

II. Results of endoscopically treated patients in 2007

Table 22 Details of endoscopic treatment

Treatment details	Cases (%)
EMR	223 (28.5 %)
EMR + ESD	5 (0.6 %)
EMR + YAG laser	2 (0.3 %)
EMR + Tracheal stenting	1 (0.1 %)
ESD	475 (60.7 %)
ESD + PDT	1 (0.1 %)
ESD + YAG laser	2 (0.3 %)
ESD + other treatment	4 (0.5 %)
PDT	6 (0.8 %)
PDT + YAG laser	1 (0.1 %)
YAG laser	7 (0.9 %)
Esophageal stenting	42 (5.4 %)
Esophageal stenting + tracheal stenting	1 (0.1 %)
Esophageal stenting + other treatment	1 (0.1 %)
Tracheal stenting	6 (0.8 %)
Others	5 (0.6 %)
Total	782 (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”

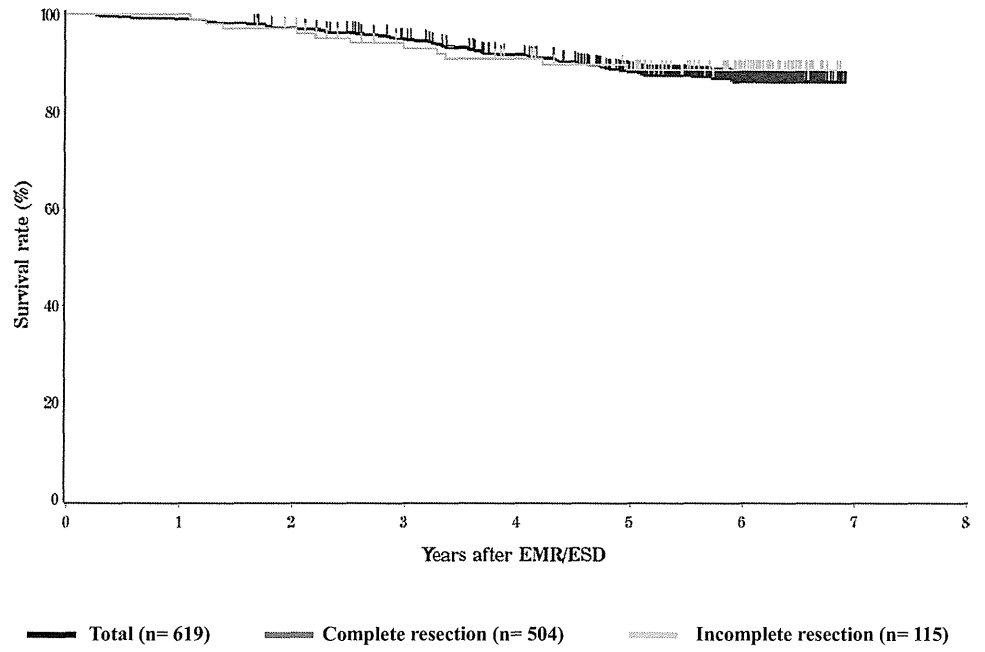
Table 30 Pathological depth of tumor invasion of EMR/ESD specimens

Pathological depth of tumor invasion (pT)	Cases (%)
pTX	27 (3.7 %)
pT0	6 (0.8 %)
pTis	170 (23.8 %)
pT1a	420 (58.9 %)
pT1b	87 (12.2 %)
pT2	3 (0.4 %)
Total	713 (100 %)

Table 26 Complications of EMR/ESD

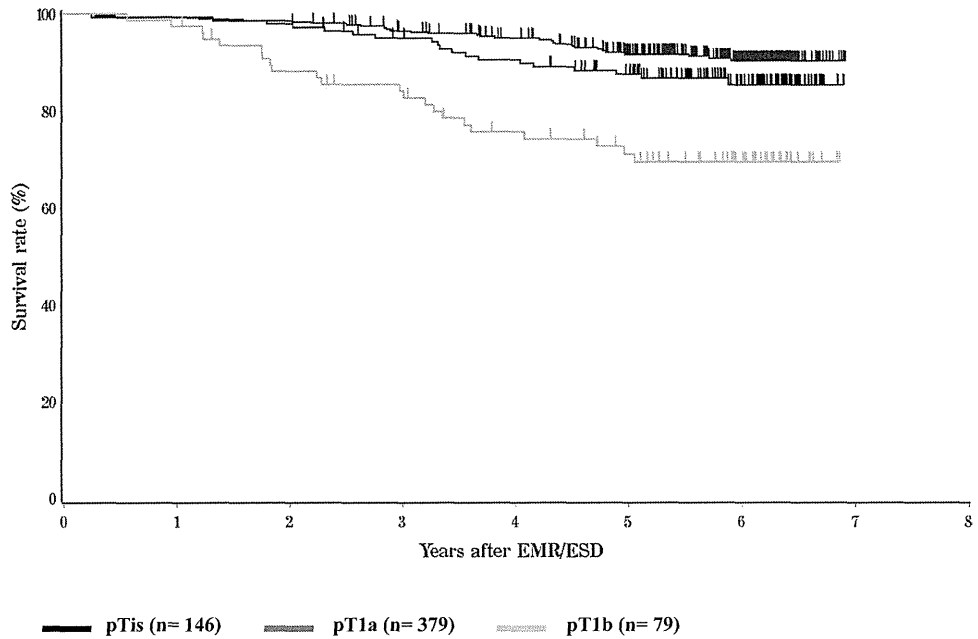
Complications of EMR/ESD	Cases (%)
None	653 (91.6 %)
Perforation	5 (0.7 %)
Bleeding	2 (0.3 %)
Mediastinitis	1 (0.1 %)
Stenosis	44 (6.2 %)
Perforation + mediastinitis	1 (0.1 %)
Perforation + stenosis	1 (0.1 %)
Others	6 (0.8 %)
Unknown	0
Total	713 (100 %)

