lymph node metastasis (pN)**

(April. 2002)



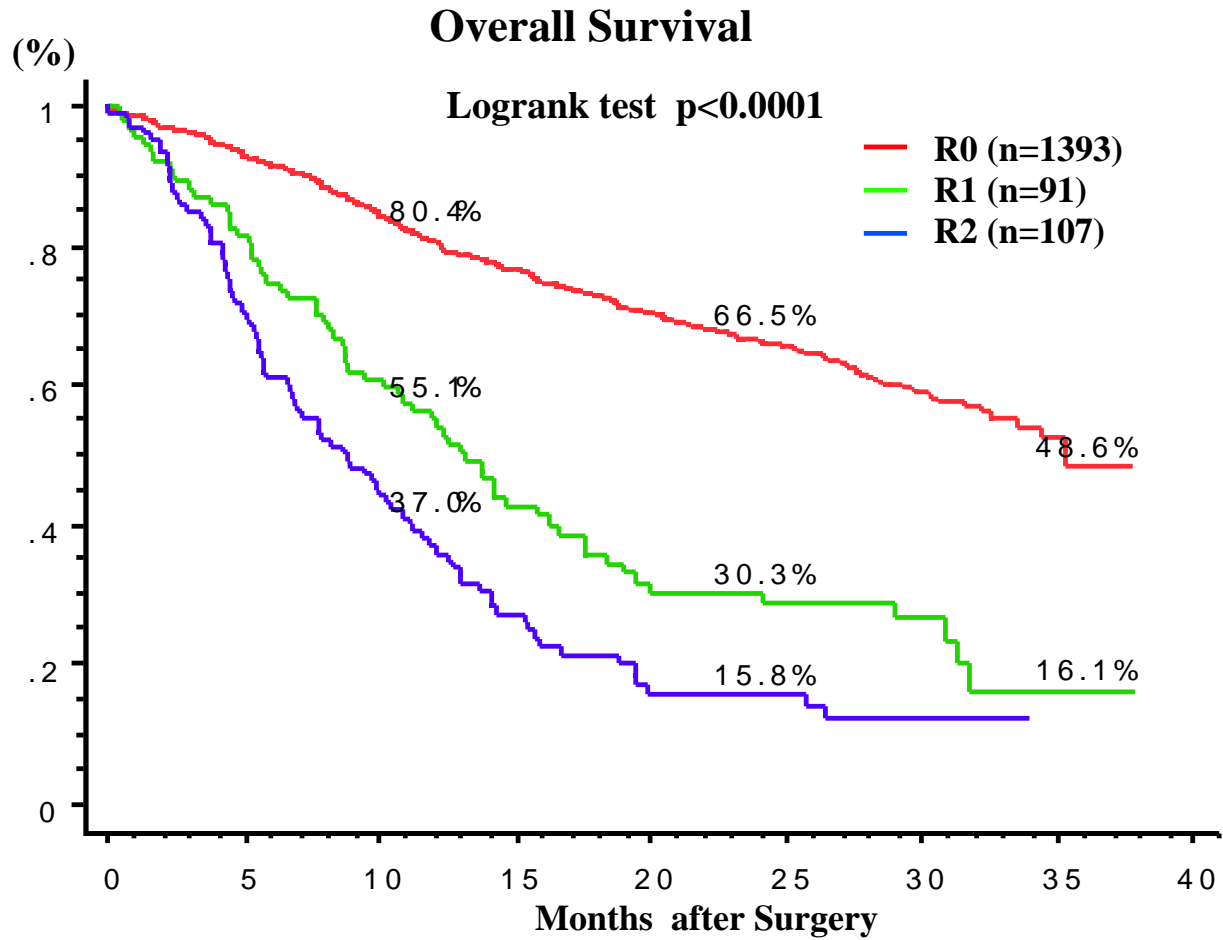
**Figure 14) Survival of patients treated by esophagectomy
in relation to pathological stage**

(April, 2002)



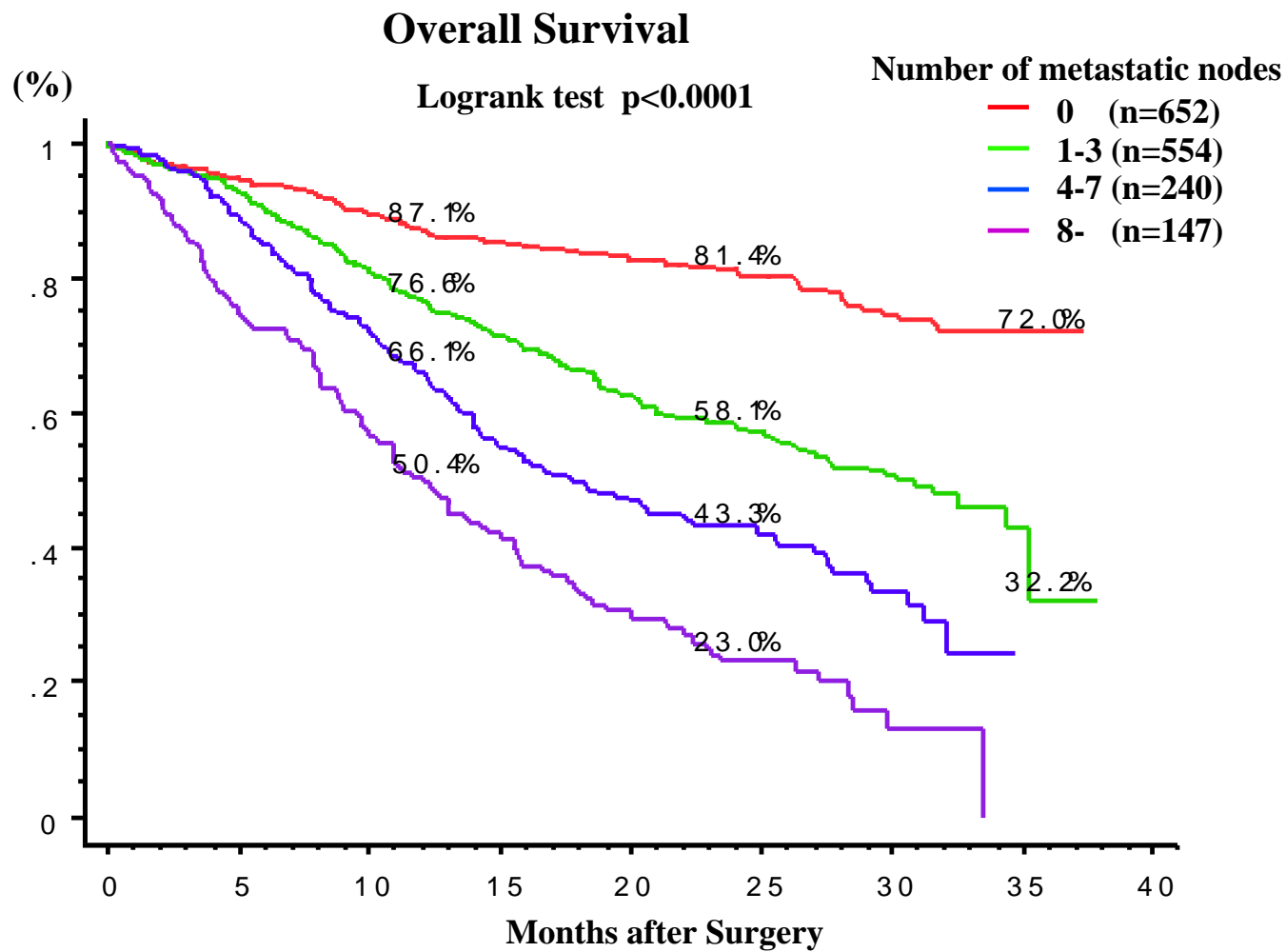
**Figure 15) Survival of patients treated by esophagectomy
in relation to residual tumor (R)**

(April. 2002)



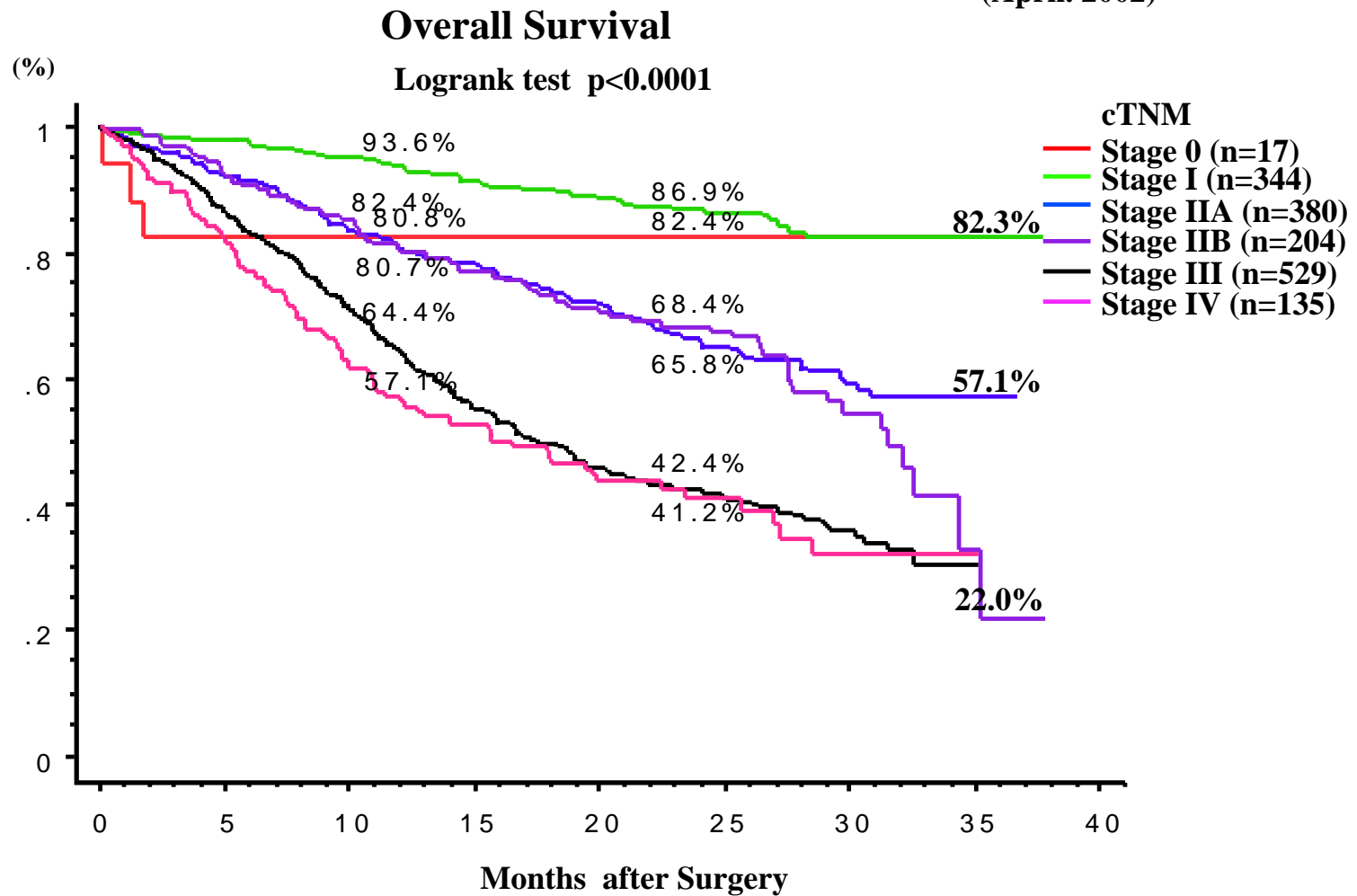
**Figure 16) Survival of patients treated by esophagectomy
in relation to number of metastatic node**

