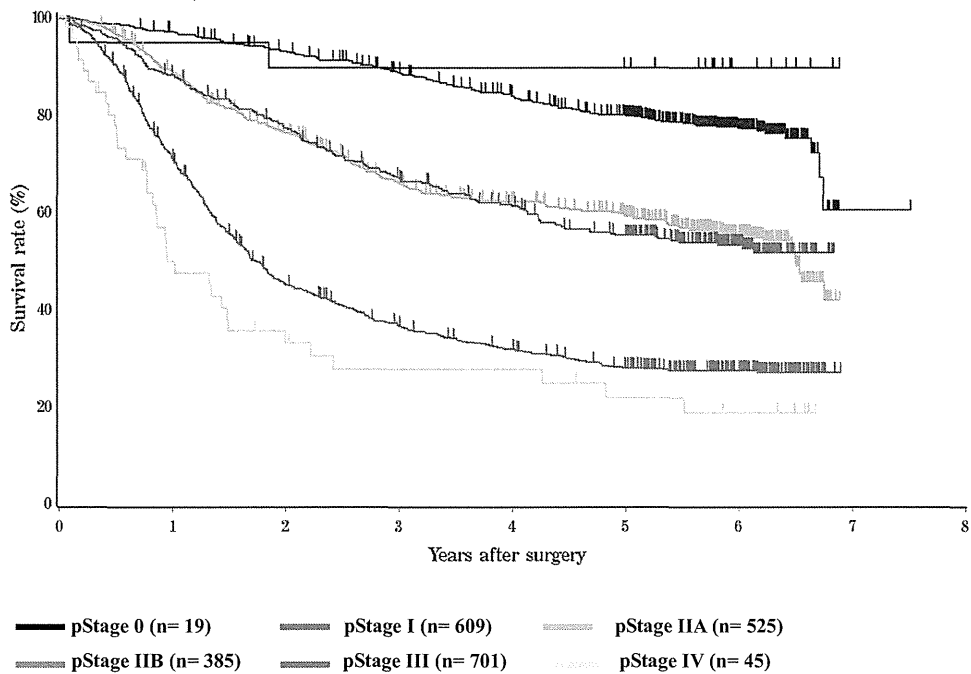
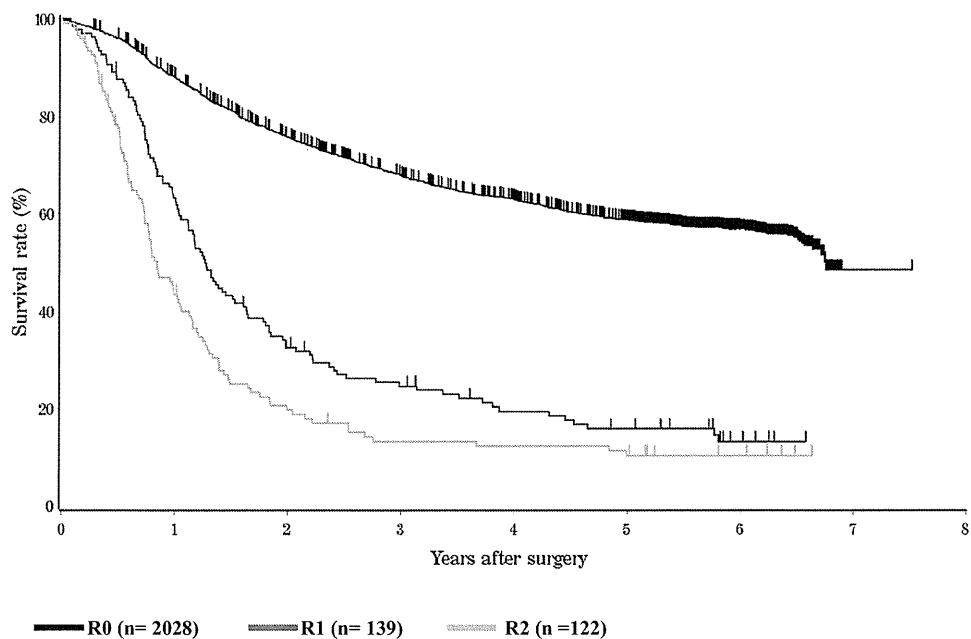


Fig. 17 Survival of patients underwent esophagectomy according to pathological stage (UICC TNM 6th)



	Years after surgery							
	1	2	3	4	5	6	7	8
pStage 0	94.7%	89.4%	89.4%	89.4%	89.4%	89.4%	-	-
pStage I	97.0%	92.9%	88.6%	83.7%	79.7%	77.0%	-	-
pStage IIA	88.9%	76.1%	65.7%	62.1%	59.0%	55.2%	-	-
pStage IIB	88.0%	77.2%	66.7%	61.2%	55.1%	53.2%	-	-
pStage III	70.6%	45.0%	36.5%	31.6%	27.8%	27.2%	-	-
pStage IV	49.6%	32.9%	27.4%	27.4%	21.6%	18.5%	-	-

Fig. 18 Survival of patients underwent esophagectomy according to residual tumor (R)



	Years after surgery							
	1	2	3	4	5	6	7	8
R0	88.0%	75.8%	67.8%	62.9%	58.7%	56.8%	48.5%	-
R1	63.3%	32.6%	24.7%	19.5%	15.9%	13.3%	-	-
R2	43.5%	19.7%	13.3%	12.3%	10.4%	10.4%	-	-

Acknowledgments This study was supported by Health and Labour Sciences Research Grants for Promotion of Cancer Control Programs (H26-Cancer Policy-General-014) from the Ministry of Health, Labour and Welfare of Japan.

Conflict of interest All other authors have nothing to disclose with regard to commercial support.

Comprehensive Registry of Esophageal Cancer in Japan, 2008

Yuji Tachimori · Soji Ozawa · Hodaka Numasaki · Mitsuhiro Fujishiro · Hisahiro Matsubara ·
Tsuneo Oyama · Masayuki Shinoda · Yasushi Toh · Harushi Udagawa · Takashi Uno ·
The Registration Committee for Esophageal Cancer of the Japan Esophageal Society

Published online: 25 February 2015
© The Japan Esophageal Society and Springer Japan 2015

Preface 2008

We deeply appreciate the great contributions of many physicians in the registry of esophageal cancer cases. The Comprehensive Registry of Esophageal Cancer in Japan, 2008, was published here, despite some delay. The registry complies with the Act for the Protection of Personal Information. The encryption with a HASH function is used for “anonymity in an unlinkable fashion”.

These data were first made available on December 25, 2014, as the Comprehensive Registry of Esophageal Cancer in Japan, 2008. Not all the pages are reprinted here; however, the original table and figure numbers have been maintained.

The authors were members of the Registration Committee for Esophageal Cancer, the Japan Esophageal Society, and made great contributions to the preparation of this material.

Y. Tachimori (✉)
Esophageal Surgery Division, National Cancer Center Hospital,
5-1-1 Tsukiji, Tokyo, Chuo-ku 104-0045, Japan
e-mail: ytachimo@ncc.go.jp

S. Ozawa
Department of Gastroenterological Surgery, Tokai University
School of Medicine, Isehara, Japan

H. Numasaki
Department of Medical Physics and Engineering, Osaka
University Graduate School of Medicine, Osaka, Japan

M. Fujishiro
Department of Endoscopy and Endoscopic Surgery, Graduate
School of Medicine, University of Tokyo, Tokyo, Japan

H. Matsubara
Department of Frontier Surgery, Graduate School of Medicine,
Chiba University, Chiba, Japan

We briefly summarized the Comprehensive Registry of Esophageal Cancer in Japan, 2008. Japanese Classification of Esophageal Cancer 10th and UICC TNM Classification 6th were used for cancer staging according to the subjected year. A total of 4925 cases were registered from 257 institutions in Japan. Tumor locations were cervical: 5.3 %, upper thoracic: 12.0 %, middle thoracic: 48.7 %, lower thoracic: 25.3 % and EG junction: 5.9 %. Superficial carcinomas (Tis, T1a, and T1b) were 35.3 %. As for the histologic type of biopsy specimens, squamous cell carcinoma and adenocarcinoma accounted for 89.3 % and 4.3 %, respectively. Regarding clinical results, the 5-year survival rates of patients treated using endoscopic mucosal resection, concurrent chemoradiotherapy, radiotherapy alone, chemotherapy alone, or esophagectomy were 85.7, 24.1, 23.4, 4.8, and 53.1 %, respectively. Esophagectomy was performed in 2657 cases. Concerning the approach used for

T. Oyama
Department of Gastroenterology, Saku General Hospital,
Nagano, Japan

M. Shinoda
Department of Gastroenterological Surgery,
Aichi Cancer Center Hospital, Aichi, Japan

Y. Toh
Department of Gastroenterological Surgery, National Kyushu
Cancer Center, Fukuoka, Japan

H. Udagawa
Department of Gastroenterological Surgery, Toranomon
Hospital, Tokyo, Japan

T. Uno
Department of Radiology, Graduate School of Medicine, Chiba
University, Chiba, Japan

esophagectomy, 17.9 % of the cases were treated thoracoscopically. The operative mortality (within 30 days after surgery) was 0.98 % and the hospital mortality was 1.43 %.