Fig. 1 Survival of patients treated with EMR/ESD



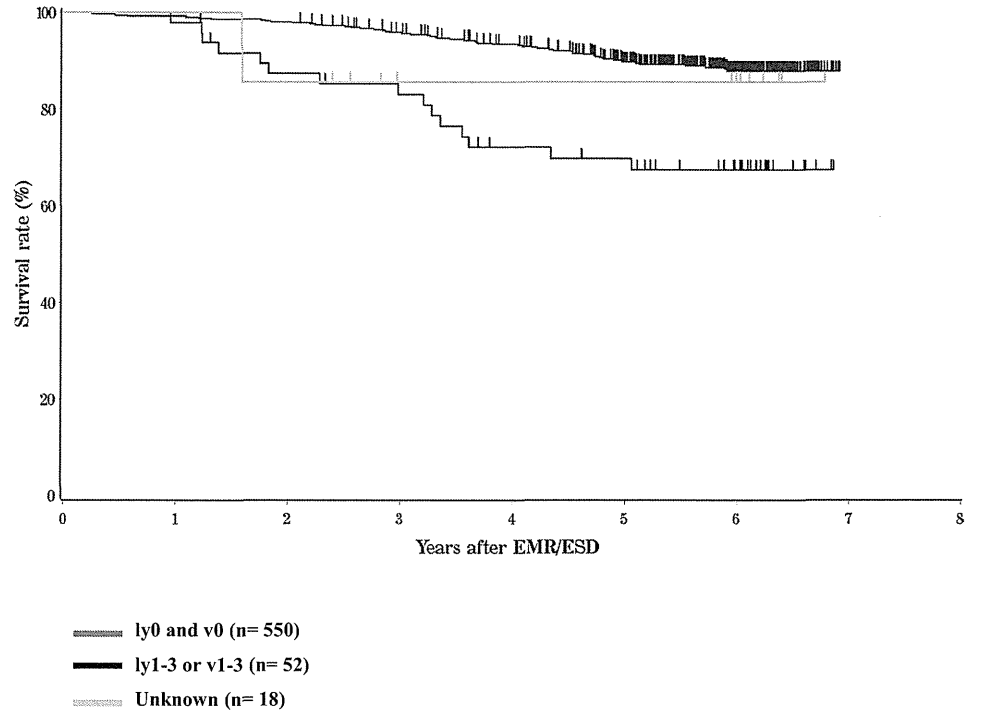
	Years after EMR/ESD							
	1	2	3	4	5	6	7	8
Total	99.2%	97.3%	94.8%	91.6%	88.1%	86.3%	-	-
Complete resection	99.0%	97.3%	95.1%	91.8%	88.1%	85.9%	-	-
Incomplete resection	100.0%	97.1%	93.0%	90.8%	88.5%	88.5%	-	-

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
pTis	99.3%	97.9%	95.0%	90.5%	87.5%	85.3%	-	-
pT1a	99.4%	98.6%	96.5%	95.0%	91.7%	90.2%	-	-
pT1b	97.4%	88.1%	84.0%	75.6%	71.1%	69.5%	-	-

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



	Years after EMR/ESD							
	1	2	3	4	5	6	7	8
ly0 and v0	99.2%	98.1%	95.9%	93.4%	89.7%	87.9%	-	-
ly1-3 or v1-3	98.0%	87.4%	83.1%	72.1%	69.8%	67.4%	-	-
Unknown	100.0%	85.7%	85.7%	85.7%	85.7%	85.7%	-	-

III. Results in patients treated with chemotherapy and/or radiotherapy in 2007

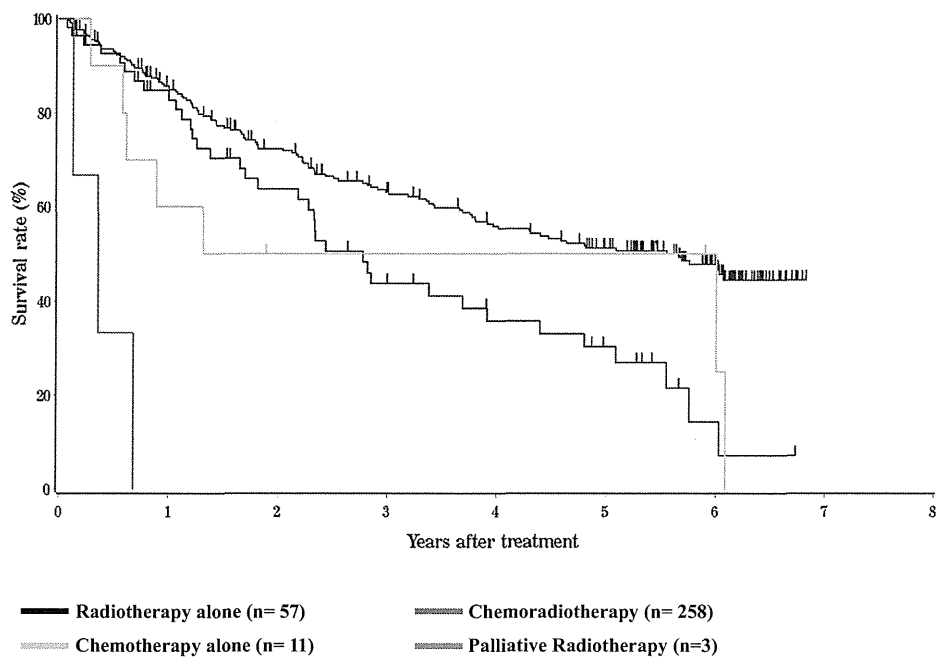
Table 33 Dose of radiation (non-surgically treated cases)

Dose of radiation (Gy)	Definitive		Palliative (%)	Recurrence (%)	Others (%)	Unknown (%)	Total (%)
	Radiation alone (%)	With chemotherapy (%)					
0	0	0	0	0	0	0	0
~29	7 (3.8 %)	12 (1.5 %)	15 (8.3 %)	0	0	1 (0.7 %)	35 (2.6 %)
30–39	6 (3.3 %)	22 (2.7 %)	20 (11.0 %)	2 (11.8 %)	10 (32.3 %)	1 (0.7 %)	61 (4.5 %)
40–49	6 (3.3 %)	31 (3.8 %)	23 (12.7 %)	4 (23.5 %)	13 (41.9 %)	0	77 (5.6 %)
50–59	14 (7.7 %)	118 (14.4 %)	39 (21.5 %)	2 (11.8 %)	4 (12.9 %)	1 (0.7 %)	178 (13.0 %)
60–69	139 (76.0 %)	607 (74.3 %)	79 (43.6 %)	7 (41.2 %)	2 (6.5 %)	0	834 (61.1 %)
70~	8 (7.2 %)	14 (2.1 %)	0	0	0	0	22 (2.2 %)
Unknown	3 (1.6 %)	13 (1.6 %)	5 (2.8 %)	2 (11.8 %)	2 (6.5 %)	134 (97.8 %)	159 (11.6 %)
Total	183 (100 %)	817 (100 %)	181 (100 %)	17 (100 %)	31 (100 %)	137 (100 %)	1366 (100 %)
Median (min–max)	60.0 (6.0–81.6)	60.0 (10.0–169.0)	58.0 (1.8–68.8)	50.0 (30.0–60.0)	40.0 (30.0–66.0)	30.0 (24.0–50.4)	60.0 (1.8–169.0)