(April, 2002)



**Figure 17) Survival of patients treated by esophagectomy
in relation to clinical TNM-Stage**

(April. 2002)



**Long-term Results of Esophagectomy
for Esophageal Cancer in Japan
(1988-1997)**

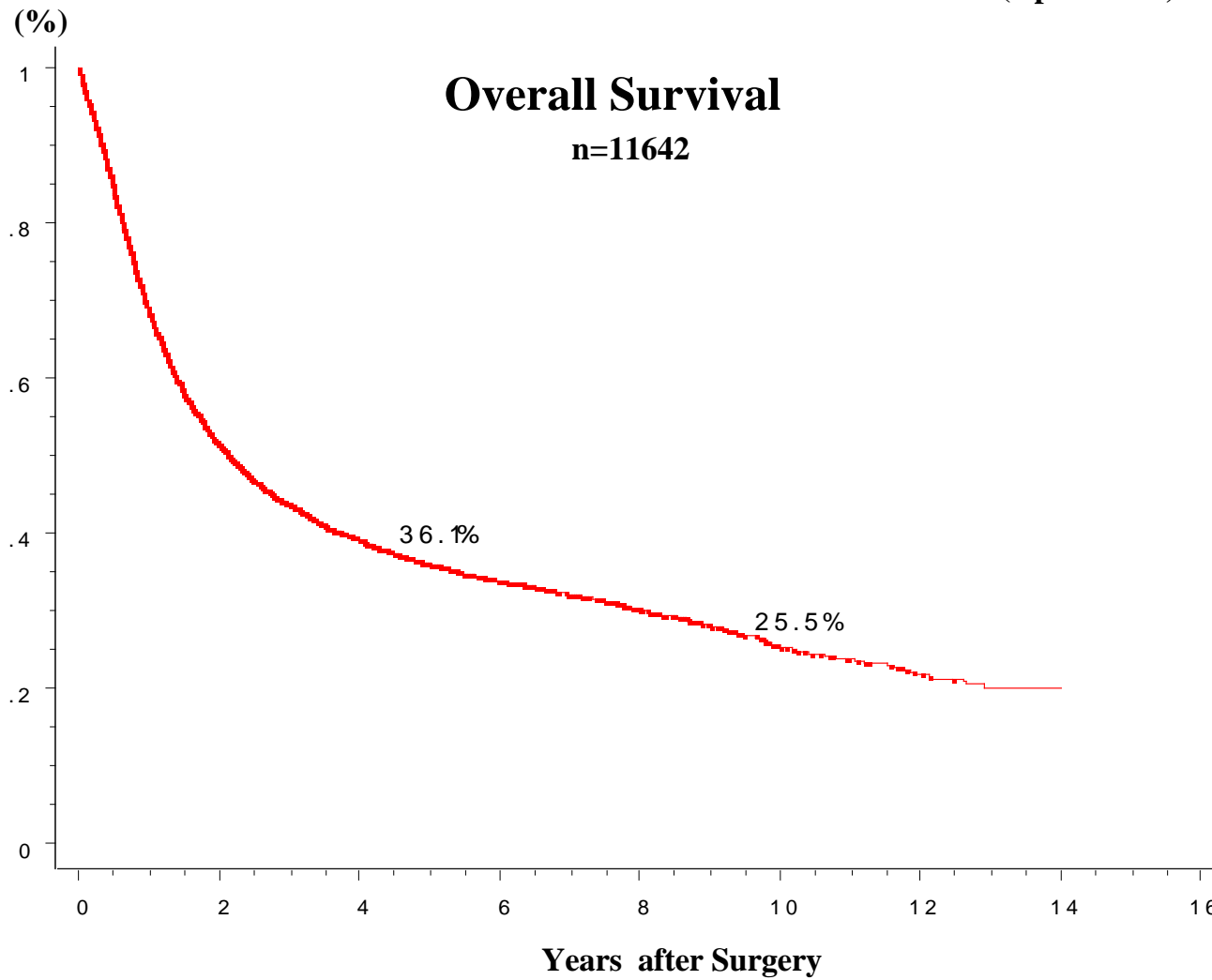
JSED

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(pT4 cases registered between 1993 and 1997)
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(pT4 & R0-R1 cases registered between 1993 and 1997)

**Figure 1) Overall survival curves of patients
treated by esophagectomy (1988-1997)**

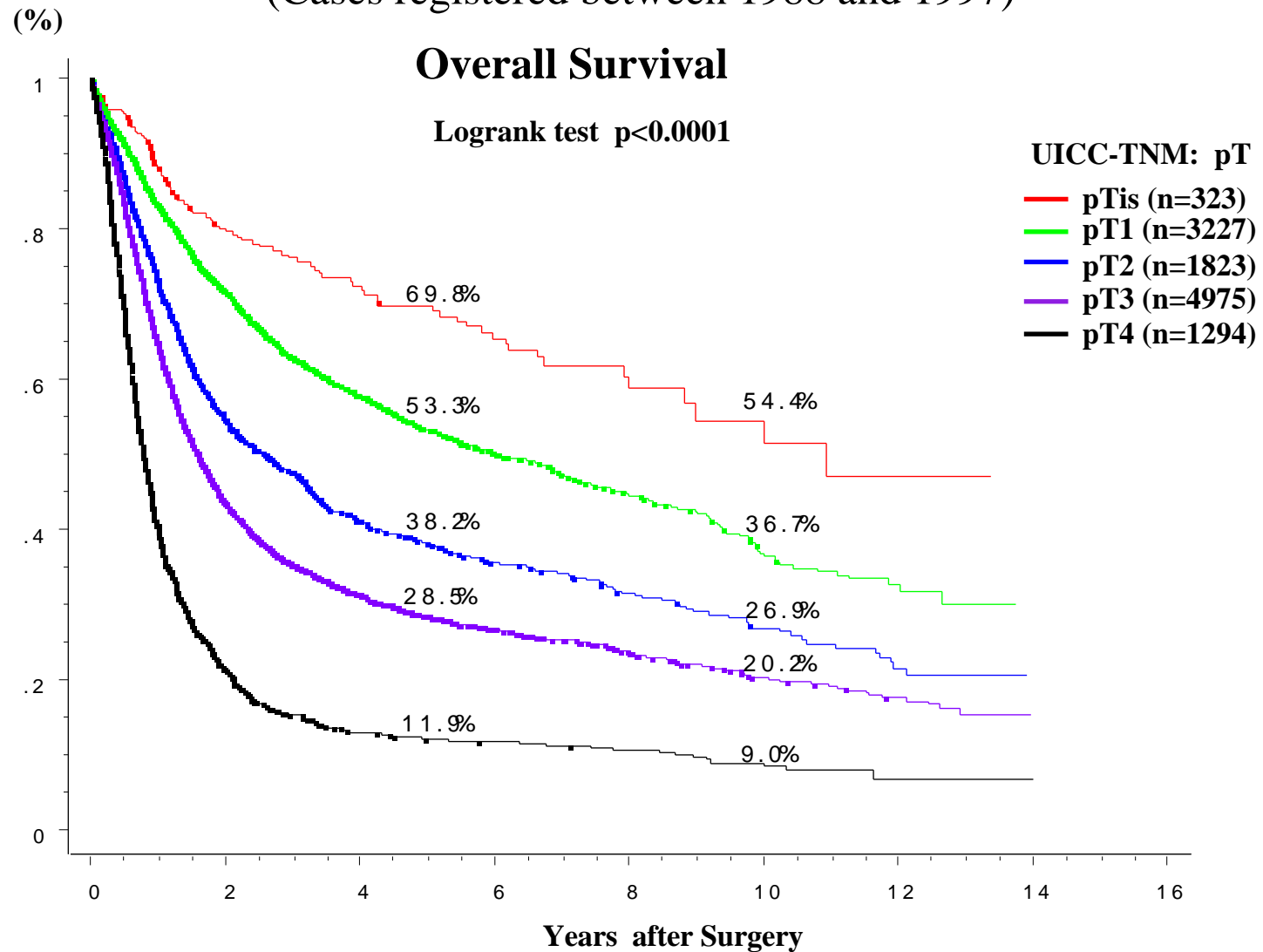
(April. 2002)



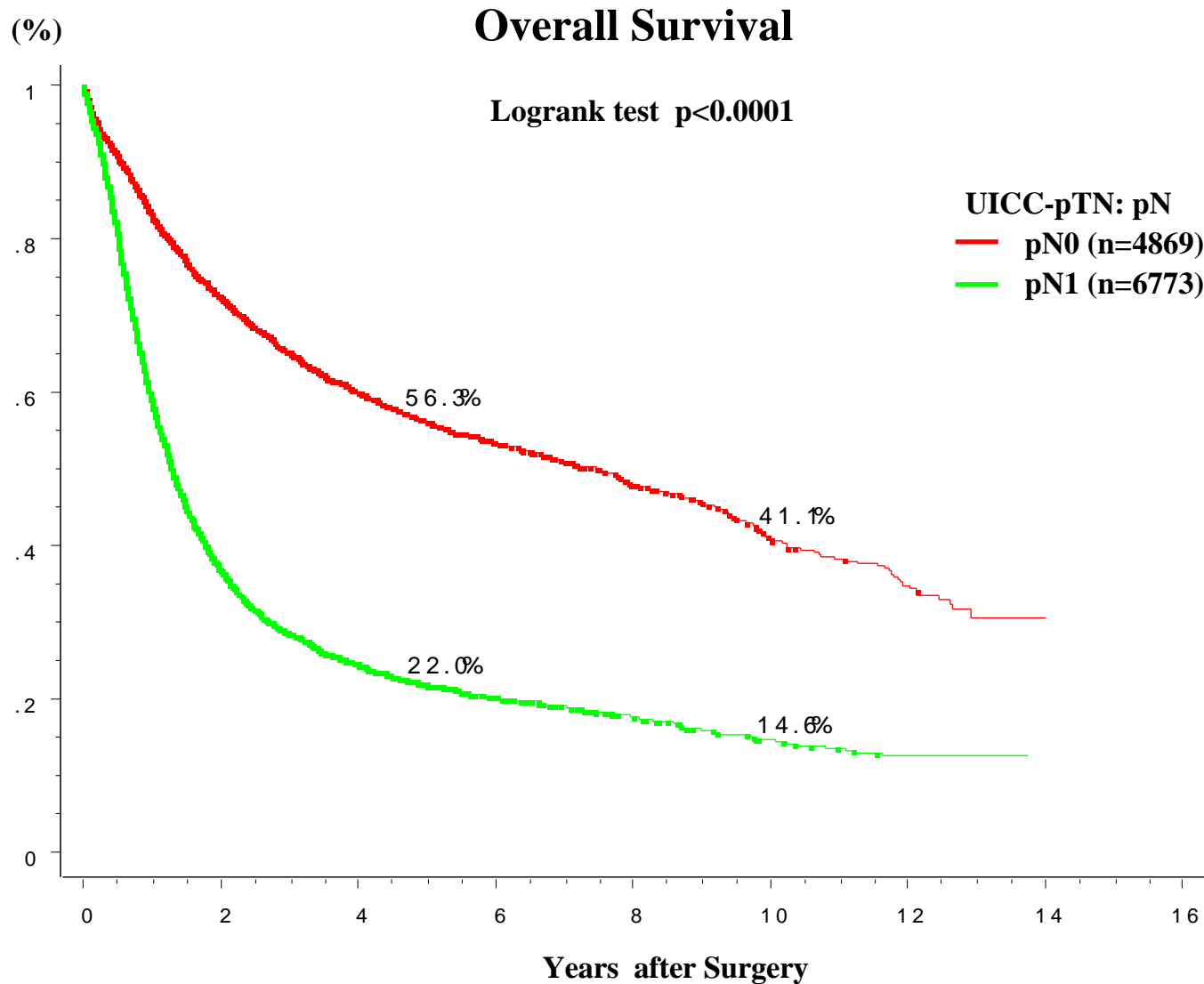
**Figure 2) Survival of patients treated by esophagectomy
in relation to depth of tumor invasion (pT)**