We hope that this Comprehensive Registry of Esophageal Cancer in Japan for 2008 will help to improve all aspects of the diagnosis and treatment of esophageal cancer in Japan.

I. Clinical factors of esophageal cancer patients treated in 2008

1. Institution-registered cases in 2008
2. Patient Background

Table 1 Age and gender
Table 11 Primary treatment
Table 12 Tumor location
Table 15 Histologic types of biopsy specimens
Table 16 Depth of tumor invasion, cT (UICC TNM 6th)
Table 17 Lymph node metastasis, cN (UICC TNM 6th)
Table 18 Distant metastasis, cM (UICC TNM 6th)
Table 20 Clinical Stage (UICC TNM 6th)

II. Results of endoscopically treated patients in 2008

Table 22 Details of endoscopic treatment
Table 26 Complications of EMR/ESD
Table 30 Pathological depth of tumor invasion of EMR/ESD specimens
Figure 1 Survival of patients treated with EMR/ESD
Figure 3 Survival of patients treated with EMR/ESD according to the pathological depth of tumor invasion (pT)
pTis
Figure 4 Survival of patients treated with EMR/ESD according to the lymphatic and venous invasion

III. Results in patients treated with chemotherapy and/or radiotherapy in 2008

Table 33 Dose of radiation (non-surgically treated cases)
Table 34 Dose of radiation (surgically treated cases)
Figure 6 Survival of patients treated with chemotherapy and/or radiotherapy (cStage I-IIA)
Figure 7 Survival of patients treated with chemotherapy and/or radiotherapy (cStage IIB-IVB)

IV. Results in patients underwent esophagectomy in 2008

Table 40 Treatment modalities of esophagectomy
Table 42 Tumor location
Table 43 Approaches to tumor resection
Table 44 Endoscopic surgery
Table 45 Fields of lymph node dissection according to the location of the tumor
Table 47 Reconstruction route
Table 48 Organs used for reconstruction
Table 55 Histological classification
Table 56 Depth of tumor invasion, pT (JES 10th)
Table 58 Pathological grading of lymph node metastasis, pN (JES 10th)
Table 59 Numbers of the metastatic nodes
Table 60 Pathological findings of distant organ metastasis, pM (JES 10th)
Table 61 Residual tumor, R
Table 72 Causes of death
Figure 8 Survival of patients underwent esophagectomy
Figure 9 Survival of patients underwent esophagectomy according to clinical stage (JES TNM 10th)
Figure 10 Survival of patients underwent esophagectomy according to clinical stage (UICC TNM 6th)
Figure 11 Survival of patients underwent esophagectomy according to the depth of tumor invasion: pT (JES TNM 10th)
Figure 12 Survival of patients underwent esophagectomy according to the depth of tumor invasion: pT (UICC TNM 6th)
Figure 13 Survival of patients underwent esophagectomy according to lymph node metastasis: pN (JES TNM 10th)
Figure 14 Survival of patients underwent esophagectomy according to lymph node metastasis: pN (UICC TNM 6th)
Figure 15 Survival of patients underwent esophagectomy according to number of metastatic node
Figure 16 Survival of patients underwent esophagectomy according to pathological stage (JES TNM 10th)
Figure 17 Survival of patients underwent esophagectomy according to pathological stage (UICC TNM 6th)
Figure 18 Survival of patients underwent esophagectomy according to residual tumor (R)

I. Clinical factors of esophageal cancer patients treated in 2008

Institution-registered cases in 2008

Institution

Aichi Cancer Center
 Aizawa Hospital
 Akita University Hospital
 Arao Municipal Hospital
 Asahikawa Medical College Hospital
 Beppu Medical Center
 Chiba Cancer Center
 Chiba Medical Center
 Chiba Prefectural Sahara Hospital
 Chiba University Hospital
 Chibaken Saiseikai Narashino Hospital
 Dokkyo Medical University Hospital
 Fujioka General Hospital
 Fujisawa Shounandai Hospital
 Fujita Health University
 Fukui Prefectural Hospital
 Fukui University Hospital
 Fukuoka Dental College and Dental Hospital
 Fukuoka Saiseikai General Hospital
 Fukuoka University Hospital
 Fukuoka Wajiro Hospital
 Fukushima Medical University Hospital
 Gifu Prefectural General Medical Center
 Gifu University Hospital
 Gunma Central General Hospital
 Gunma Prefectural Cancer Center
 Gunma University Hospital
 Gunmaken Saiseikai Maebashi Hospital
 Hakodate Goryokaku Hospital
 Hakodate National Hospital
 Hamamatsu University School of Medicine, University Hospital
 Health Insurance Naruto Hospital
 Heartlife Hospital
 Higashiosaka City General Hospital
 Hino Memorial Hospital
 Hiratsuka City Hospital
 Hiratsuka Kyosai Hospital
 Hiroshima City Asa Hospital
 Hiroshima University Research Institute for Radiation Biology
 Medicine
 Hitachi General Hospital
 Hokkaido kin-ikyo Central Hospital
 Hokkaido P.W.F.A.C Obihiro-Kosei General Hospital

continued

Institution

Hokkaido University Hospital
 Hyogo Cancer Center
 Hyogo College of Medicine
 Ibaraki Prefectural Central Hospital
 Ida Municipal Hospital
 Iizuka Hospital
 Imazu Surgical Clinic
 Inazawa City Hospital
 International University of Health and Welfare Hospital
 Ishikawa Prefectural Central Hospital
 Iwakuni Medical Center
 Iwate Medical University Hospital
 Japanese Red Cross Kyoto Second Hospital
 Japanese Red Cross Shizuoka Hospital
 Jichi Medical University Hospital
 Juntendo University Hospital
 Junwakai Memorial Hospital
 Kagawa Prefectural Central Hospital
 Kagawa Rosai Hospital
 Kagawa University Hospital
 Kagoshima Kenritsu Satsunan Hospital
 Kagoshima University Hospital
 Kanazawa Medical University Hospital
 Kanazawa University Hospital
 Kansai Medical University Hirakata Hospital
 Kansai Rosai Hospital
 Kashiwa Kousei General Hospital
 Kawakita General Hospital
 Kawasaki Hospital
 Kawasaki Medical School Hospital
 Kawasaki Municipal Hospital
 Keio University Hospital
 Keiyukai Sapporo Hospital
 Kikuna Memorial Hospital
 Kinki Central Hospital
 Kinki University Hospital
 Kiryu Kosei General Hospital
 Kishiwada City Hospital
 Kitakyushu Municipal Medical Center
 Kitano Hospital
 Kitasato University Hospital
 Kitasato University Kitasato Institute Medical Center Hospital
 Kobe City Medical Center General Hospital
 Kobe University Hospital
 Kochi University Hospital
 Kokura Memorial Hospital
 Kumamoto City Hospital