Table 34 Dose of radiation (surgically treated cases)

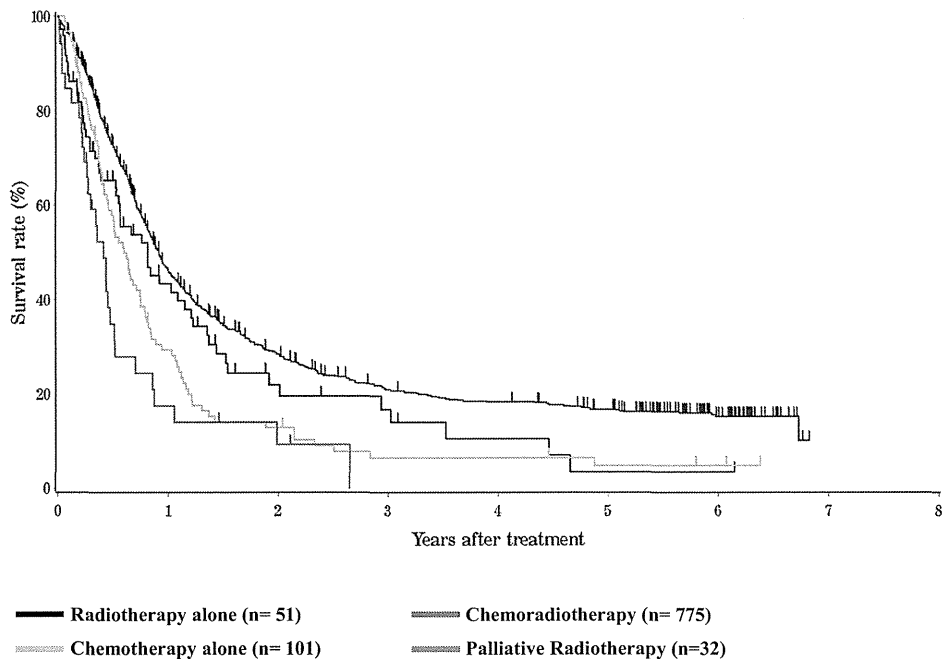
Dose of radiation (Gy)	Preoperative radiation (%)	Postoperative radiation (%)
0	0	0
–29	4 (1.8 %)	4 (4.3 %)
30–39	53 (23.8 %)	5 (5.3 %)
40–49	140 (62.8 %)	25 (26.6 %)
50–59	3 (1.3 %)	29 (30.9 %)
60–69	17 (7.6 %)	27 (28.7 %)
70–	1 (0.5 %)	1 (1.1 %)
Unknown	5 (2.2 %)	3 (3.2 %)
Total	223 (100 %)	94 (100 %)
Median (min–max)	40 (23.4–70.0)	50 (14.0–75.0)

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	84.8%	63.7%	43.7%	35.8%	30.3%	14.3%	-	-
Chemoradiotherapy	85.7%	72.3%	63.1%	55.8%	51.2%	47.7%	-	-
Chemotherapy alone	60.0%	50.0%	50.0%	50.0%	50.0%	50.0%	-	-
Palliative radiotherapy	0.0%	-	-	-	-	-	-	-

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



	Years after treatment							
	1	2	3	4	5	6	7	8
Radiotherapy alone	43.3%	21.9%	16.7%	10.4%	3.5%	3.5%	-	-
Chemoradiotherapy	46.1%	28.3%	21.0%	18.3%	16.7%	15.2%	-	-
Chemotherapy alone	29.3%	12.9%	6.4%	6.4%	4.8%	4.8%	-	-
Palliative radiotherapy	17.4%	9.3%	0.0%	-	-	-	-	-

IV. Results in patients underwent esophagectomy in 2007

Table 40 Treatment modalities of esophagectomy

Treatments	Cases (%)
Esophagectomy	1540 (54.3 %)
Esophagectomy + radiotherapy	98 (3.5 %)
Esophagectomy + chemoradiotherapy	514 (18.1 %)
Esophagectomy + chemoradiotherapy + endoscopic treatment	3 (0.1 %)
Esophagectomy + chemoradiotherapy + other treatment	1 (0.0 %)
Esophagectomy + radiotherapy + other treatment	2 (0.1 %)
Esophagectomy + chemotherapy	613 (21.6 %)
Esophagectomy + chemotherapy + endoscopic treatment	5 (0.2 %)
Esophagectomy + endoscopic treatment	55 (1.9 %)
Esophagectomy + other treatment	3 (0.1 %)
Total	2834 (100 %)

Table 42 Tumor location

Locations	Cases (%)
Cervical	77 (2.7 %)
Upper thoracic	312 (11.0 %)
Middle thoracic	1380 (48.7 %)
Lower thoracic	808 (28.5 %)
E > G	199 (7.0 %)
E = G	25 (0.9 %)
G > E	10 (0.4 %)
Unknown	23 (0.8 %)
Total lesions	2834 (100 %)

Table 43 Approaches to tumor resection

Approaches	Cases (%)
Cervical approach	39 (1.4 %)
Right thoracotomy	2417 (85.3 %)
Left thoracotomy	44 (1.6 %)
Left thoracoabdominal approach	75 (2.6 %)
Laparotomy	95 (3.4 %)
Transhiatal thoracic esophagectomy	57 (2.0 %)
Transhiatal lower esophagectomy	41 (1.4 %)
Sternotomy	15 (0.5 %)
Others	11 (0.4 %)
Unknown	40 (1.4 %)
Total	2834 (100 %)