(April. 2002)

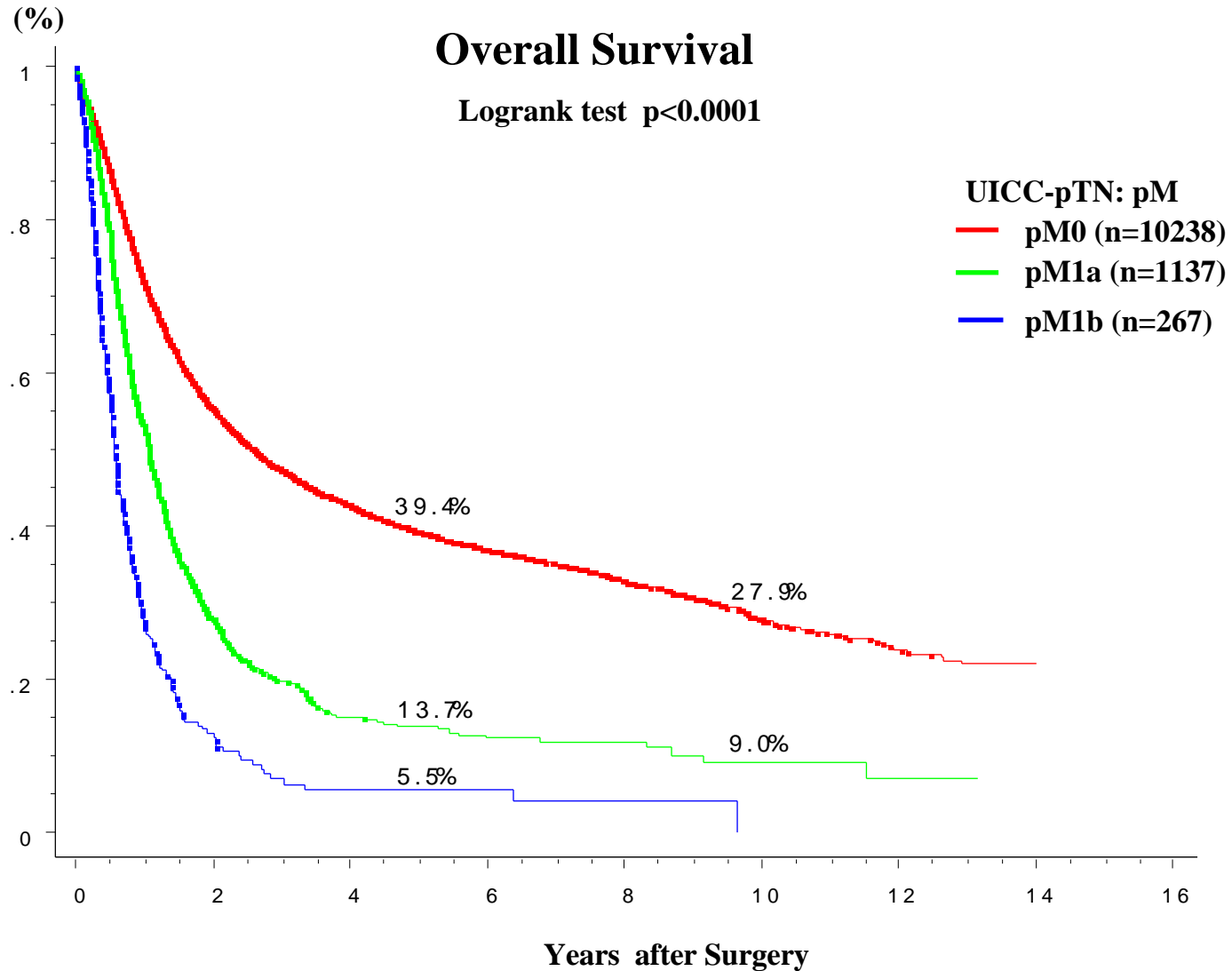
(Cases registered between 1988 and 1997)



**Figure 3) Survival of patients treated by esophagectomy
in relation to lymph node metastasis (pN)** (April. 2002)
(Cases registered between 1988 and 1997)



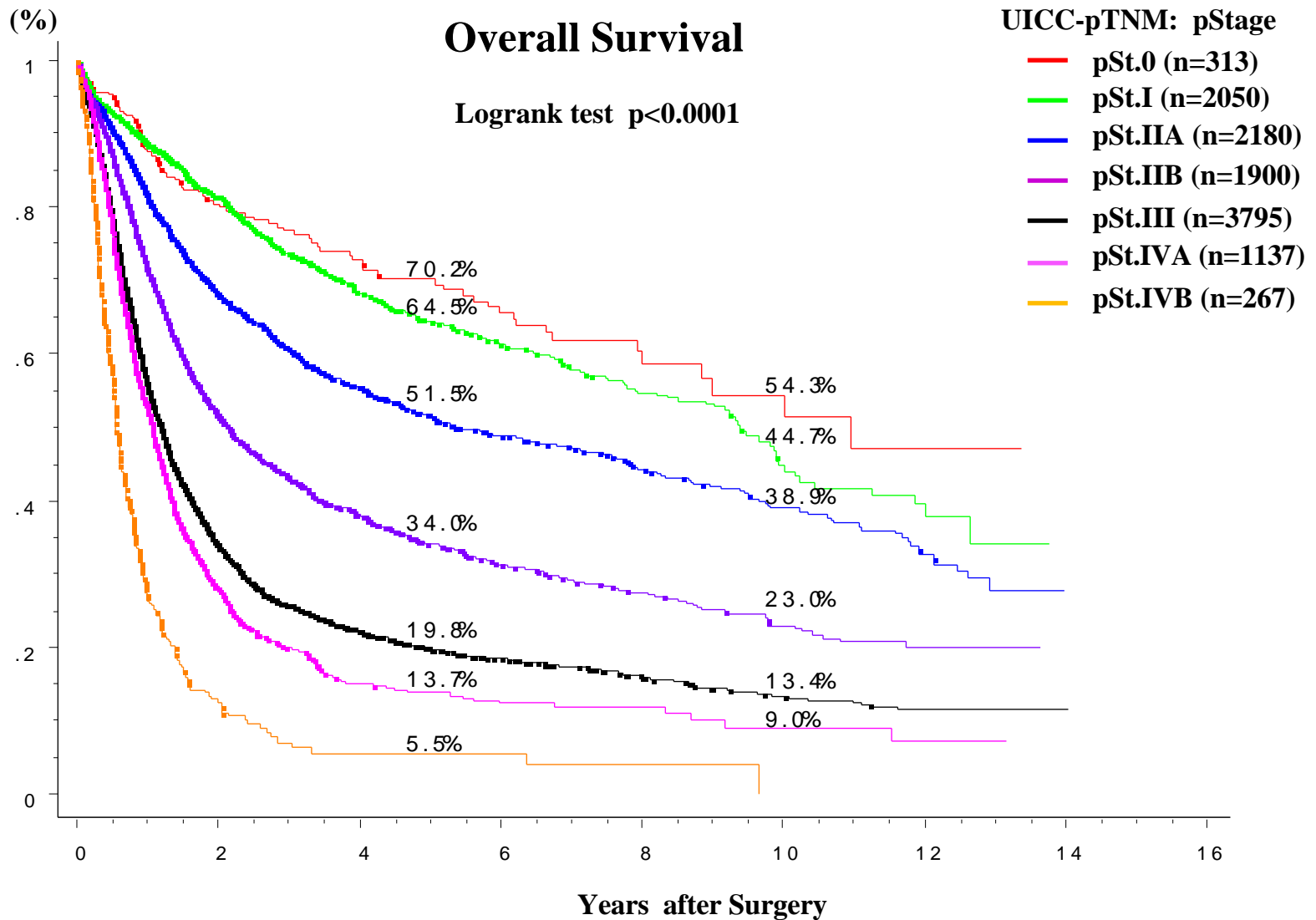
**Figure 4) Survival of patients treated by esophagectomy
in relation to distant metastasis (pM)**
(Cases registered between 1988 and 1997) (April. 2002)



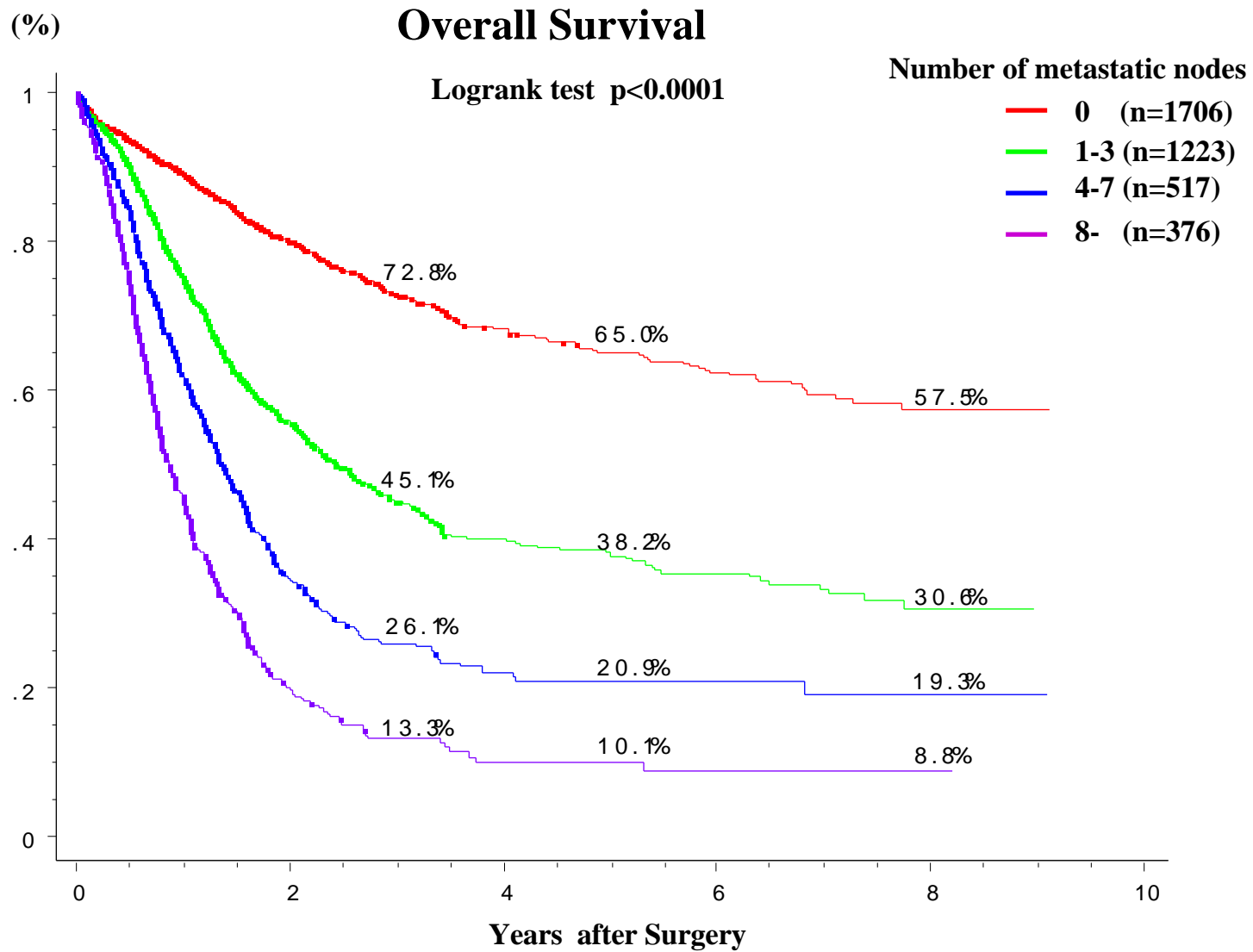
**Figure 5) Survival of patients treated by esophagectomy
in relation to pathological stage**