continued

Institution

Kumamoto University Hospital
 Kurashiki Central Hospital
 Kurume First Social Insurance Hospital
 Kurume University Hospital
 Kuwana Medical Center
 Kyorin University Hospital
 Kyoto University Hospital
 Kyushu University Hospital
 Kyusyu Medical Center
 Machida Municipal Hospital
 Matsuda Hospital
 Matsumoto Medical Center
 Matsushita Memorial Hospital
 Matsuyama Red Cross Hospital
 Mie University Hospital
 Mito Red Cross Hospital
 Miyazaki Konan Hospital
 Murakami General Hospital
 Musashino Red Cross Hospital
 Nagahama City Hospital
 Nagano Red Cross Hospital
 Nagasaki University Hospital
 Nagayoshi General Hospital
 Nagoya City University Hospital
 Nagoya First Red Cross Hospital
 Nagoya University Hospital
 Nara Hospital Kinki University Faculty of Medicine
 Nara Medical University Hospital
 National Cancer Center Hospital
 National Cancer Center Hospital East
 National Center for Global Health and Medicine
 National Defense Medical College Hospital
 National Hospital Organization Chiba Medical Center
 National Hospital Organization Chiba-East Hospital
 National Hospital Organization Fukuoka-East Medical Center
 National Hospital Organization Hokkaido Cancer Center
 National Hospital Organization Kure Medical Center
 National Hospital Organization Kyushu Cancer Center
 National Hospital Organization Nagoya Medical Center
 National Hospital Organization Osaka National Hospital
 National Hospital Organization Tokyo Medical Center
 Nihon University Itabashi Hospital
 Niigata Cancer Center Hospital
 Niigata City General Hospital
 Niigata Prefectural Shibata Hospital
 Niigata University Medical and Dental Hospital
 Nikko Memorial Hospital
 Nippon Medical School Hospital

continued

Institution

Nippon Medical School Chiba Hokusoh Hospital
 Nippon Medical School Hospital
 Nippon Medical School Musashi Kosugi Hospital
 Nippon Medical School Tama Nagayama Hospital
 Nishi-Kobe Medical Center
 Nishinomiya Municipal Central Hospital
 NTT West Japan Osaka Hospital
 Numazu City Hospital
 Ohta General Hospital Foundation Ohta Nishinouchi Hospital
 Oita Red Cross Hospital
 Oita University Hospital
 Okayama Saiseikai General Hospital
 Okayama University Hospital
 Omuta City Hospital
 Onomichi Municipal Hospital
 Osaka City General Medical Center
 Osaka City University Hospital
 Osaka Hospital of Japan Seafarers Relief Association
 Osaka Koseinenkin Hospital
 Osaka Medical Center for Cancer and Cardiovascular Diseases
 Osaka Medical College Hospital
 Osaka Prefectural Hospital Organization Osaka General Medical Center
 Osaka Red Cross Hospital
 Osaka University Hospital
 Otsu Red Cross Hospital
 Rinku General Medical Center
 Ryukyu University Hospital
 Saga University Hospital
 Saga-Ken Medical center Koseikan
 Saiseikai Utsunomiya Hospital
 Saiseikai Yahata General Hospital
 Saitama City Hospital
 Saitama Medical Center
 Saitama Medical Center Jichi Medical University
 Saitama Medical University Hospital
 Saitama Medical University International Medical Center
 Saitama Prefectural Cancer Center
 Saitama Social Insurance Hospital
 Sakai Municipal Hospital
 Saku Central Hospital
 Sano Kousei General Hospital
 Seirojika National Hospital University Hospital
 Sendai City Hospital
 Sendai Medical Center
 Shiga Medical Center for Adults
 Shiga University of Medical Science Hospital
 Shikoku Cancer Center
 Shimada Hospital

continued

Institution

Shimane University Hospital
 Shimizu Welfare Hospital
 Shinshu University Hospital
 Shizuoka Cancer Center
 Shizuoka City Shizuoka Hospital
 Shizuoka General Hospital
 Showa University Hospital
 Social Insurance Omuta Tenryo Hospital
 Social Insurance Tagawa Hospital
 Social Insurance Yokohama Central Hospital
 Sonoda First Hospital
 Sugita Genpaku Memorial Obama Municipal Hospital
 Suita Municipal Hospital
 Suwa Red Cross Hospital
 Syowa University Hospital
 Syowa University Toyosu Hospital
 Takaoka Hospital
 Takasago Municipal Hospital
 Takatsuki Red Cross Hospital
 Tenri Hospital
 The Cancer Institute Hospital of JFCR
 The Jikei University Hospital
 The Research Center Hospital for Charged Particle Therapy of the NIRS
 Tochigi Cancer Center
 Toho University Hospital
 Toho University Omori Medical Center
 Tohoku Kosai Hospital
 Tohoku University Hospital
 Tokai University Hospital
 Tokushima Municipal Hospital
 Tokushima Red Cross Hospital
 Tokushima University Hospital
 Tokyo Dental College Ichikawa General Hospital
 Tokyo Jikeikai Medical
 Tokyo Medical and Dental University Hospital
 Tokyo Medical University Hospital
 Tokyo Metropolitan Cancer and Infectious Center Komagome Hospital
 Tokyo Metropolitan Health and Medical Corporation Toshima Hospital
 Tokyo University Hospital
 Tokyo Women’s Medical University Hospital
 Tokyo Women’s Medical University Medical Center East
 Tonan Hospital
 Tone Central Hospital
 Toranomon Hospital
 Tottori Prefectural Central Hospital
 Tottori University Hospital

continued

Institution

Toyama Prefectural Central Hospital
 Toyama University Hospital
 Tsuchiura Kyodo Hospital
 Tsukuba University Hospital
 University Hospital, Kyoto Prefectural University of Medicine
 University of Miyazaki Hospital
 Wakayama Medical University Hospital
 Yamagata Prefectural and Sakata Municipal Hospital Organization
 Yamagata Prefectural Central Hospital
 Yamagata Prefectural Shinjo Hospital
 Yamaguchi-ken Saiseikai Shimonoseki General Hospital
 Yamanashi Prefectural Central Hospital
 Yamanashi University Hospital
 Yokohama City Municipal Hospital
 Yokohama City University Hospital
 Yokohama City University Medical Center
 Yuri General Hospital

(Total 257 institutions)

Patient Background

Table 1 Age and gender

Age	Male	Female	Unknown	Cases (%)
~29	10	0	0	10 (0.2 %)
30–39	14	3	0	17 (0.3 %)
40–49	121	38	0	159 (3.2 %)
50–59	815	152	3	970 (19.7 %)
60–69	1720	249	1	1970 (40.0 %)
70–79	1220	206	1	1427 (29.0 %)
80–89	265	70	0	335 (6.8 %)
90~	9	6	0	15 (0.3 %)
Unknown	15	4	3	22 (0.4 %)
Total	4189	728	8	4925 (100 %)

Table 11 Primary treatment

Treatments	Cases (%)
Surgery	2699 (54.8 %)
Esophagectomy	2657 (53.9 %)
Palliative	42 (0.9 %)
Chemotherapy/Radiotherapy	1279 (26.0 %)
Endoscopic treatment	753 (15.3 %)
Others	32 (0.6 %)
None/Unknown	162 (3.3 %)
Total	4925 (100 %)

Table 12 Tumor location

Location of tumor	Endoscopic treatment (%)	Chemotherapy and/or radiotherapy (%)	Palliative surgery (%)	Esophagectomy (%)	Other (%)	None/Unknown (%)	Total (%)
Cervical	14 (1.9 %)	129 (10.1 %)	4 (9.5 %)	101 (3.8 %)	0	13 (8.0 %)	261 (5.3 %)
Upper thoracic	68 (9.0 %)	215 (16.8 %)	10 (23.8 %)	278 (10.5 %)	4 (12.5 %)	18 (11.1 %)	593 (12.0 %)
Middle thoracic	410 (54.4 %)	621 (48.6 %)	18 (42.9 %)	1278 (48.1 %)	9 (28.1 %)	63 (38.9 %)	2399 (48.7 %)
Lower thoracic	178 (23.6 %)	245 (19.2 %)	10 (23.8 %)	757 (28.5 %)	17 (53.1 %)	39 (24.1 %)	1246 (25.3 %)
E > G	36 (4.8 %)	28 (2.2 %)	0	199 (7.5 %)	1 (3.1 %)	3 (1.9 %)	267 (5.4 %)
E = G	3 (0.4 %)	0	0	7 (0.3 %)	0	1 (0.6 %)	11 (0.2 %)
G > E	0	1 (0.1 %)	0	13 (0.5 %)	0	0	14 (0.3 %)
Unknown	44 (5.8 %)	40 (3.1 %)	0	24 (0.9 %)	1 (3.1 %)	25 (15.4 %)	134 (2.7 %)
Total	753 (100 %)	1279 (100 %)	42 (100 %)	2657 (100 %)	32 (100 %)	162 (100 %)	4925 (100 %)