Table 44 Endoscopic surgery

Endoscopic surgery	Cases (%)
None	2010 (70.9 %)
Thoracoscopy-assisted	427 (15.1 %)
Laparoscopy-assisted	128 (4.5 %)
Thoracoscopy + Laparoscopy-assisted	131 (4.6 %)
Mediastinoscopy-assisted	31 (1.1 %)
Thoracoscopy + Laparoscopy + Mediastinoscopy-assisted	1 (0.0 %)
Thoracoscopy + Mediastinoscopy-assisted	3 (0.1 %)
Laparoscopy + Mediastinoscopy-assisted	1 (0.0 %)
Others	2 (0.1 %)
Unknown	100 (3.5 %)
Total	2834 (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	4 (5.2 %)	17 (5.4 %)	70 (5.1 %)	34 (4.2 %)	8 (4.0 %)	0	0	3 (37.5 %)	136 (4.8 %)
C	19 (24.7 %)	3 (1.0 %)	3 (0.2 %)	4 (0.5 %)	3 (1.5 %)	0	0	1 (12.5 %)	33 (1.2 %)
C + UM	13 (16.9 %)	2 (0.6 %)	0	0	0	0	0	1 (12.5 %)	16 (0.6 %)
C + UM + MLM	4 (5.2 %)	12 (3.8 %)	29 (2.1 %)	11 (1.4 %)	2 (1.0 %)	0	0	0	58 (2.0 %)
C + UM + MLM + A	20 (26.0 %)	181 (58.0 %)	665 (48.2 %)	300 (37.1 %)	17 (8.5 %)	0	0	5 (62.5 %)	1188 (41.9 %)
C + UM + MLM + A + Other	0	0	2 (0.1 %)	1 (0.1 %)	0	0	0	0	3 (0.1 %)
C + UM + A	1 (1.3 %)	7 (2.2 %)	2 (0.1 %)	0	0	0	0	0	10 (0.4 %)
C + MLM + A	1 (1.3 %)	0	8 (0.6 %)	2 (0.2 %)	0	0	0	0	11 (0.4 %)
C + A	6 (7.8 %)	1 (0.3 %)	4 (0.3 %)	0	2 (1.0 %)	0	0	0	13 (0.5 %)
UM	0	1 (0.3 %)	2 (0.1 %)	0	0	0	0	1 (12.5 %)	4 (0.1 %)
UM + MLM	0	3 (1.0 %)	16 (1.2 %)	10 (1.2 %)	1 (0.5 %)	0	0	1 (12.5 %)	31 (1.1 %)
UM + MLM + A	5 (6.5 %)	59 (18.9 %)	454 (32.9 %)	307 (38.0 %)	54 (27.1 %)	6 (24.0 %)	0	4 (50.0 %)	889 (31.4 %)
UM + MLM + A + Other	0	0	1 (0.1 %)	1 (0.1 %)	0	0	0	0	2 (0.1 %)
UM + A	0	0	3 (0.2 %)	5 (0.6 %)	0	0	0	0	8 (0.3 %)
MLM	0	0	6 (0.4 %)	2 (0.2 %)	1 (0.5 %)	0	0	2 (25.0 %)	11 (0.4 %)
MLM + A	1 (1.3 %)	7 (2.2 %)	42 (3.0 %)	97 (12.0 %)	76 (38.2 %)	11 (44.0 %)	5 (50.0 %)	2 (25.0 %)	241 (8.5 %)
A	1 (1.3 %)	3 (1.0 %)	12 (0.9 %)	12 (1.5 %)	31 (15.6 %)	7 (28.0 %)	5 (50.0 %)	2 (25.0 %)	73 (2.6 %)
A + Other	0	0	1 (0.1 %)	0	0	0	0	0	1 (0.0 %)
Unknown	2 (2.6 %)	16 (5.1 %)	60 (4.3 %)	22 (2.7 %)	4 (2.0 %)	1 (4.0 %)	0	1 (12.5 %)	106 (3.7 %)
Total	77 (100 %)	312 (100 %)	1380 (100 %)	808 (100 %)	199 (100 %)	25 (100 %)	10 (100 %)	23 (100 %)	2834 (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	34 (1.2 %)
Subcutaneous	300 (10.2 %)
Retrosternal	1129 (38.5 %)
Intrathoracic	368 (12.5 %)
Posterior mediastinal	1006 (34.3 %)
Cervical	23 (0.8 %)
Others	27 (0.9 %)
Unknown	47 (1.6 %)
Total	2934 (100 %)

Table 48 Organs used for reconstruction

Organs used for reconstruction	Cases (%)
None	41 (1.4 %)
Whole stomach	105 (3.5 %)
Gastric tube	2328 (78.7 %)
Jejunum	143 (4.8 %)
Free jejunum	35 (1.2 %)
Colon	111 (3.8 %)
Free colon	5 (0.2 %)
Skin graft	1 (0.0 %)
Others	126 (4.3 %)
Unknown	64 (2.2 %)
Total organs	2959 (100 %)
Total cases	2834

Table 55 Histological classification

Histological classification	Cases (%)
SCC	2407 (84.9 %)
SCC	385 (13.6 %)
Well diff.	492 (17.4 %)
Moderately diff.	1109 (39.1 %)
Poorly diff.	421 (14.9 %)
Adenocarcinoma	106 (3.7 %)
Barrett's adenocarcinoma	46 (1.6 %)
Adenosquamous cell carcinoma	19 (0.7 %)
Mucoepidermoid carcinoma	2 (0.1 %)
Adenoid cystic carcinoma	1 (0.0 %)
Basaloid carcinoma	45 (1.6 %)
Undiff. carcinoma (small cell)	7 (0.2 %)
Undiff. carcinoma	3 (0.1 %)
Other carcinoma	3 (0.1 %)
Sarcoma	1 (0.0 %)
Carcinosarcoma	30 (1.1 %)
Malignant melanoma	11 (0.4 %)
Dysplasia	5 (0.2 %)
Other	28 (1.0 %)
Unknown	120 (4.2 %)
Total	2834 (100 %)

SCC Squamous cell carcinoma

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

pT-category	Cases (%)
pTX	138 (4.9 %)
pT0	52 (1.8 %)
pTis	22 (0.8 %)
pT1a	216 (7.6 %)
pT1b	744 (26.3 %)
pT2	371 (13.1 %)
pT3	1131 (39.9 %)
pT4	160 (5.6 %)
Total	2834 (100 %)

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

Lymph node metastasis	Cases (%)
pNX	228 (8.0 %)
pN0	1441 (50.8 %)
pN1	352 (12.4 %)
pN2	518 (18.3 %)
pN3	162 (5.7 %)
pN4	133 (4.7 %)
Total	2834 (100 %)

Table 59 Numbers of the metastatic nodes

Numbers of lymph node metastasis	Cases (%)
0	1188 (41.9 %)
1–2	703 (24.8 %)
3–6	521 (18.4 %)
7~	292 (10.3 %)
Unknown	130 (4.6 %)
Total	2834 (100 %)

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

Distant metastasis	Cases (%)
pMX	137 (4.8 %)
pM0	2642 (93.2 %)
pM1	55 (1.9 %)
Total	2834 (100 %)

Table 61 Residual tumor, R

Residual tumor	Cases (%)
RX	303 (10.7 %)
R0	2229 (78.7 %)
R1	162 (5.7 %)
R2	140 (4.9 %)
Total	2834 (100 %)