(April. 2002)

(Cases registered between 1988 and 1997)

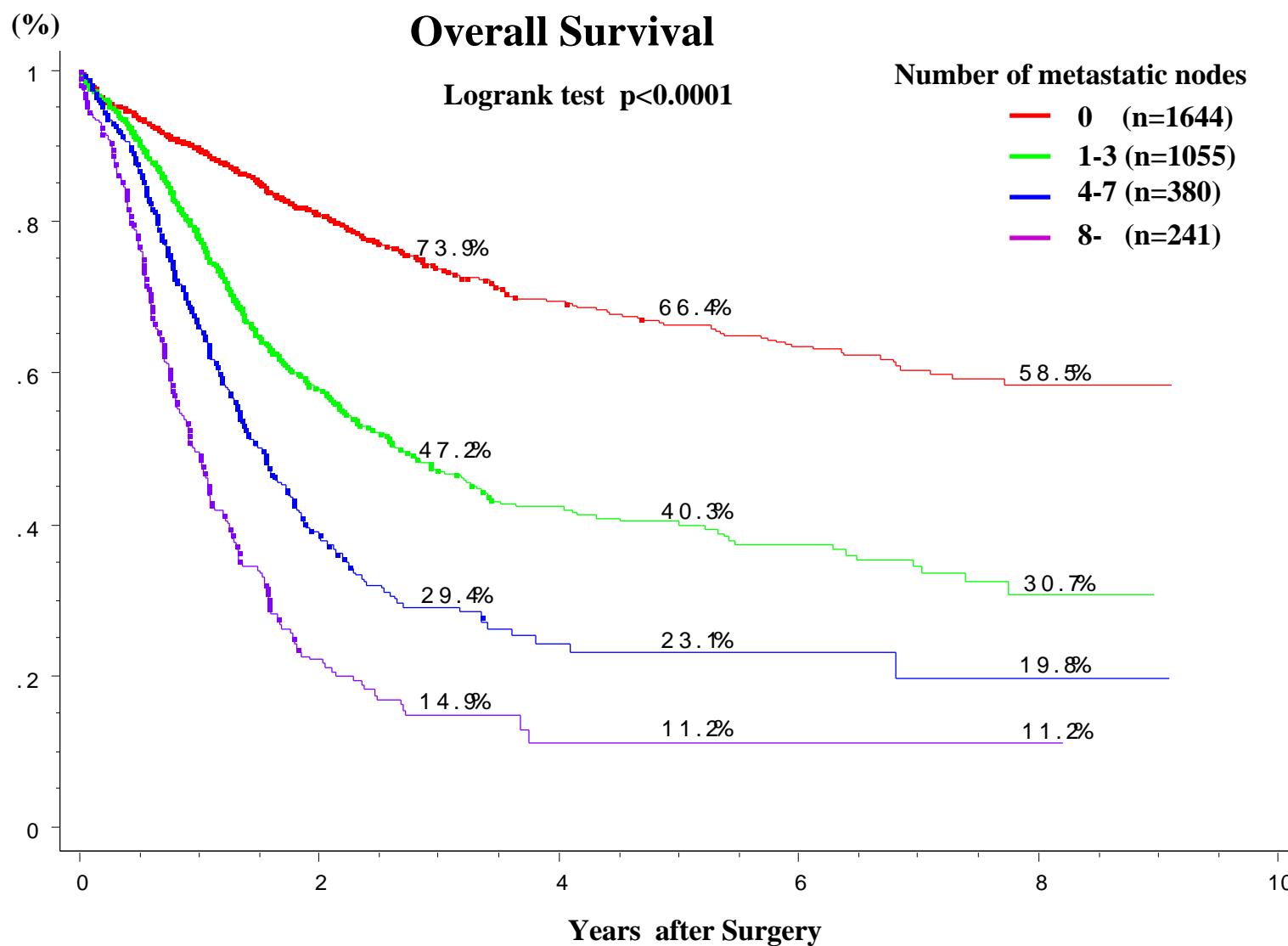


**Figure 6) Survival of patients treated by esophagectomy
in relation to number of metastatic node** (April. 2002)
(Cases registered between 1993 and 1997)

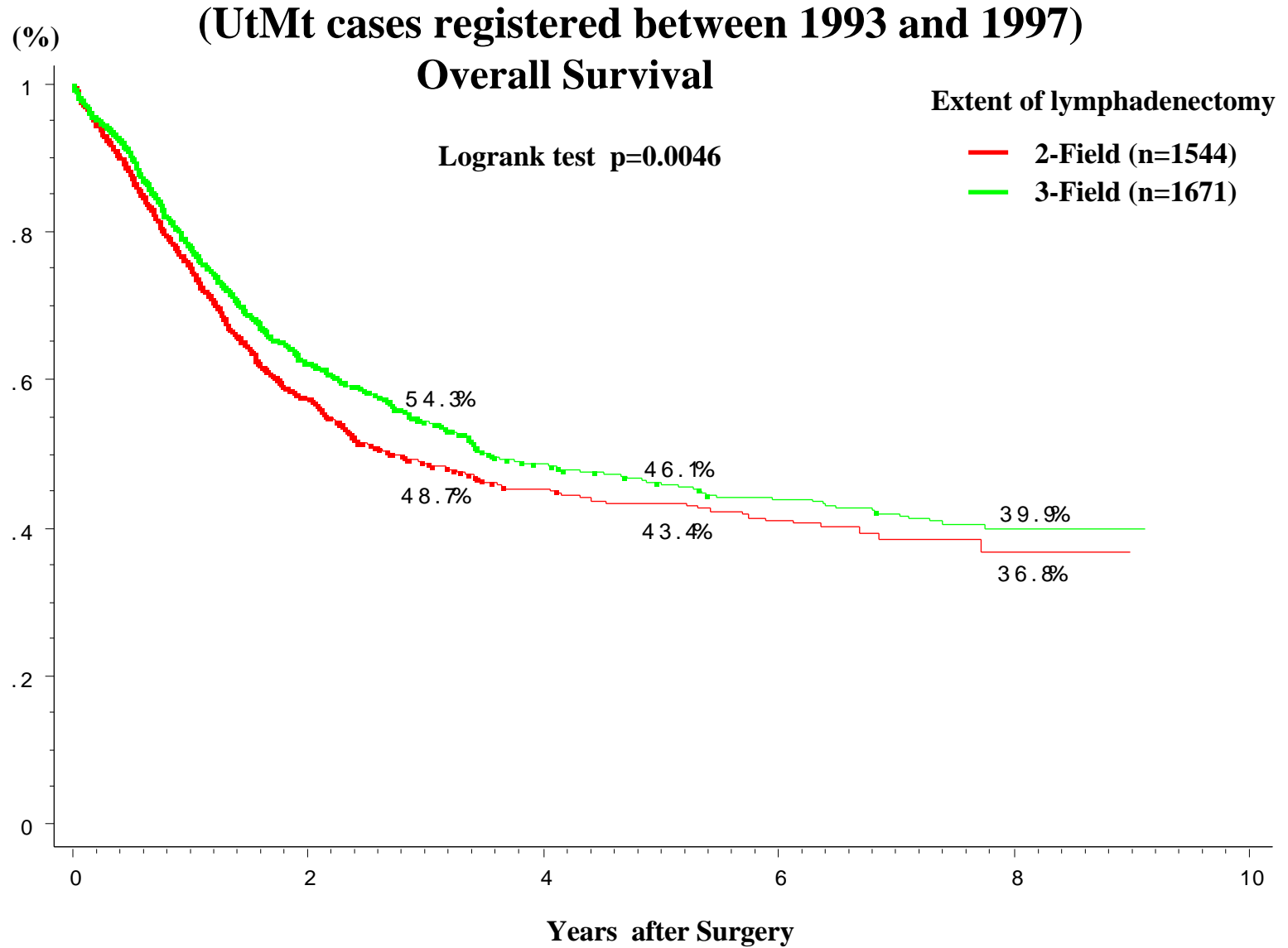


**Figure 6-2) Survival of patients treated by esophagectomy
in relation to number of metastatic node (April. 2002)**

(R0-R1 Cases registered between 1993 and 1997)