EG esophago-gastric

Table 15 Histologic types of biopsy specimens

Histologic types	Cases (%)
Not examined	62 (1.3 %)
SCC	4396 (89.3 %)
SCC	2783 (56.5 %)
Well diff.	275 (5.6 %)
Moderately diff.	1040 (21.1 %)
Poorly diff.	298 (6.1 %)
Adenocarcinoma	212 (4.3 %)
Undifferentiated	12 (0.2 %)
Carcinosarcoma	11 (0.2 %)
Malignant melanoma	8 (0.2 %)
Other tumors	57 (1.2 %)
Unknown	167 (3.4 %)
Total	4925 (100 %)

SCC squamous cell carcinoma

Table 16 Depth of tumor invasion, cT (UICC TNM 6th)

cT	Cases (%)
cTX	140 (2.8 %)
cT0	7 (0.1 %)
cTis	157 (3.2 %)
cT1	205 (4.2 %)
cT1a	555 (11.3 %)
cT1b	819 (16.6 %)
cT2	644 (13.1 %)
cT3	1705 (34.6 %)
cT4	693 (14.1 %)
Total	4925 (100 %)

Table 17 Lymph node metastasis, cN (UICC TNM 6th)

cN	Cases (%)
cNX	317 (6.5 %)
cN0	2276 (46.2 %)
cN1	2332 (47.4 %)
Total	4925 (100 %)

Table 18 Distant metastasis, cM (UICC TNM 6th)

cM	Cases (%)
cMX	224 (4.5 %)
cM0	3982 (80.9 %)
cM1	181 (3.7 %)
cM1a	135 (2.7 %)
cM1b	403 (8.2 %)
Total	4925 (100 %)

Table 20 Clinical Stage (UICC TNM 6th)

Location of tumor	Endoscopic treatment (%)	Chemotherapy and/or radiotherapy (%)	Palliative surgery (%)	Esophagectomy (%)	Other (%)	None/Unknown (%)	Total (%)
0	131 (17.4 %)	5 (0.4 %)	0 (0.0 %)	9 (0.3 %)	6	2 (1.2 %)	153 (3.1 %)
I	469 (62.3 %)	158 (12.4 %)	3 (7.1 %)	619 (23.3 %)	13 (40.6 %)	18 (11.1 %)	1280 (26.0 %)
IIA	4 (0.5 %)	109 (8.5 %)	5 (11.9 %)	558 (21.0 %)	2 (6.3 %)	19 (11.7 %)	697 (14.2 %)
IIB	3 (0.4 %)	80 (6.3 %)	1 (2.4 %)	303 (11.4 %)	1	4 (2.5 %)	392 (8.0 %)
III	20 (2.7 %)	478 (37.4 %)	22 (52.4 %)	800 (30.1 %)	1 (3.1 %)	36 (22.2 %)	1357 (27.6 %)
IV	9 (1.2 %)	111 (8.7 %)	1 (2.4 %)	29 (1.1 %)	1	15 (9.3 %)	166 (3.4 %)
IVA	1 (0.1 %)	46 (3.6 %)	2 (4.8 %)	81 (3.0 %)	1	4 (2.5 %)	135 (2.7 %)
IVB	7 (0.9 %)	223 (17.4 %)	4 (9.5 %)	140 (5.3 %)	2 (6.3 %)	21 (13.0 %)	397 (8.1 %)
Unknown	109 (14.5 %)	69 (5.4 %)	4 (9.5 %)	118 (4.4 %)	5 (15.6 %)	43 (26.5 %)	348 (7.1 %)
Total	753 (100 %)	1279 (100 %)	42 (100 %)	2657 (100 %)	32 (100 %)	162 (100 %)	4925 (100 %)

II. Results of endoscopically treated patients in 2008

Table 22 Details of endoscopic treatment

Treatment details	Cases (%)
EMR	181 (24.0 %)
EMR + ESD	6 (0.8 %)
EMR + YAG laser	4 (0.5 %)
EMR + ESD + YAG laser	1 (0.1 %)
ESD	490 (65.1 %)
ESD + YAG laser	5 (0.7 %)
ESD + other treatment	1 (0.1 %)
PDT	2 (0.3 %)
YAG laser	8 (1.1 %)
Esophageal stenting	45 (6.0 %)
Esophageal stenting + other treatment	3 (0.4 %)
Tracheal stenting	3 (0.4 %)
Others	4 (0.5 %)
Total	753 (100 %)

EMR endoscopic mucosal resection, ESD endoscopic submucosal dissection, PDT photodynamic therapy, YAG yttrium aluminum garnet, APC Argon plasma coagulation, MCT microwave coagulation therapy, RFA Radiofrequency ablation

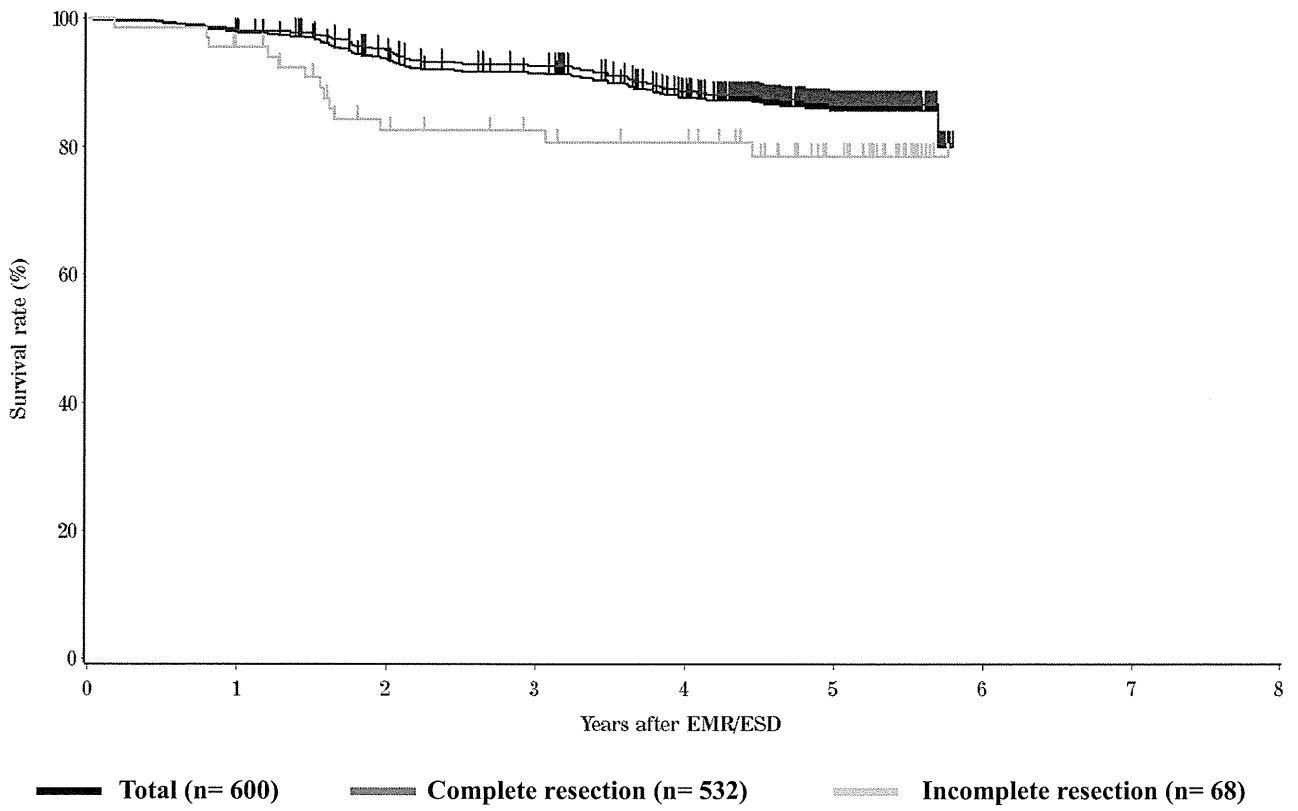
* “Esophageal stenting + tracheal stenting + other (PEG)” case is included in “Esophageal stenting + tracheal stenting”

Table 26 Complications of EMR/ESD

Complications of EMR/ESD	Cases (%)
None	617 (89.7 %)
Perforation	8 (1.2 %)
Bleeding	0
Mediastinitis	3 (0.4 %)
Stenosis	50 (7.3 %)
Others	8 (1.2 %)
Unknown	2 (0.3 %)
Total	688 (100 %)