Table 72 Causes of death

Cause of death	Cases (%)
Death due to recurrence	888 (71.4 %)
Death due to other cancer	63 (5.1 %)
Death due to other disease (rec+)	32 (2.6 %)
Death due to other disease (rec–)	149 (12.0 %)
Death due to other disease (rec?)	9 (0.7 %)
Operative death*	19 (1.5 %)
Postoperative hospital death**	36 (2.9 %)
Unknown	48 (3.9 %)
Total of death cases	1244 (100 %)

rec recurrence

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

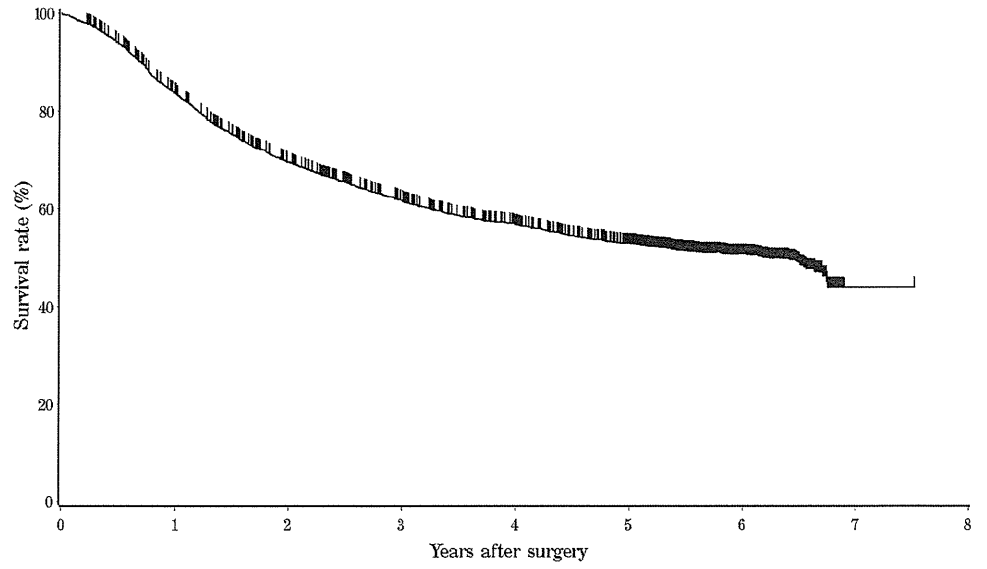
** Hospital death is defined as death during the same hospitalization, regardless of department at time of death

Operative mortality: 0.67 %

Hospital mortality: 1.27 %

Follow-up period (months)	
Median (min - max)	43.47 (0.03 - 90.18)

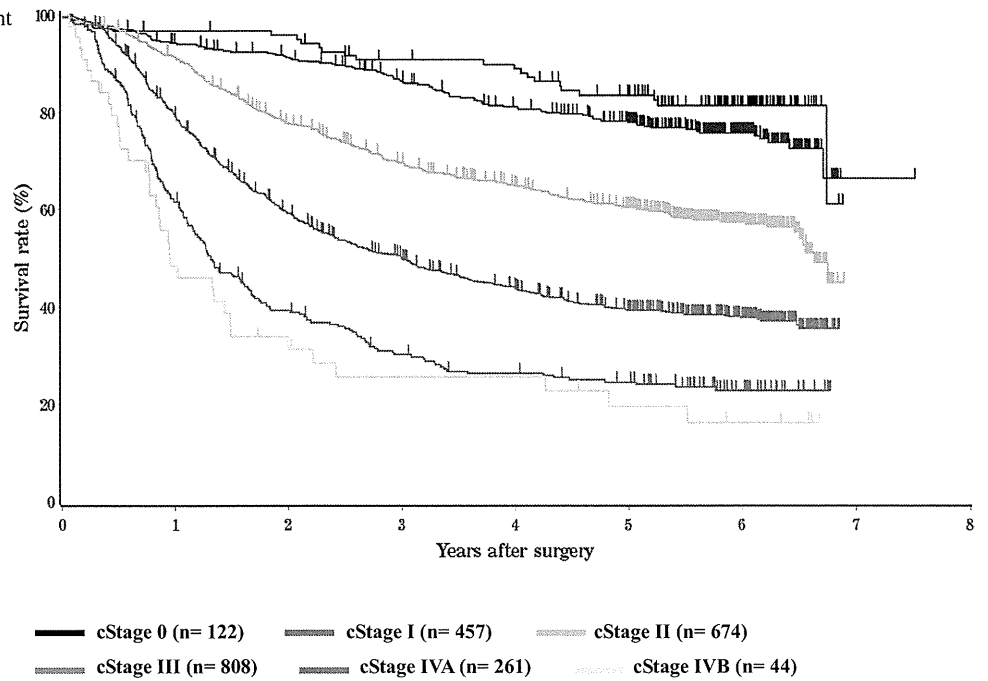
Fig. 8 Survival of patients underwent esophagectomy



— Esophagectomy (n= 2561)

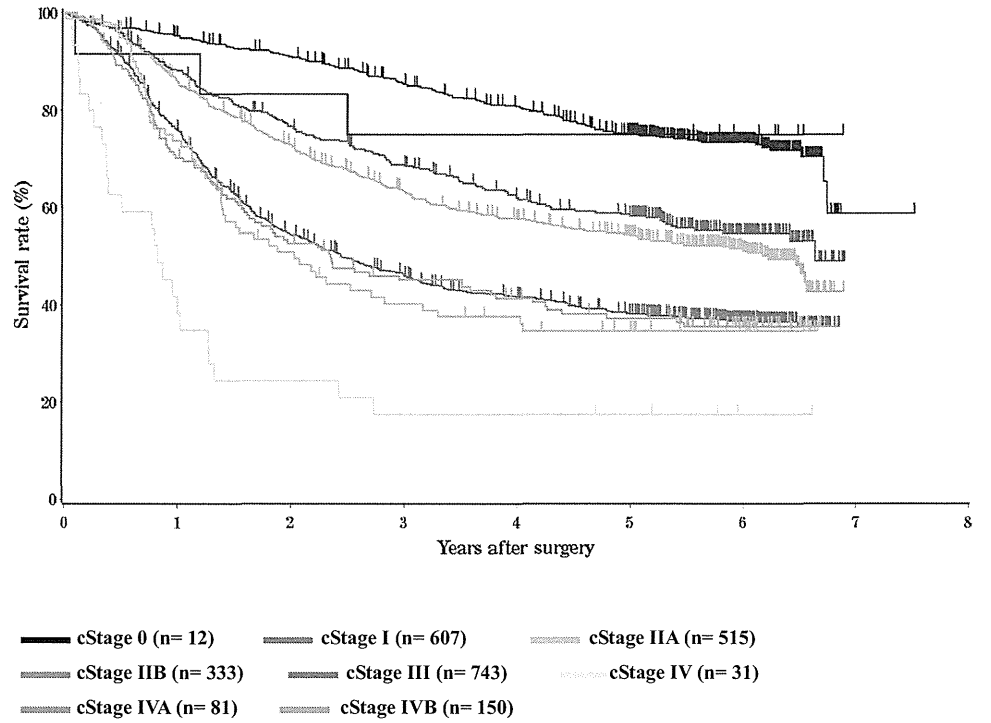
	Years after surgery							
	1	2	3	4	5	6	7	8
Esophagectomy	83.6%	69.6%	61.7%	56.8%	52.8%	50.7%	43.9%	-