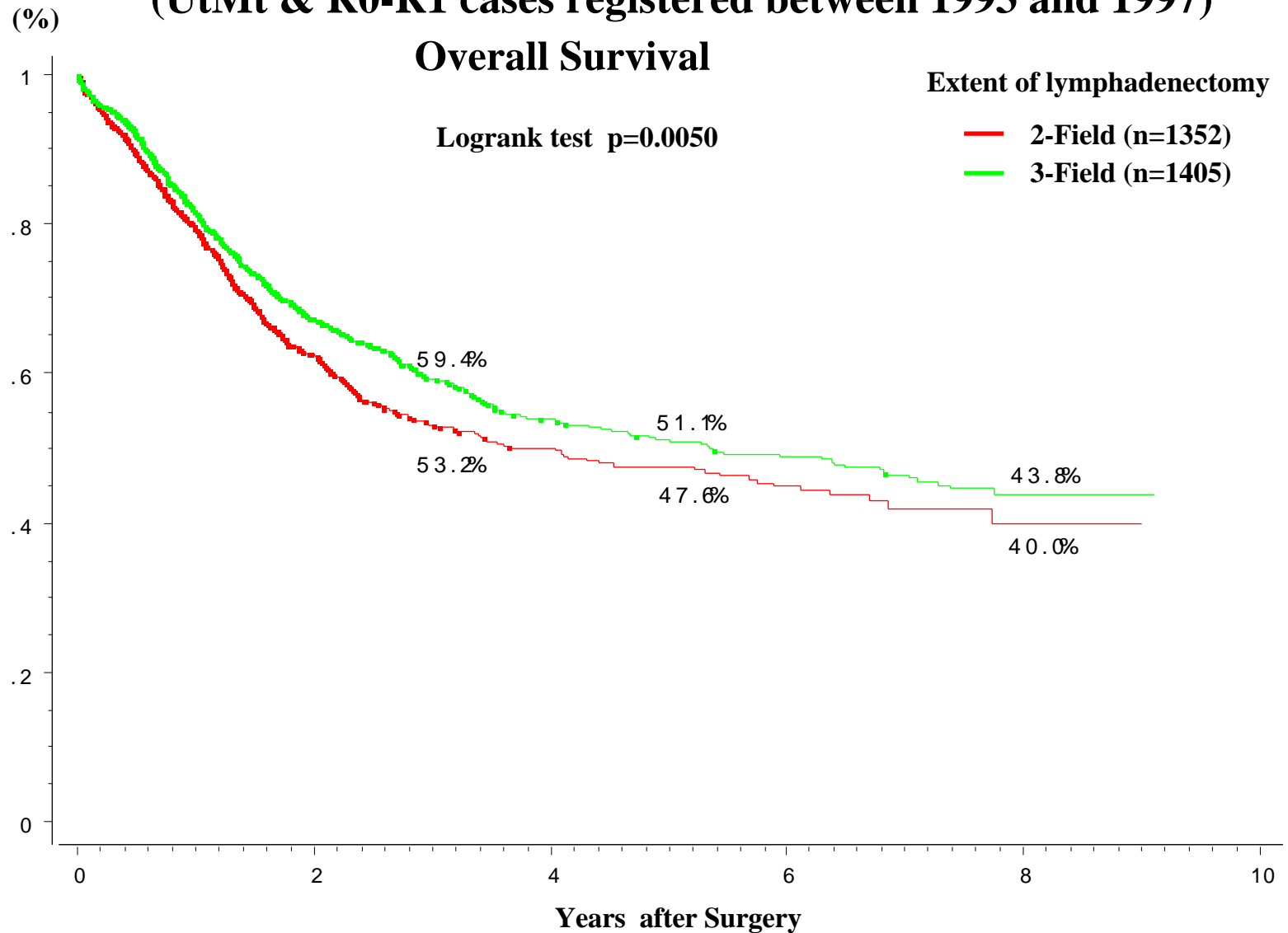


**Figure 7) Survival of patients treated by esophagectomy
in relation to the extent of lymphadenectomy (April. 2002)**



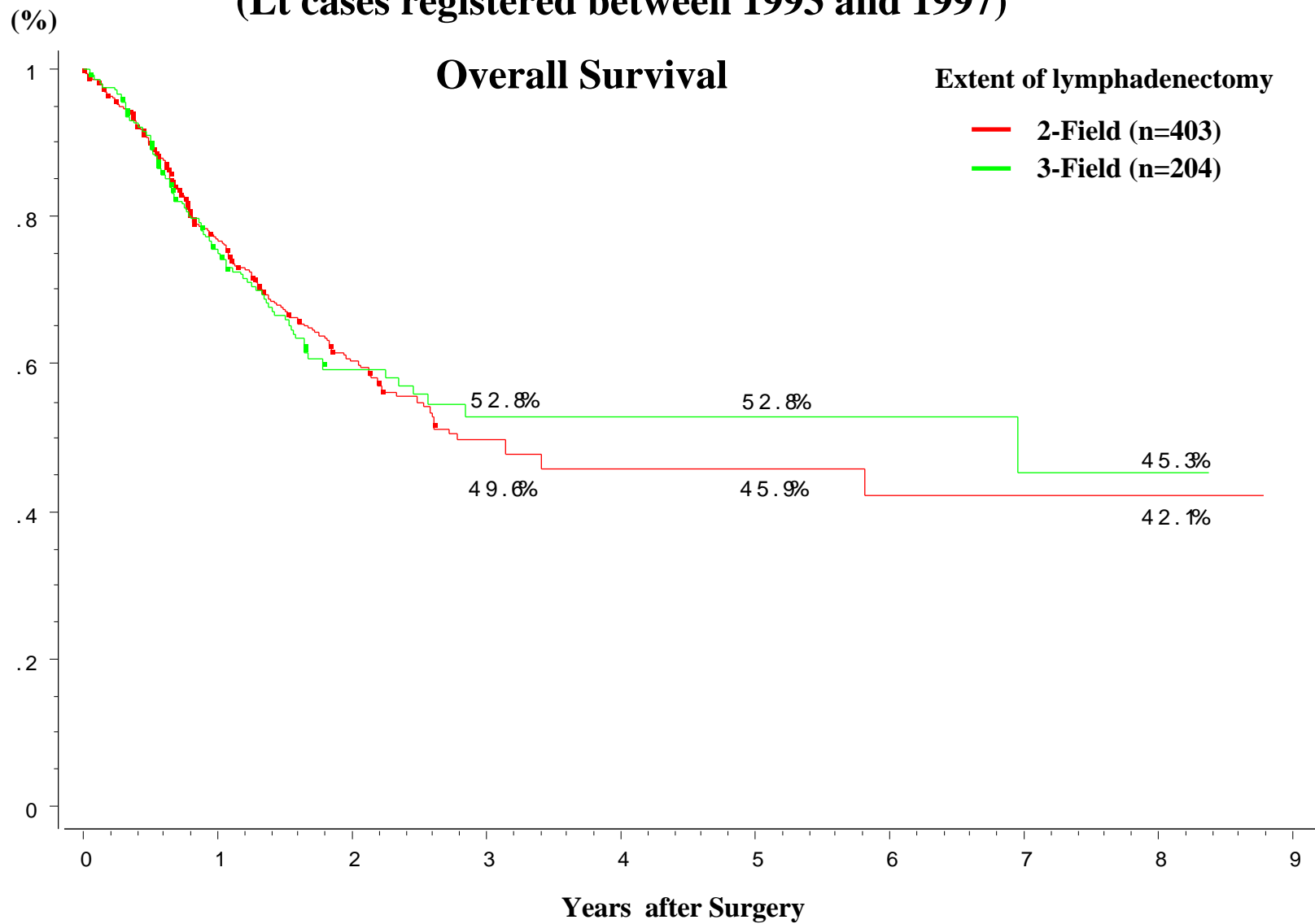
**Figure 7-2) Survival of patients treated by esophagectomy
in relation to the extent of lymphadenectomy (April. 2002)**

(UtMt & R0-R1 cases registered between 1993 and 1997)



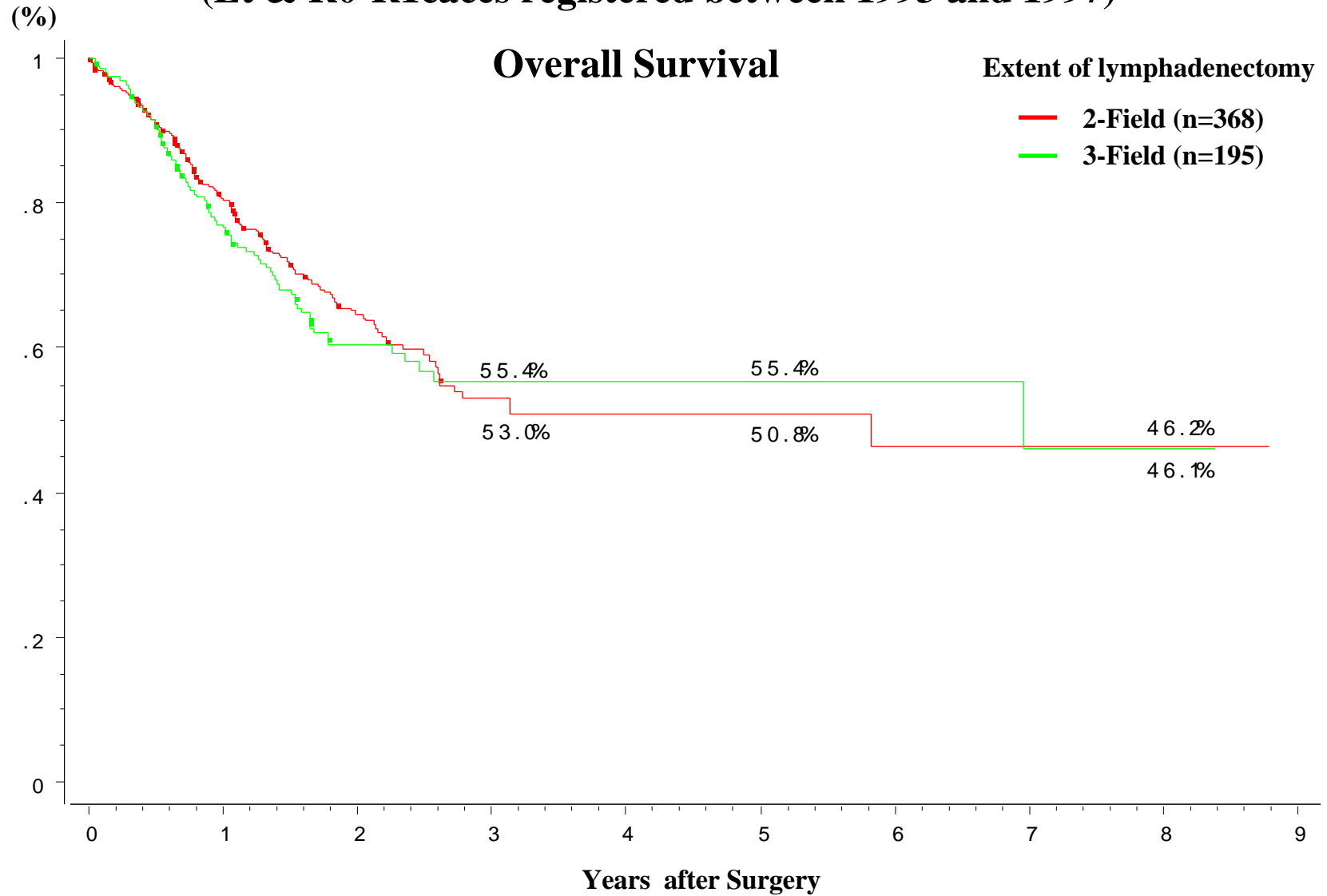
**Figure 8) Survival of patients treated by esophagectomy
in relation to the extent of lymphadenectomy (April. 2002)**

(Lt cases registered between 1993 and 1997)