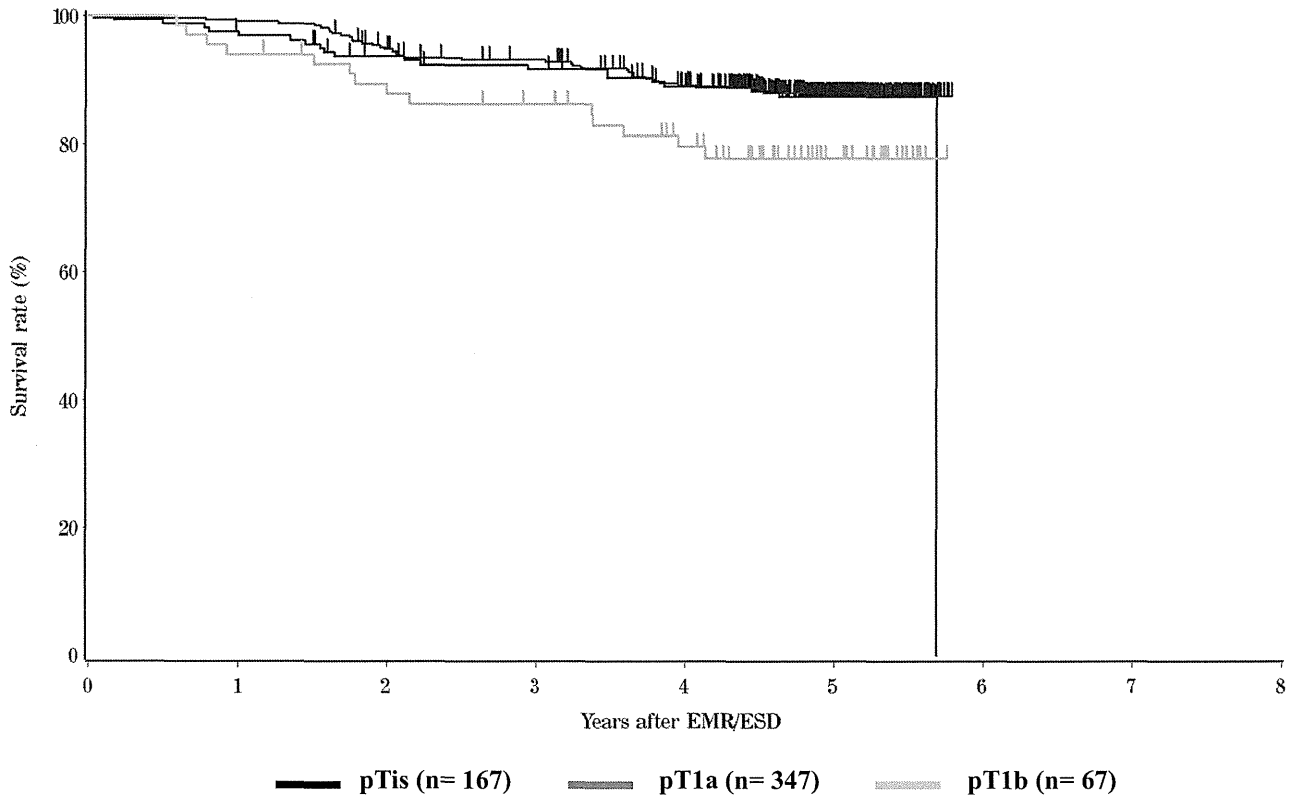
Table 30 Pathological depth of tumor invasion of EMR/ESD specimens

Pathological depth of tumor invasion	Cases (%)
pTX	25 (3.7 %)
pT0	7 (1.0 %)
pTis	187 (27.2 %)
pT1a	392 (57.0 %)
pT1b	77 (11.2 %)
pT2	0 (0.0 %)
Total	688 (100 %)



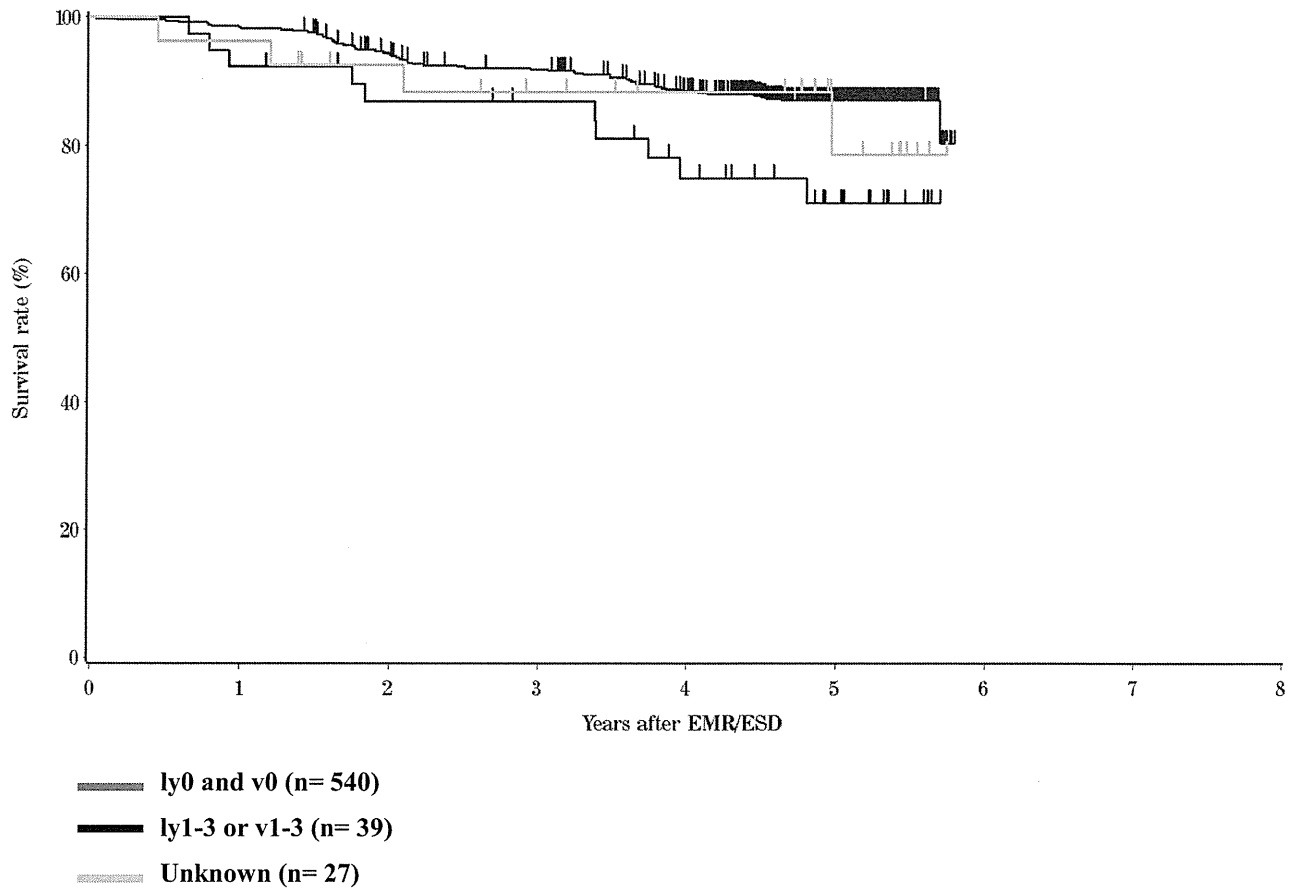
	Years after EMR/ESD							
	1	2	3	4	5	6	7	8
Total	97.8%	93.5%	91.5%	87.7%	85.7%	-	-	-
Complete resection	98.1%	94.9%	92.7%	88.6%	86.7%	-	-	-
Incomplete resection	95.5%	82.5%	82.5%	80.7%	78.4%	-	-	-

Fig. 1 Survival of patients treated with EMR/ESD



	Years after EMR/ESD							
	1	2	3	4	5	6	7	8
pTis	96.9%	93.7%	91.7%	89.0%	87.4%	-	-	-
pT1a	99.1%	94.8%	93.2%	89.2%	87.6%	-	-	-
pT1b	94.0%	87.9%	86.3%	79.6%	77.7%	-	-	-

Fig. 3 Survival of patients treated with EMR/ESD according to the pathological depth of tumor invasion (pT)