Fig. 9 Survival of patients underwent esophagectomy according to clinical stage (JES TNM 10th)



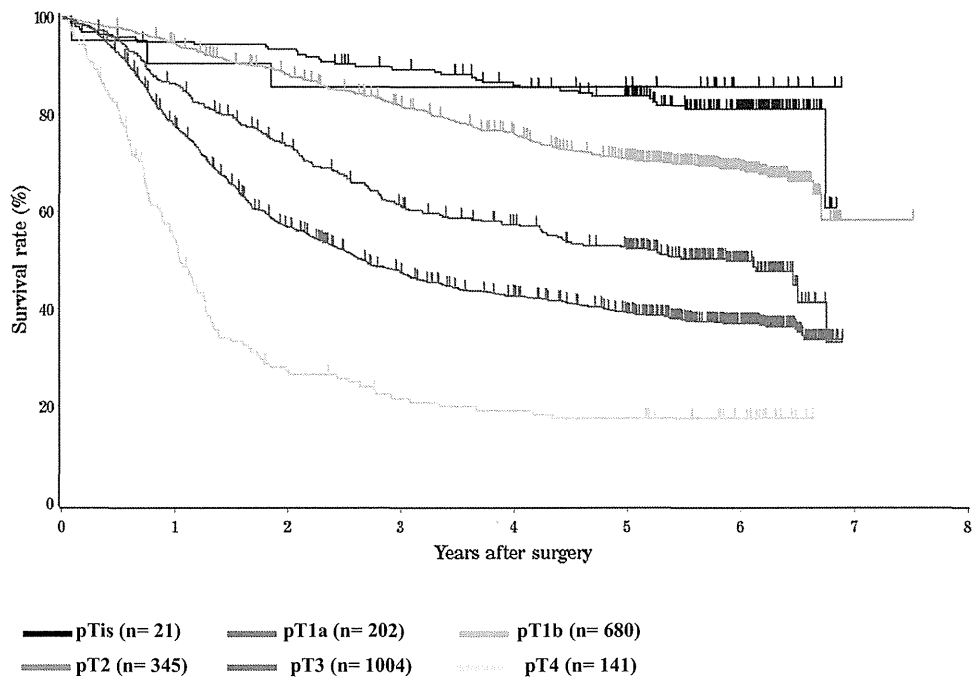
	Years after surgery							
	1	2	3	4	5	6	7	8
cStage 0	96.7%	95.8%	90.7%	88.9%	83.5%	81.3%	-	-
cStage I	94.2%	91.2%	86.3%	81.1%	77.8%	75.7%	66.4%	-
cStage II	91.4%	77.8%	69.6%	64.9%	60.4%	57.3%	-	-
cStage III	79.1%	59.1%	49.9%	43.6%	39.2%	37.8%	-	-
cStage IVA	61.5%	39.3%	30.1%	26.3%	24.5%	22.8%	-	-
cStage IVB	48.4%	31.3%	25.6%	25.6%	19.5%	16.2%	-	-

Fig. 10 Survival of patients underwent esophagectomy according to clinical stage (UICC TNM 6th)



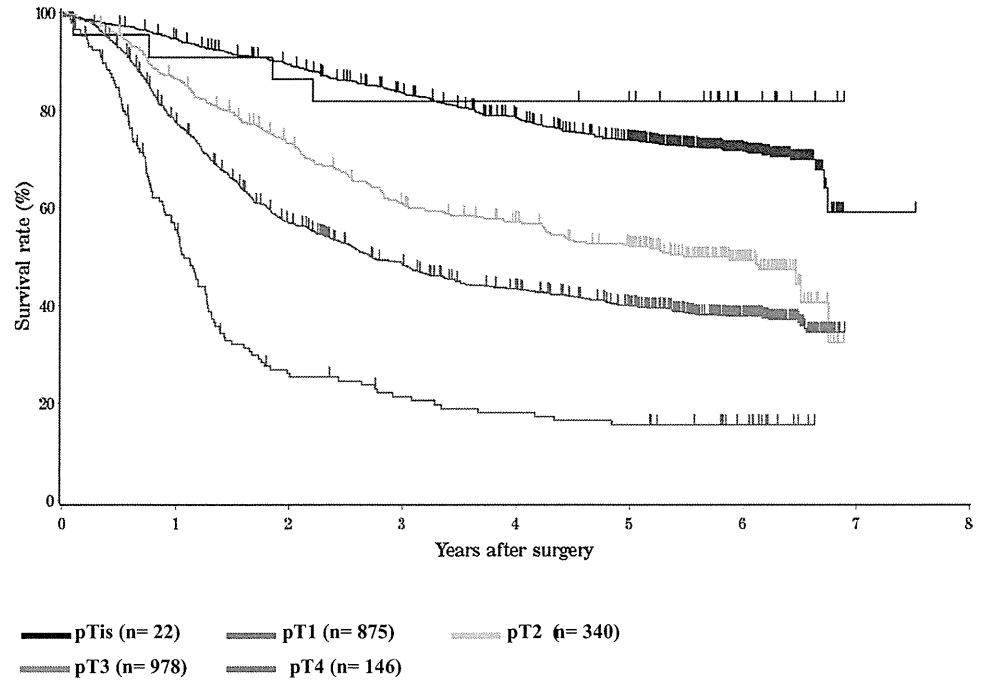
	Years after surgery							
	1	2	3	4	5	6	7	8
cStage 0	91.7%	83.3%	75.0%	75.0%	75.0%	75.0%	-	-
cStage I	95.3%	91.0%	85.4%	80.8%	75.2%	73.4%	58.8%	-
cStage IIA	85.9%	72.9%	63.4%	57.6%	54.2%	51.2%	-	-
cStage IIB	88.1%	76.7%	68.6%	62.0%	58.3%	54.7%	-	-
cStage III	76.0%	54.3%	46.0%	41.7%	38.1%	36.8%	-	-
cStage IV	38.3%	24.3%	17.4%	17.4%	17.4%	17.4%	-	-
cStage IVA	73.8%	50.8%	40.2%	37.6%	34.7%	34.7%	-	-
cStage IVB	70.2%	52.7%	45.2%	41.4%	37.3%	35.5%	-	-