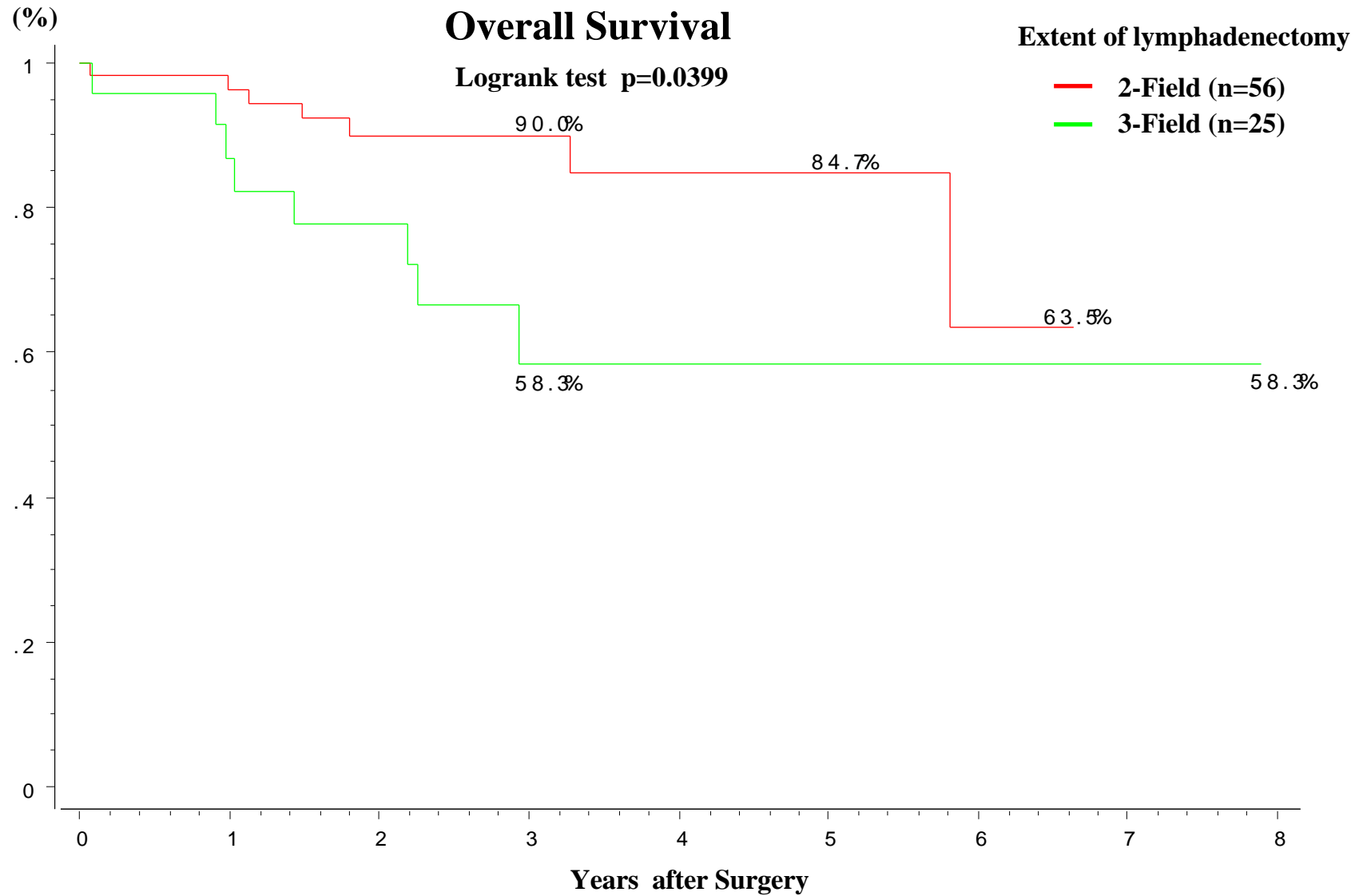
**Figure 8-2) Survival of patients treated by esophagectomy
in relation to the extent of lymphadenectomy (April, 2002)**

(Lt & R0-R1caces registered between 1993 and 1997)

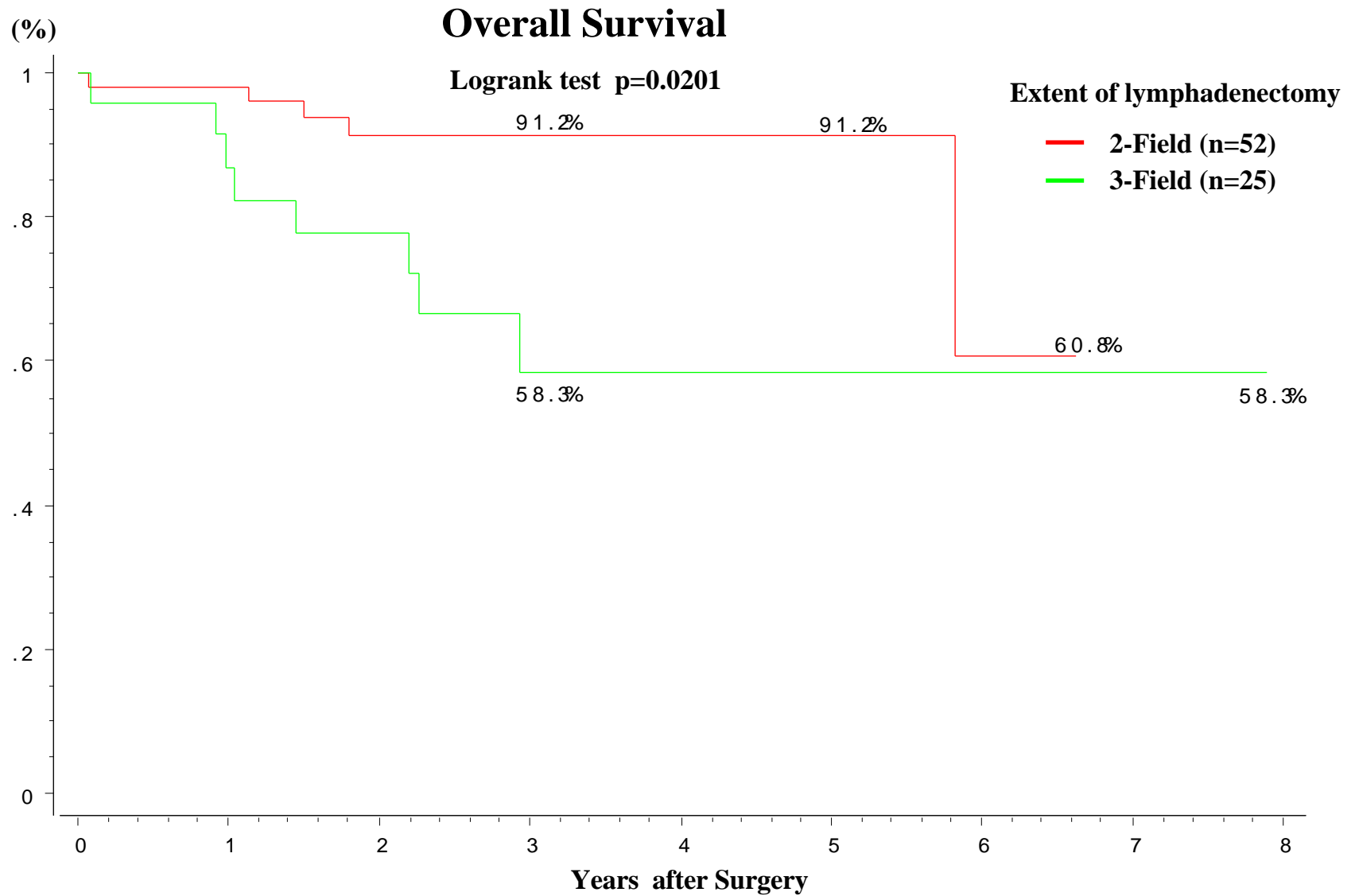


**Figure 9) Survival of patients treated by esophagectomy
in relation to the extent of lymphadenectomy (April. 2002)**

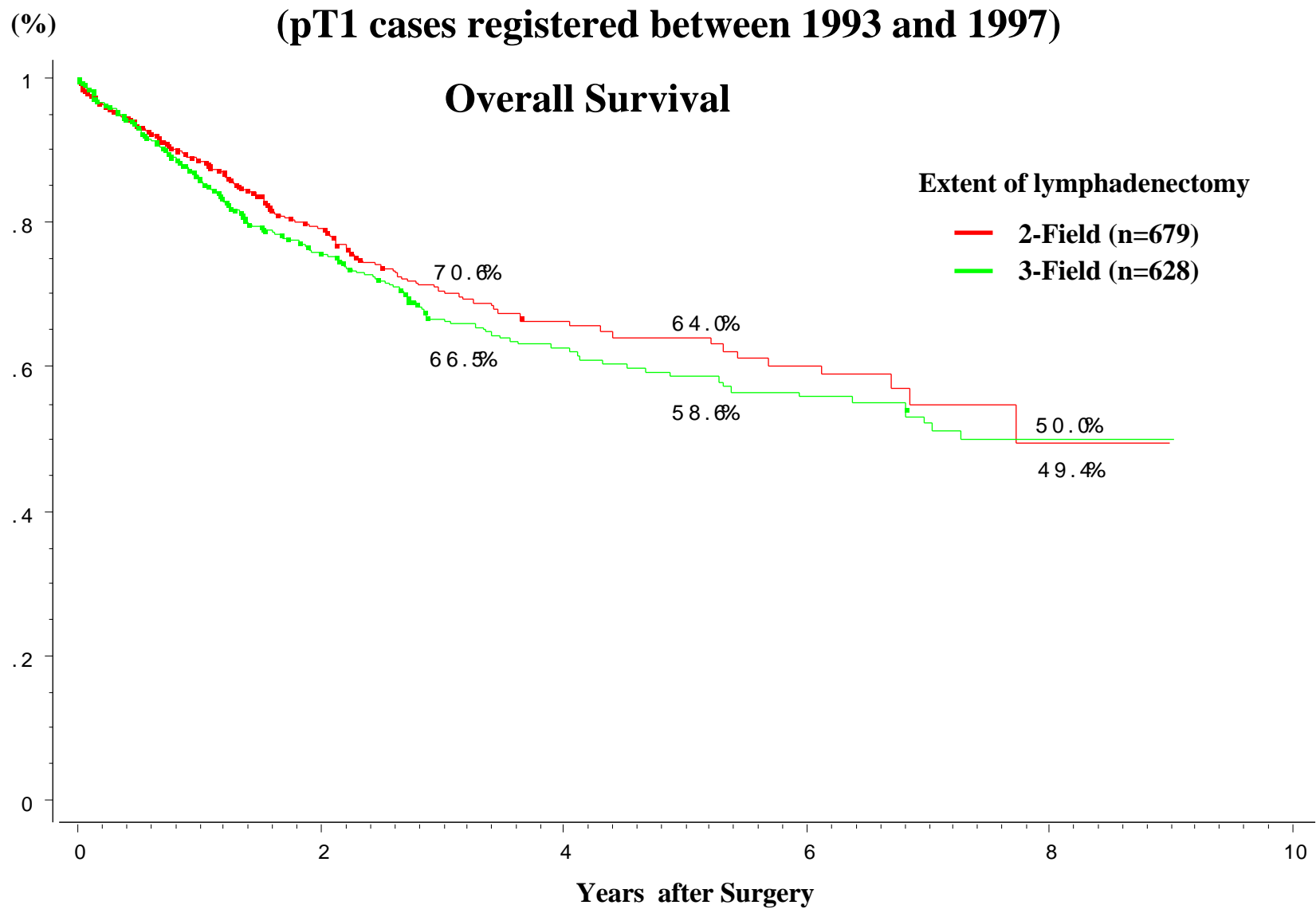
(pTis cases registered between 1993 and 1997)



**Figure 9-2) Survival of patients treated by esophagectomy
in relation to the extent of lymphadenectomy**
(April, 2002)
(pTis & R0-R1cases registered between 1993 and 1997)