	Years after EMR/ESD							
	1	2	3	4	5	6	7	8
ly0 and v0	98.3%	94.1%	91.9%	88.5%	87.0%	-	-	-
ly1-3 or v1-3	92.3%	86.9%	86.9%	75.0%	71.0%	-	-	-
Unknown	96.3%	92.6%	88.4%	88.4%	78.6%	-	-	-

Fig. 4 Survival of patients treated with EMR/ESD according to the lymphatic and venous invasion

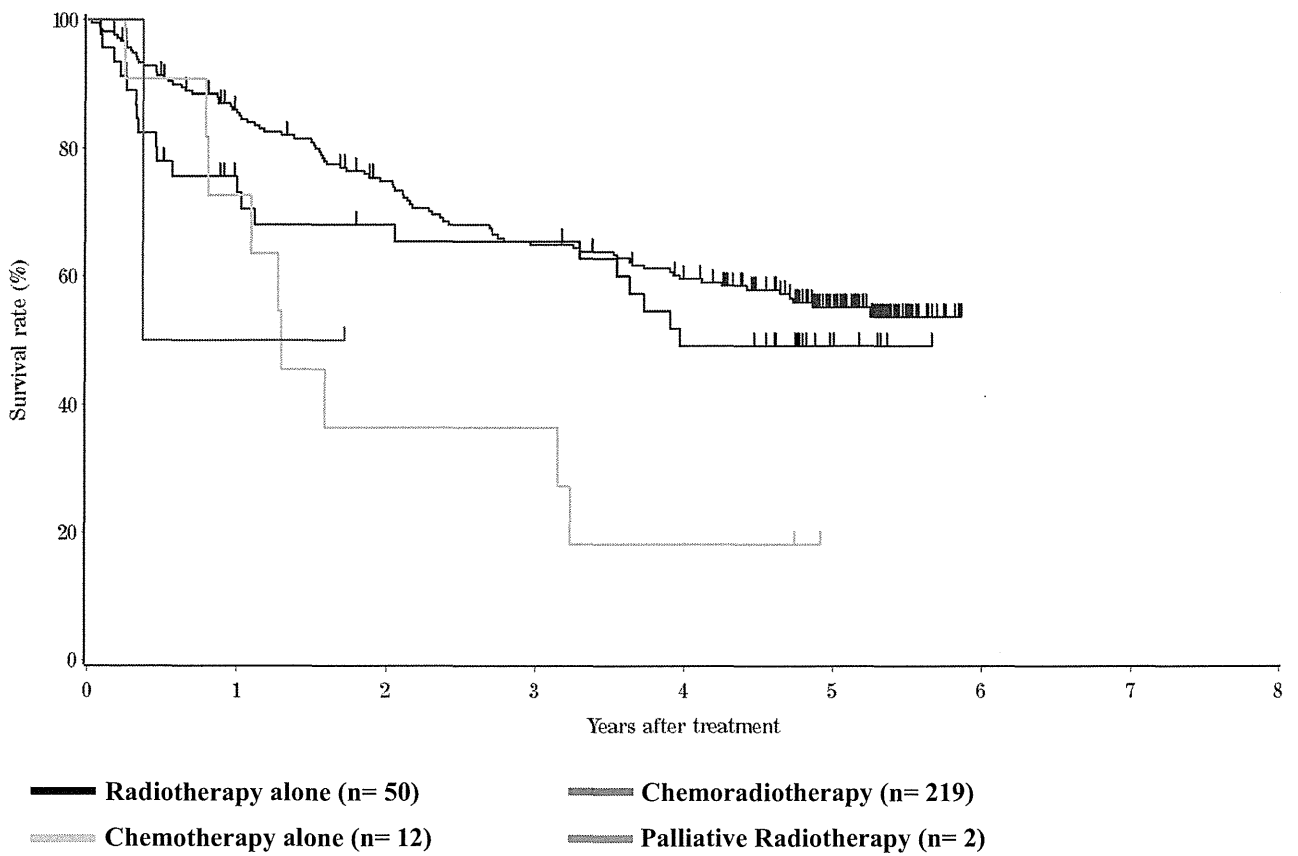
III. Results of endoscopically treated patients in 2008

Table 33 Dose of radiation (non-surgically treated cases)

Dose of radiation (Gy)	Definitive		Palliative (%)	Recurrence (%)	Others (%)	Unknown (%)	Total (%)
	Radiation alone (%)	With chemotherapy (%)					
0	0	0	0	0	0	0	0
–29	8 (5.8 %)	13 (1.7 %)	23 (12.4 %)	2 (9.1 %)	1 (6.3 %)	0	47 (3.7 %)
30–39	3 (2.2 %)	11 (1.4 %)	25 (13.4 %)	4 (18.2 %)	0	1 (0.6 %)	44 (3.4 %)
40–49	9 (6.5 %)	30 (3.9 %)	33 (17.7 %)		9 (56.3 %)	0	81 (6.3 %)
50–59	18 (13.0 %)	154 (20.2 %)	40 (21.5 %)	3 (13.6 %)	1 (6.3 %)	0	216 (16.9 %)
60–69	91 (65.9 %)	519 (68.2 %)	57 (30.6 %)	13 (59.1 %)	4 (25.0 %)	1 (0.6 %)	685 (53.6 %)
70–	6 (7.2 %)	16 (2.1 %)	1 (0.0 %)	0	0	0	23 (2.2 %)
Unknown	3 (2.2 %)	18 (2.4 %)	7 (3.8 %)	0	1 (6.3 %)	154 (98.7 %)	183 (14.3 %)
Total	138 (100 %)	761 (100 %)	186 (100 %)	22 (100 %)	16 (100 %)	156 (100 %)	1279 (100 %)
Median (min–max)	60.0 (3.6–89.4)	60.0 (2.0–176.0)	50.0 (2.0–70.0)	60.0 (2.0–66.0)	40.0 (4.0–66.0)	45.0 (30.0–60.0)	60.0 (2.0–176.0)

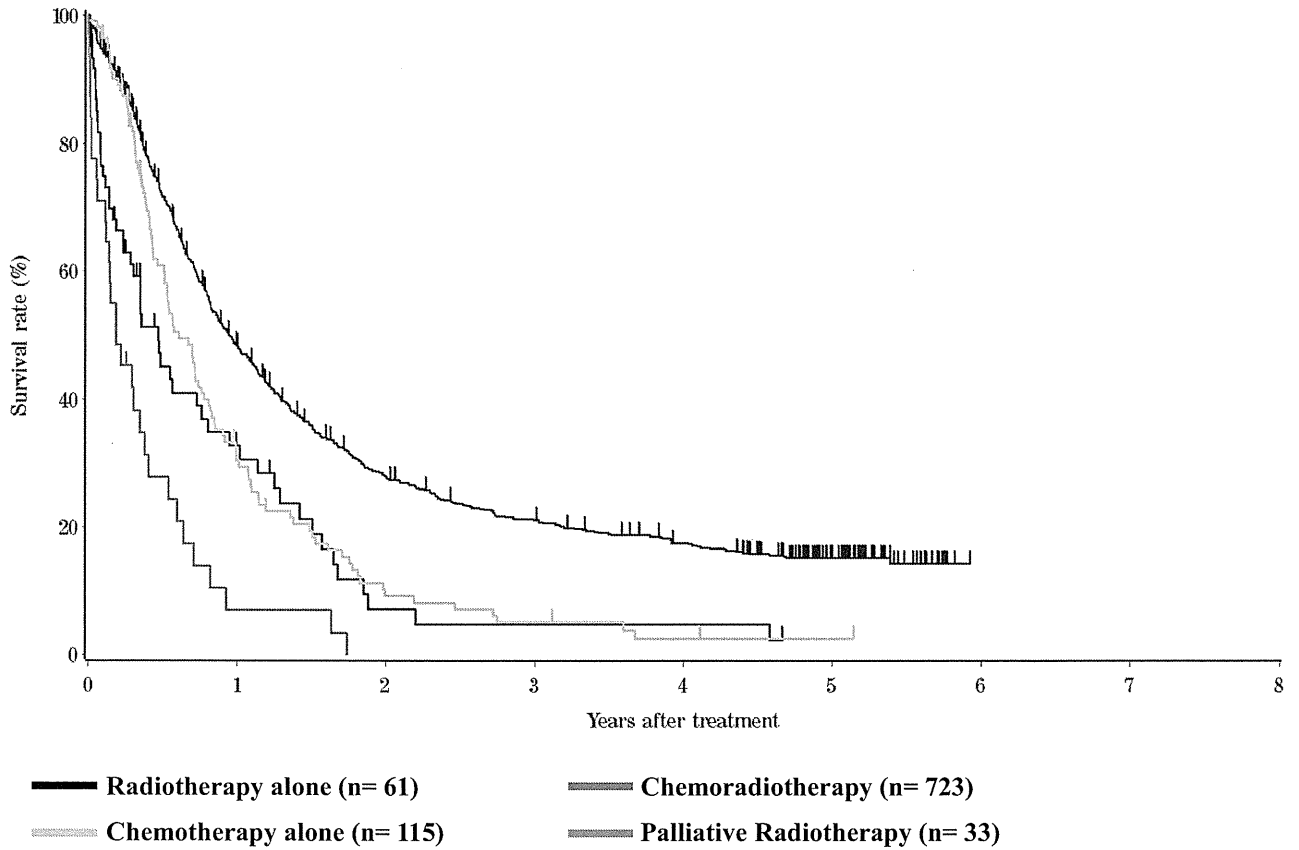
Table 34 Dose of radiation (surgically treated cases)