Fig. 11 Survival of patients underwent esophagectomy according to the depth of tumor invasion: pT (JES TNM 10th)



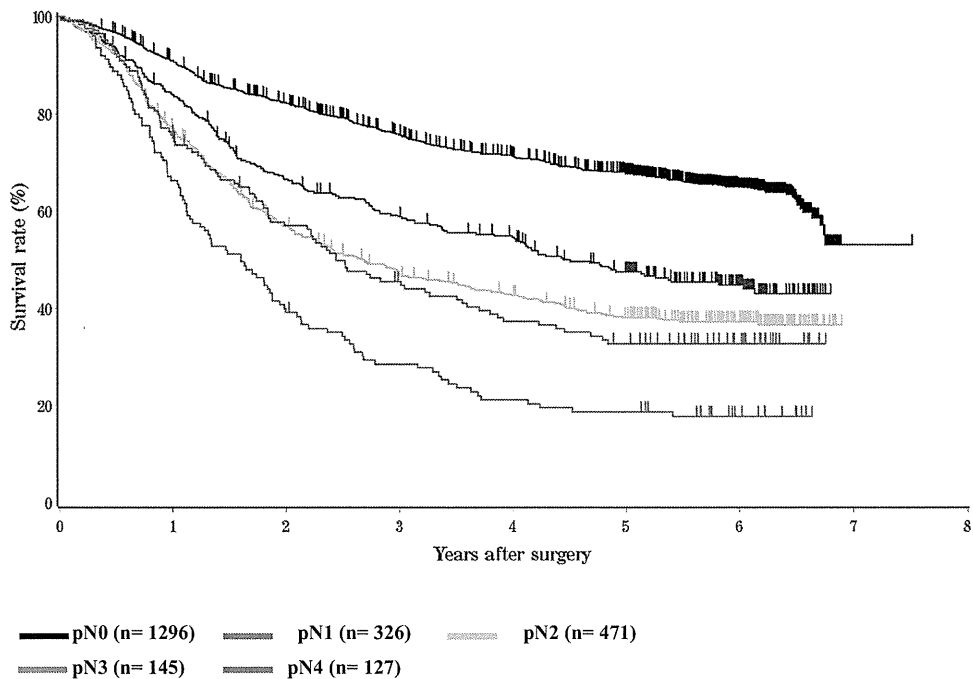
	Years after surgery							
	1	2	3	4	5	6	7	8
pTis	90.5%	85.7%	85.7%	85.7%	85.7%	85.7%	-	-
pT1a	95.0%	93.4%	89.3%	86.1%	83.8%	81.1%	-	-
pT1b	94.6%	88.3%	81.9%	76.1%	70.8%	68.5%	-	-
pT2	86.5%	73.6%	61.2%	57.4%	52.3%	49.7%	-	-
pT3	77.6%	56.8%	47.5%	42.7%	39.2%	37.0%	-	-
pT4	54.6%	27.3%	21.7%	19.2%	17.5%	-	-	-

Fig. 12 Survival of patients underwent esophagectomy according to the depth of tumor invasion: pT (UICC TNM 6th)



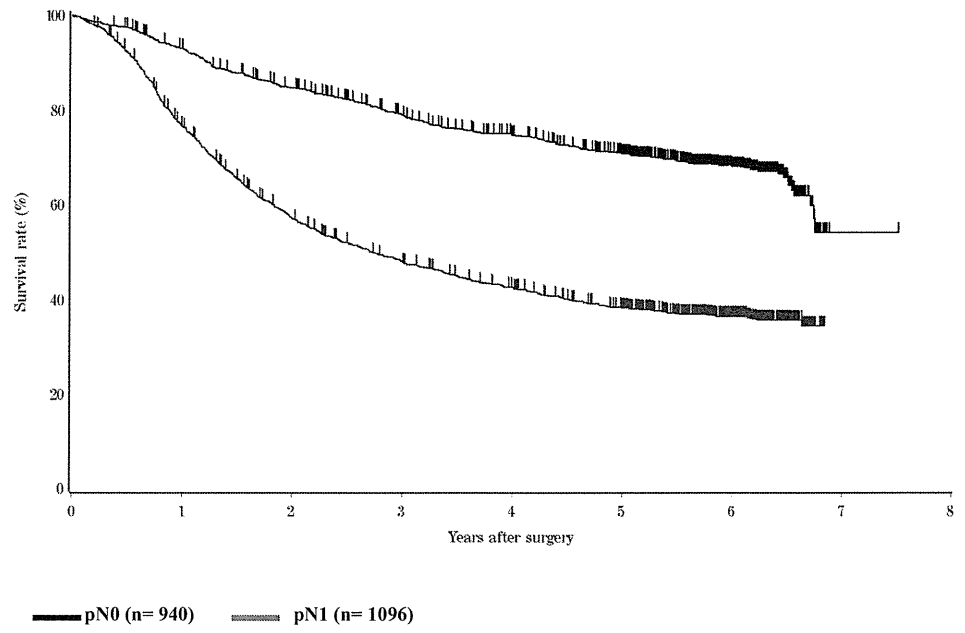
	Years after surgery							
	1	2	3	4	5	6	7	8
pTis	90.9%	86.4%	81.8%	81.8%	81.8%	81.8%	-	-
pT1	94.5%	89.4%	83.6%	78.4%	73.8%	71.5%	59.1%	-
pT2	86.6%	73.2%	60.6%	57.0%	51.9%	49.3%	-	-
pT3	77.4%	56.8%	48.3%	43.3%	40.0%	37.8%	-	-
pT4	55.5%	26.1%	21.3%	18.0%	15.6%	15.6%	-	-

Fig. 13 Survival of patients underwent esophagectomy according to lymph node metastasis: pN (JES TNM 10th)