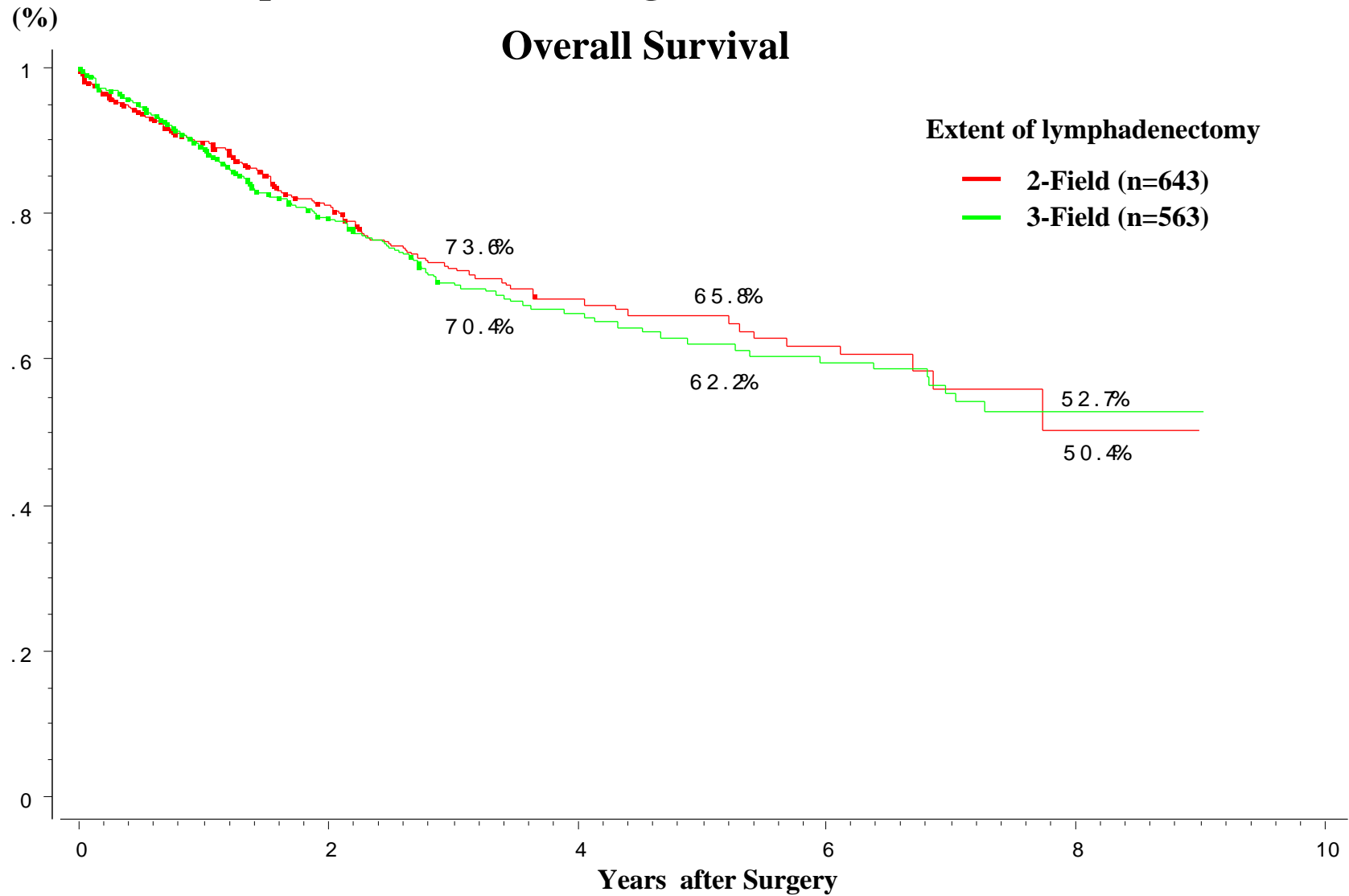


**Figure 10) Survival of patients treated by esophagectomy
in relation to the extent of lymphadenectomy (April. 2002)**

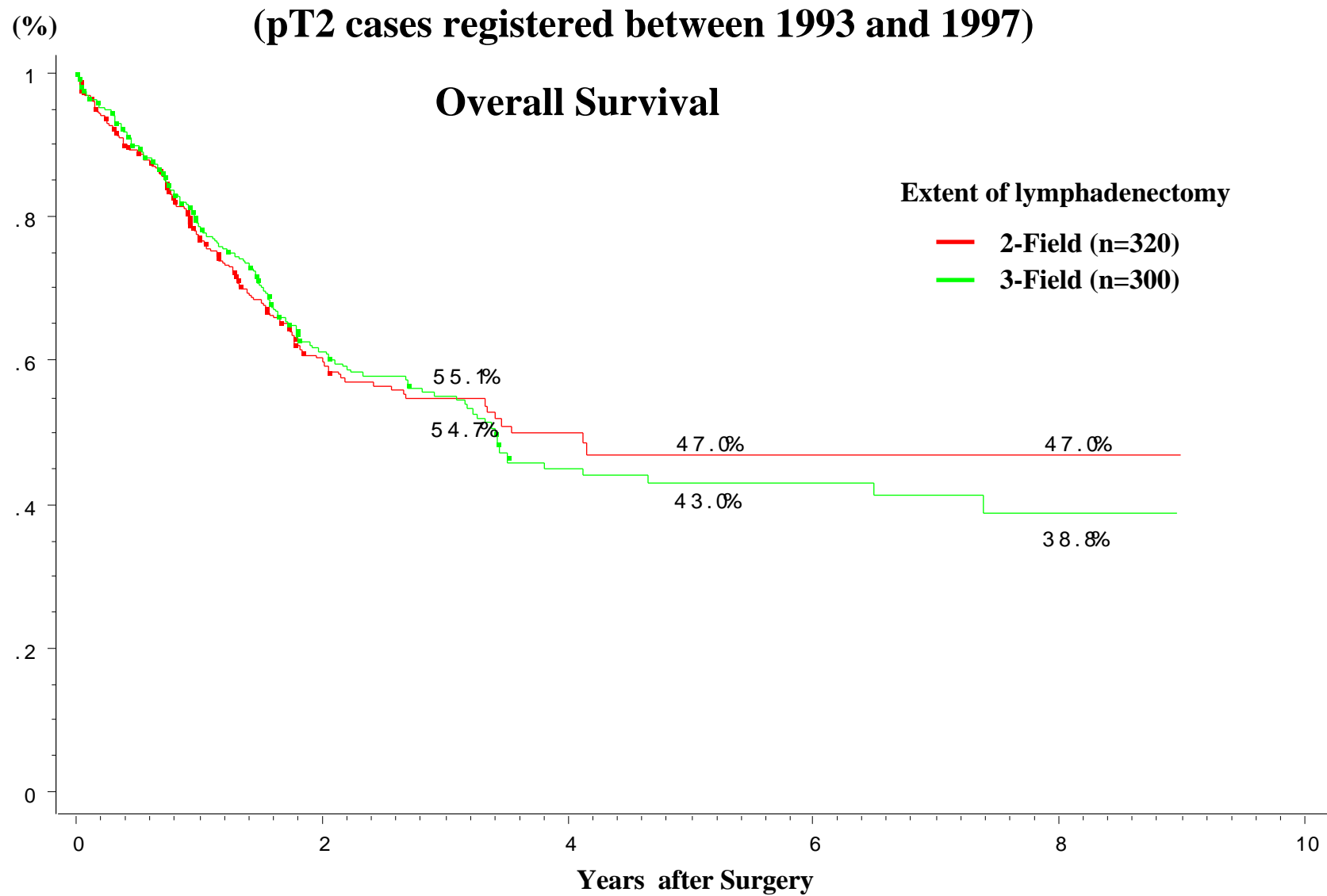


**Figure 10-2) Survival of patients treated by esophagectomy
in relation to the extent of lymphadenectomy (April, 2002)**

(pT1 & R0-R1 cases registered between 1993 and 1997)