Dose of radiation (Gy)	Preoperative radiation (%)	Postoperative radiation (%)
0	0	0
–29	6 (2.9 %)	1 (1.7 %)
30–39	47 (22.9 %)	2 (3.4 %)
40–49	132 (64.4 %)	9 (15.3 %)
50–59	5 (2.4 %)	22 (37.3 %)
60–69	8 (3.9 %)	22 (37.3 %)
70–	0 (0.5 %)	0 (1.1 %)
Unknown	7 (3.4 %)	3 (5.1 %)
Total	205 (100 %)	59 (100 %)
Median (min–max)	40.0 (1.2–66.0)	50.4 (16.0–64.0)



	Years after treatment							
	1	2	3	4	5	6	7	8
Radiotherapy alone	73.1%	68.1%	65.5%	49.1%	49.1%	-	-	-
Chemoradiotherapy	85.5%	74.9%	65.0%	59.6%	55.2%	-	-	-
Chemotherapy alone	72.7%	36.4%	36.4%	18.2%	-	-	-	-
Palliative radiotherapy	0.5%	-	-	-	-	-	-	-

Fig. 6 Survival of patients treated with chemotherapy and/or radiotherapy (cStage I-IIA)



	Years after treatment							
	1	2	3	4	5	6	7	8
Radiotherapy alone	32.8%	7.1%	4.7%	4.7%	-	-	-	-
Chemoradiotherapy	48.4%	27.9%	21.1%	17.6%	15.2%	-	-	-
Chemotherapy alone	30.4%	8.2%	5.1%	2.6%	2.6%	-	-	-
Palliative radiotherapy	7.0%	0.0%	-	-	-	-	-	-

Fig. 7 Survival of patients treated with chemotherapy and/or radiotherapy (cStage IIB-IVB)

IV. Results in patients underwent esophagectomy in 2008

Table 40 Treatment modalities of esophagectomy

Treatments	Cases (%)
Esophagectomy	1370 (51.6 %)
Esophagectomy + radiotherapy	73 (2.7 %)
Esophagectomy + chemoradiotherapy	464 (17.5 %)
Esophagectomy + chemoradiotherapy + endoscopic treatment	5 (0.2 %)
Esophagectomy + chemoradiotherapy + other treatment	2 (0.1 %)
Esophagectomy + radiotherapy + other treatment	3 (0.1 %)
Esophagectomy + chemotherapy	700 (26.3 %)
Esophagectomy + chemotherapy + endoscopic treatment	6 (0.2 %)
Esophagectomy + endoscopic treatment	33 (1.2 %)
Esophagectomy + other treatment	1 (0.0 %)
Total	2657 (100 %)

Table 42 Tumor location

Locations	Cases (%)
Cervical	101 (3.8 %)
Upper thoracic	278 (10.5 %)
Middle thoracic	1278 (48.1 %)
Lower thoracic	757 (28.5 %)
E > G	199 (7.5 %)
E = G	7 (0.3 %)
G > E	13 (0.5 %)
Unknown	24 (0.9 %)
Total lesions	2657 (100 %)

Table 43 Approaches to tumor resection

Approaches	Cases (%)
Cervical approach	74 (2.8 %)
Right thoracotomy	2256 (84.9 %)
Left thoracotomy	40 (1.5 %)
Left thoracoabdominal approach	40 (1.5 %)
Laparotomy	118 (4.4 %)
Transhiatal thoracic esophagectomy	50 (1.9 %)
Transhiatal lower esophagectomy	31 (1.2 %)
Sternotomy	5 (0.2 %)
Others	13 (0.5 %)
Unknown	30 (1.1 %)
Total	2657 (100 %)

Table 44 Endoscopic surgery

Endoscopic surgery	Cases (%)
None	1946 (73.2 %)
Thoracoscopy-assisted	360 (13.5 %)
Laparoscopy-assisted	124 (4.7 %)
Thoracoscopy + Laparoscopy-assisted	117 (4.4 %)
Mediastinoscopy – assisted	14 (0.5 %)
Thoracoscopy + Laparoscopy + Mediastinoscopy-assisted	1 (0.0 %)
Thoracoscopy + Mediastinoscopy-assisted	1 (0.0 %)
Laparoscopy + Mediastinoscopy-assisted	1 (0.0 %)
Unknown	93 (3.5 %)
Total	2657 (100 %)

Table 45 Fields of lymph node dissection according to the location of the tumor

Field of lymphadenectomy	Cervical	Upper thoracic	Middle thoracic	Lower thoracic	E > G	E = G	G > E	Unknown	Total
None	3 (3.0 %)	14 (5.0 %)	51 (4.0 %)	32 (4.2 %)	13 (6.5 %)	0	0	3 (12.5 %)	116 (4.4 %)
C	35 (34.7 %)	9 (3.2 %)	14 (1.1 %)	5 (0.7 %)	2 (1.0 %)	0	0	0	65 (2.4 %)
C + UM	23 (22.8 %)	1 (0.4 %)	0	0	0	0	0	0	24 (0.9 %)
C + UM + MLM	5 (5.0 %)	10 (3.6 %)	22 (1.7 %)	3 (0.4 %)	0	0	0	1 (4.2 %)	41 (1.5 %)
C + UM + MLM + A	24 (23.8 %)	174 (62.6 %)	661 (51.7 %)	279 (36.9 %)	18 (9.0 %)	1 (14.3 %)	0	6 (25.0 %)	1163 (43.8 %)
C + UM + MLM + A + Other	0	0	0	0	0	0	0	0	0
C + UM + A	1 (1.0 %)	0	3 (0.2 %)	2 (0.3 %)	0	0	0	0	6 (0.2 %)
C + MLM + A	0	1 (0.4 %)	2 (0.2 %)	1 (0.1 %)	0	0	0	0	4 (0.2 %)
C + A	1 (1.0 %)	0 (0.0 %)	2 (0.2 %)	0	0	0	0	0	3 (0.1 %)
UM	0	1 (0.4 %)	4 (0.3 %)	1 (0.1 %)	0	0	0	0	6 (0.2 %)
UM + MLM	0	6 (2.2 %)	18 (1.4 %)	4 (0.5 %)	0	0	0	0	28 (1.1 %)
UM + MLM + A	2 (2.0 %)	36 (12.9 %)	399 (31.2 %)	292 (38.6 %)	53 (26.6 %)	1 (14.3 %)	1 (7.7 %)	3 (12.5 %)	787 (29.6 %)
UM + MLM + A + Other	0	0	0	1 (0.1 %)	0	0	0	0	1 (0.0 %)
UM + A	0	1 (0.4 %)	3 (0.2 %)	1 (0.1 %)	0	0	0	0	5 (0.2 %)
MLM	0	0	4 (0.3 %)	7 (0.9 %)	3 (1.5 %)	0	0	1 (4.2 %)	15 (0.6 %)
MLM + A	0	7 (2.5 %)	39 (3.1 %)	83 (11.0 %)	74 (37.2 %)	1 (14.3 %)	1 (7.7 %)	0	205 (7.7 %)
A	0	3 (1.1 %)	4 (0.3 %)	18 (2.4 %)	30 (15.1 %)	4 (57.1 %)	11 (84.6 %)	0	70 (2.6 %)
A + Other	0	0	0	0	0	0	0	0	0
Unknown	7 (6.9 %)	15 (5.4 %)	52 (4.1 %)	28 (3.7 %)	6 (3.0 %)	0	0	10 (41.7 %)	118 (4.4 %)
Total	101 (100 %)	278 (100 %)	1278 (100 %)	757 (100 %)	199 (100 %)	7 (100 %)	13 (100 %)	24 (100 %)	2657 (100 %)