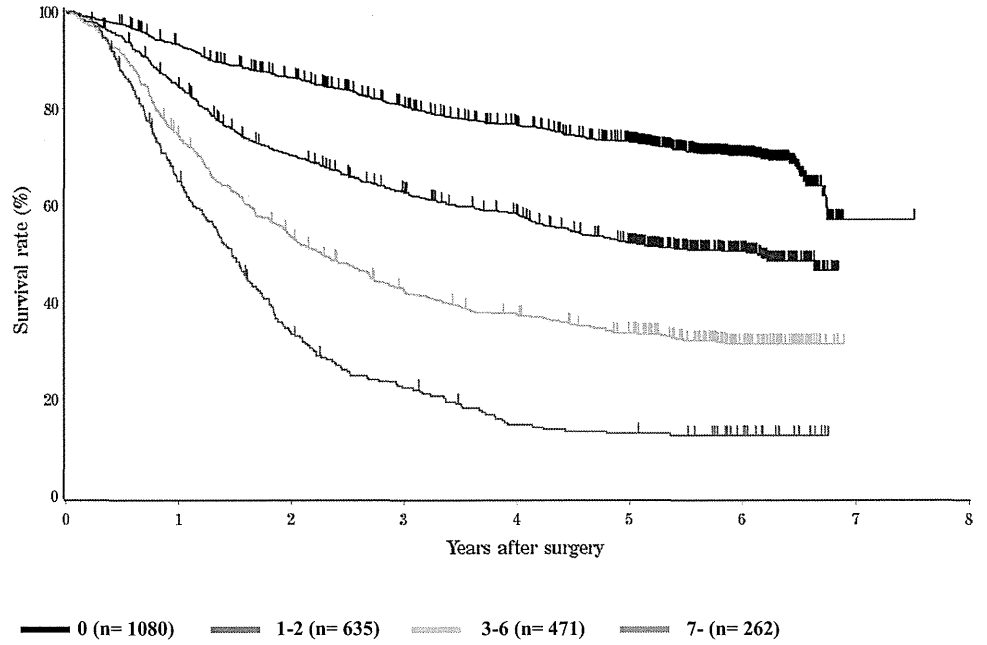
	Years after surgery							
	1	2	3	4	5	6	7	8
pN0	91.0%	82.3%	75.7%	71.3%	67.8%	64.9%	-	-
pN1	83.9%	66.6%	58.9%	54.6%	47.5%	44.8%	-	-
pN2	76.9%	56.9%	47.1%	42.7%	38.2%	37.3%	-	-
pN3	75.0%	57.1%	45.5%	37.3%	32.8%	32.8%	-	-
pN4	66.4%	39.2%	28.6%	21.2%	18.8%	17.8%	-	-

Fig. 14 Survival of patients underwent esophagectomy according to lymph node metastasis: pN (UICC TNM 6th)



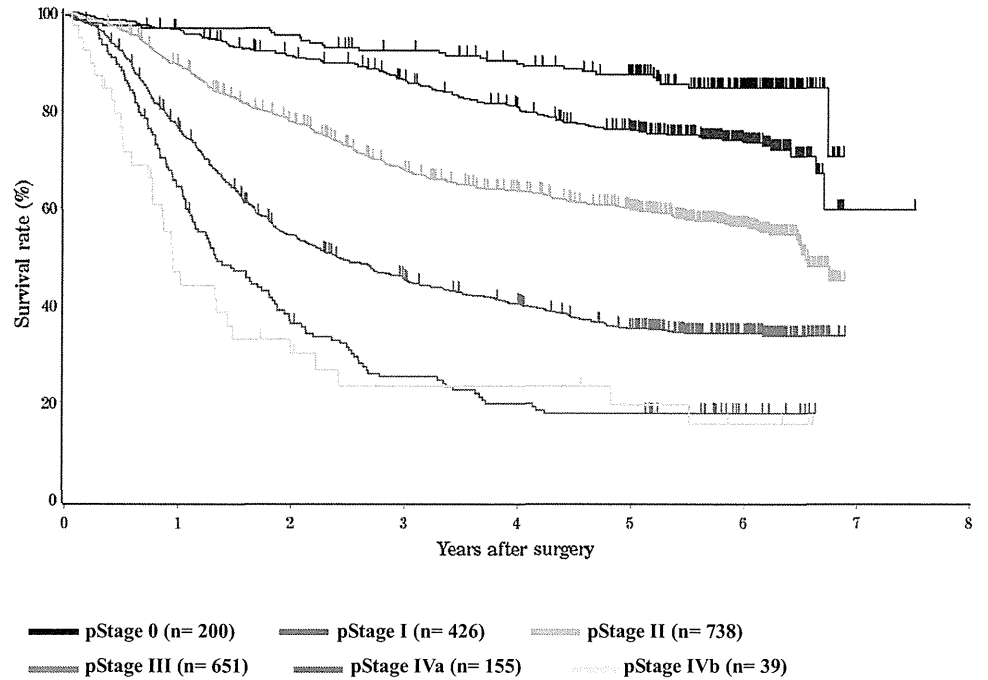
	Years after surgery							
	1	2	3	4	5	6	7	8
pN0	93.0%	84.7%	78.9%	74.6%	70.7%	68.0%	54.1%	-
pN1	76.5%	57.1%	47.9%	42.5%	38.2%	36.4%	-	-

Fig. 15 Survival of patients underwent esophagectomy according to number of metastatic node



	Years after surgery							
	1	2	3	4	5	6	7	8
0	93.3%	86.4%	80.5%	76.5%	73.0%	70.1%	-	-
1-2	84.4%	70.3%	62.7%	58.2%	52.1%	50.5%	-	-
3-6	74.2%	53.5%	42.7%	37.5%	33.7%	31.4%	-	-
7-	65.0%	33.5%	22.4%	14.7%	12.9%	12.5%	-	-

Fig. 16 Survival of patients underwent esophagectomy according to pathological stage (JES TNM 10th)



	Years after surgery							
	1	2	3	4	5	6	7	8
pStage 0	97.0%	95.4%	92.3%	89.6%	87.4%	84.7%	-	-
pStage I	96.7%	91.3%	86.3%	80.7%	75.9%	73.4%	59.6%	-
pStage II	89.5%	77.7%	67.8%	63.5%	59.6%	56.3%	-	-
pStage III	76.4%	54.4%	45.4%	40.4%	35.2%	34.2%	-	-
pStage IVa	64.4%	36.2%	25.3%	19.8%	17.8%	17.8%	-	-
pStage IVb	46.8%	30.0%	23.4%	23.4%	19.5%	15.6%	-	-