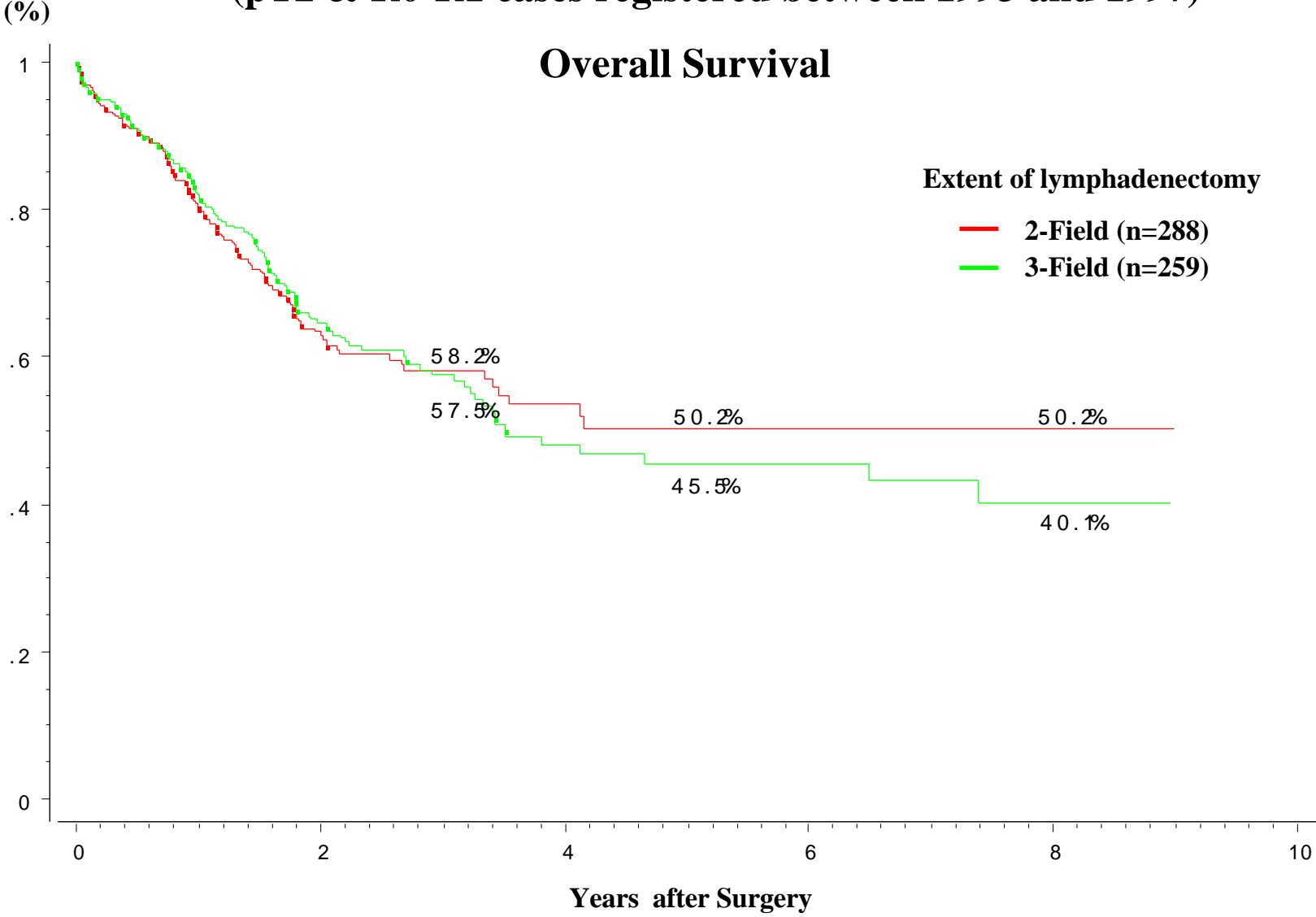


**Figure 11) Survival of patients treated by esophagectomy
in relation to the extent of lymphadenectomy**
(April, 2002)

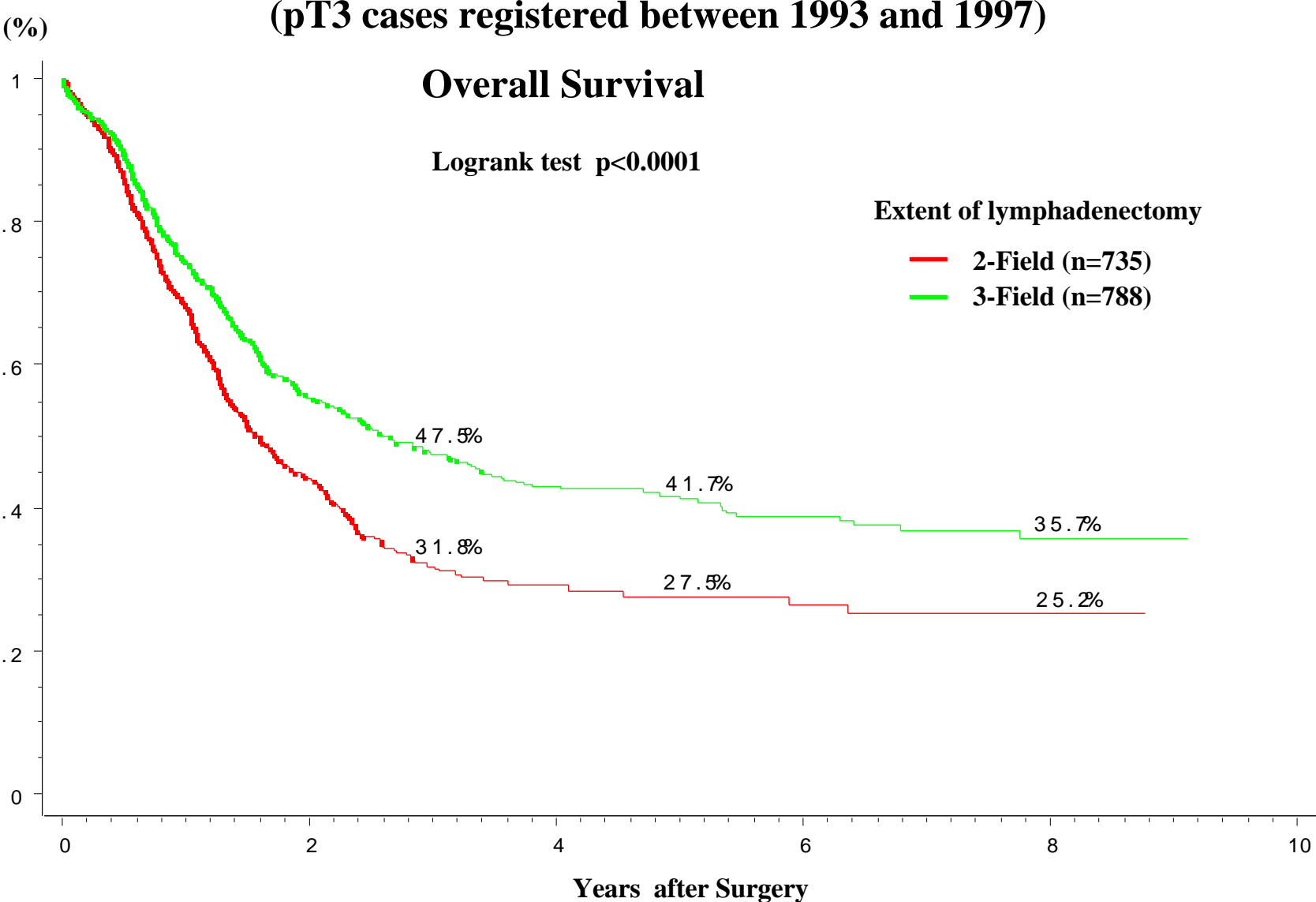


**Figure 11-2) Survival of patients treated by esophagectomy
in relation to the extent of lymphadenectomy**
(April, 2002)

(pT2 & R0-R1 cases registered between 1993 and 1997)

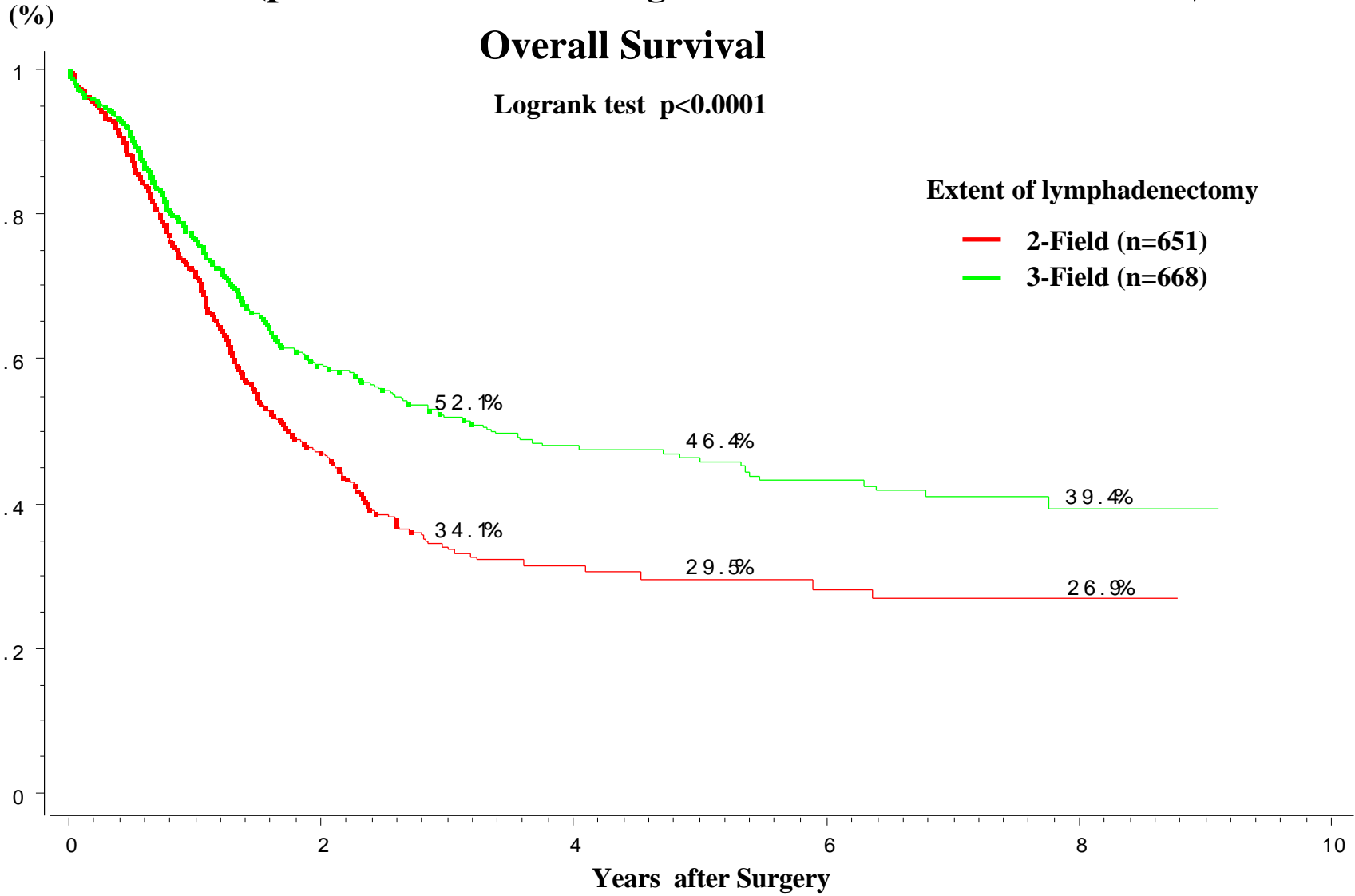


**Figure 12) Survival of patients treated by esophagectomy
in relation to the extent of lymphadenectomy**
(April. 2002)

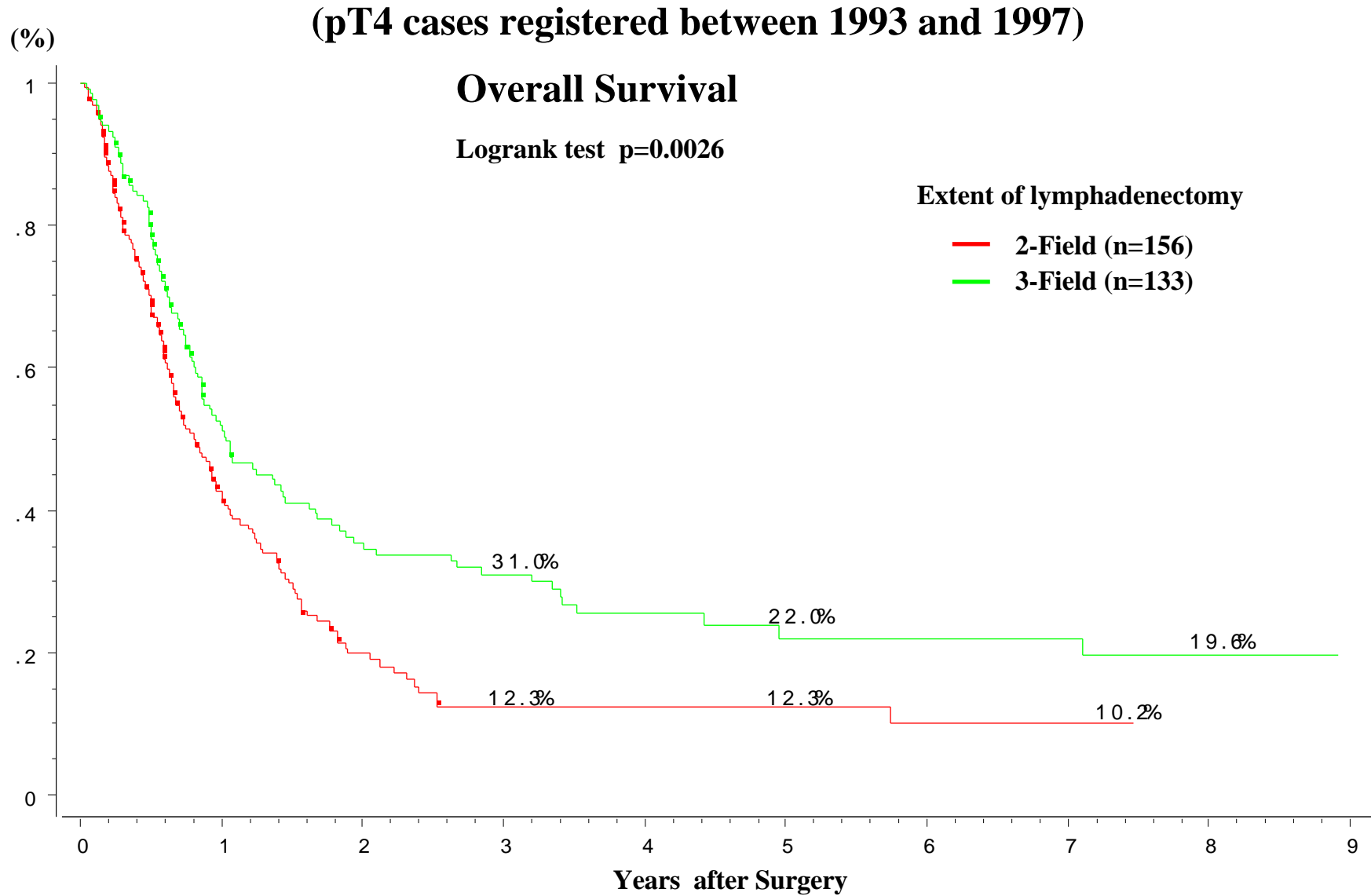


**Figure 12-2) Survival of patients treated by esophagectomy
in relation to the extent of lymphadenectomy (April, 2002)**

(pT3 & R0-R1 cases registered between 1993 and 1997)



**Figure 13) Survival of patients treated by esophagectomy
in relation to the extent of lymphadenectomy**
(April. 2002)



**Figure 13-2) Survival of patients treated by esophagectomy
in relation to the extent of lymphadenectomy** (April, 2002)

(pT4 & R0-R1 cases registered between 1993 and 1997)