C bilateral cervical nodes, UM upper mediastinal nodes, MLM middle-lower mediastinal nodes, A abdominal nodes

Table 47 Reconstruction route

Reconstruction route	Cases (%)
None	43 (1.6 %)
Subcutaneous	285 (10.7 %)
Retrosternal	1026 (38.6 %)
Intrathoracic	303 (11.4 %)
Posterior mediastinal	873 (32.9 %)
Cervical	41 (1.5 %)
Others	35 (1.3 %)
Unknown	51 (1.9 %)
Total	2657 (100 %)

Table 48 Organs used for reconstruction

Organs used for reconstruction	Cases (%)
None	44 (1.6 %)
Whole stomach	98 (3.5 %)
Gastric tube	2155 (77.6 %)
Jejunum	138 (5.0 %)
Free jejunum	62 (2.2 %)
Colon	105 (3.8 %)
Free colon	9 (0.3 %)
Skin graft	0 (0.0 %)
Others	114 (4.1 %)
Unknown	53 (1.9 %)
Total organs	2778 (100 %)
Total cases	

Table 55 Histological classification

Histological classification	Cases (%)
SCC	2191 (82.5 %)
SCC	417 (15.7 %)
Well diff.	427 (16.1 %)
Moderately diff.	1015 (38.2 %)
Poorly diff.	332 (12.5 %)
Adenocarcinoma	91 (3.4 %)
Barrett’s adenocarcinoma	49 (1.8 %)
Adenosquamous cell carcinoma	10 (0.4 %)
Mucoepidermoid carcinoma	2 (0.1 %)
Adenoid cystic carcinoma	1 (0.0 %)
Basaloid carcinoma	33 (1.2 %)
Undiff. carcinoma (small cell)	9 (0.3 %)
Undiff. carcinoma	3 (0.1 %)
Other carcinoma	6 (0.2 %)
Sarcoma	2 (0.1 %)
Carcinosarcoma	21 (0.8 %)
Malignant melanoma	6 (0.2 %)
Dysplasia	2 (0.1 %)
Other	18 (0.7 %)
Unknown	213 (8.0 %)
Total	2657 (100 %)

SCC Squamous cell carcinoma

Table 56 Depth of tumor invasion, pT (JES 10th)

pT-category	Cases (%)
pTX	201 (7.6 %)
pT0	58 (2.2 %)
pTis	13 (0.5 %)
pT1a	228 (8.6 %)
pT1b	677 (25.5 %)
pT2	328 (12.3 %)
pT3	1011 (38.1 %)
pT4	141 (5.3 %)
Total	2657 (100 %)

Table 58 Pathological grading of lymph node metastasis, pN (JES 10th)

Lymph node metastasis	Cases (%)
pNX	279 (10.5 %)
pN0	1334 (50.2 %)
pN1	344 (12.9 %)
pN2	428 (16.1 %)
pN3	156 (5.9 %)
pN4	116 (4.4 %)
Total	2657 (100 %)

Table 59 Numbers of the metastatic nodes

Numbers of lymph node metastasis	Cases (%)
0	1061 (39.9 %)
1–2	717 (27.0 %)
3–6	438 (16.5 %)
7–	250 (9.4 %)
Unknown	191 (7.2 %)
Total	2657 (100 %)

Table 60 Pathological findings of distant organ metastasis, pM (JES 10th)

Distant metastasis	Cases (%)
pMX	116 (4.4 %)
pM0	2503 (94.2 %)
pM1	38 (1.4 %)
Total	2657 (100 %)

Table 61 Residual tumor, R

Residual tumor	Cases (%)
RX	310 (11.7 %)
R0	2079 (78.2 %)
R1	159 (6.0 %)
R2	109 (4.1 %)
Total	2657 (100 %)

Table 72 Causes of death

Cause of death	Cases (%)
Death due to recurrence	788 (70.0 %)
Death due to other cancer	44 (3.9 %)
Death due to other disease (rec +)	39 (3.5 %)
Death due to other disease (rec-)	130 (11.6 %)
Death due to other disease (rec?)	7 (0.6 %)
Operative death*	26 (2.3 %)
Postoperative hospital death**	38 (3.4 %)
Unknown	53 (4.7 %)
Total of death cases	1125 (100 %)

Operative mortality: 0.98 %

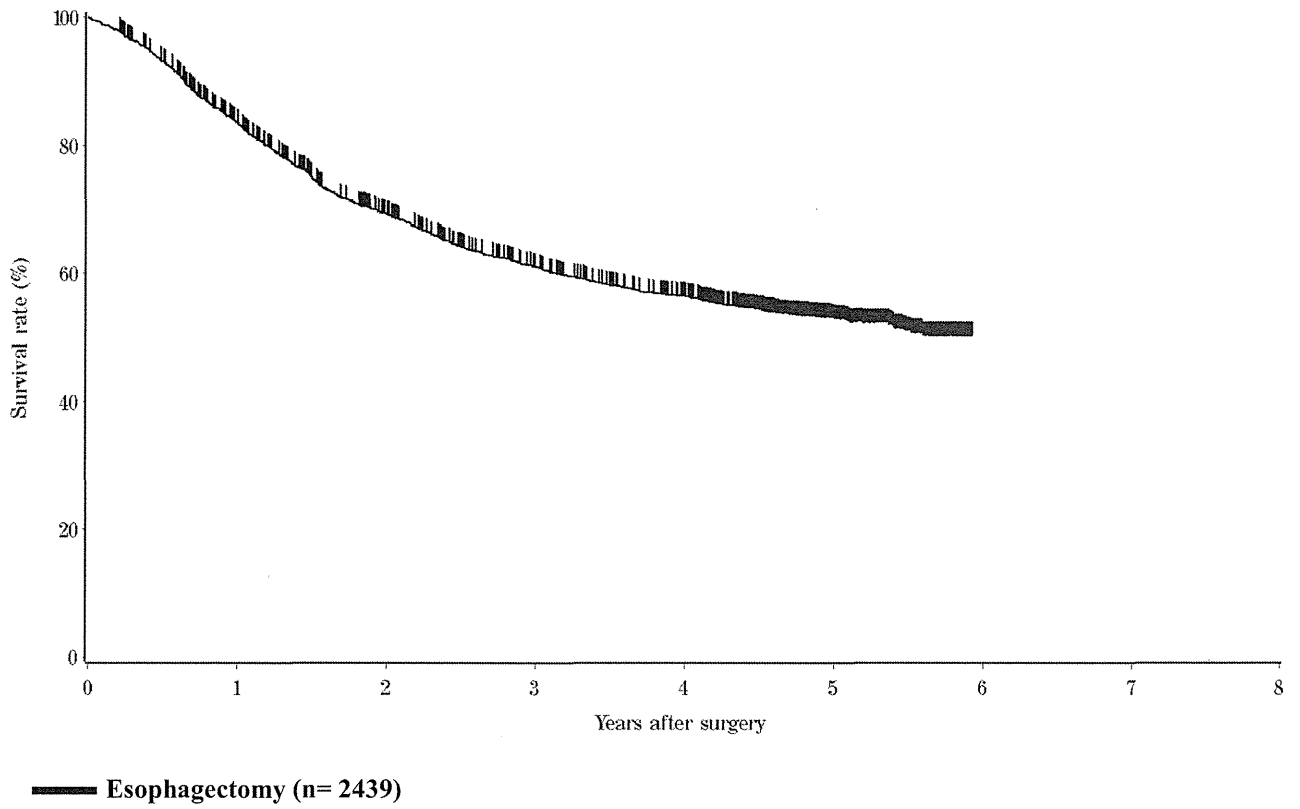
Hospital mortality: 1.43 %

rec recurrence

* Operative death means death within 30 days after operation in or out of hospital

** Hospital death is defined as death during the same hospitalization, regardless of department at time of death

Follow-up period (months)	
Median (min - max)	41.13 (0.00 - 71.03)



	Years after surgery							
	1	2	3	4	5	6	7	8
Esophagectomy	83.6%	69.3%	61.0%	56.5%	53.1%	-	-	-

Fig. 8 Survival of patients underwent esophagectomy