

表 8.3.b.12 JPS T 因子 JPS T factor

	Insulinoma	Gastrinoma	Glucagonoma	Somatostatinoma	MEN-1	Non-functioning tumor	Other & Unspecified	Total
JPS-Tis	7 (16.3%)	0 (0.0%)	1 (14.3%)	0 (0.0%)	0 (0.0%)	6 (6.3%)	3 (1.1%)	17 (4.0%)
JPS-T1	31 (72.1%)	2 (40.0%)	3 (42.9%)	0 (0.0%)	2 (50.0%)	24 (25.3%)	57 (21.3%)	119 (28.1%)
JPS-T2	3 (7.0%)	1 (20.0%)	2 (28.6%)	0 (0.0%)	1 (25.0%)	29 (30.5%)	66 (24.6%)	102 (24.1%)
JPS-T3	0 (0.0%)	1 (20.0%)	1 (14.3%)	1 (100%)	0 (0.0%)	19 (20.0%)	53 (19.8%)	75 (17.7%)
JPS-T4	2 (4.7%)	1 (20.0%)	0 (0.0%)	0 (0.0%)	1 (25.0%)	17 (17.9%)	89 (33.2%)	110 (26.0%)
Total	43 (100%)	5 (100%)	7 (100%)	1 (100%)	4 (100%)	95 (100%)	268 (100%)	423 (100%)

表 8.3.b.13 UICC T 因子 UICC T factor

	Insulinoma	Gastrinoma	Glucagonoma	Somatostatinoma	MEN-1	Non-functioning tumor	Other & Unspecified	Total
UICC-Tis	1 (2.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (1.1%)	1 (0.4%)	3 (0.7%)
UICC-T1	33 (82.5%)	1 (25.0%)	4 (57.1%)	0 (0.0%)	1 (25.0%)	24 (25.8%)	61 (22.2%)	124 (29.2%)
UICC-T2	4 (10.0%)	2 (50.0%)	2 (28.6%)	1 (100%)	1 (25.0%)	33 (35.5%)	68 (24.7%)	111 (26.2%)
UICC-T3	1 (2.5%)	1 (25.0%)	1 (14.3%)	0 (0.0%)	2 (50.0%)	28 (30.1%)	97 (35.3%)	130 (30.7%)
UICC-T4	1 (2.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	7 (7.5%)	48 (17.5%)	56 (13.2%)
Total	40 (100%)	4 (100%)	7 (100%)	1 (100%)	4 (100%)	93 (100%)	275 (100%)	424 (100%)

図 8.3.b.14 JPS T 因子ごとにみた内分泌腫瘍の生存率 Survival of the patients with endocrine tumor by JPS T factors

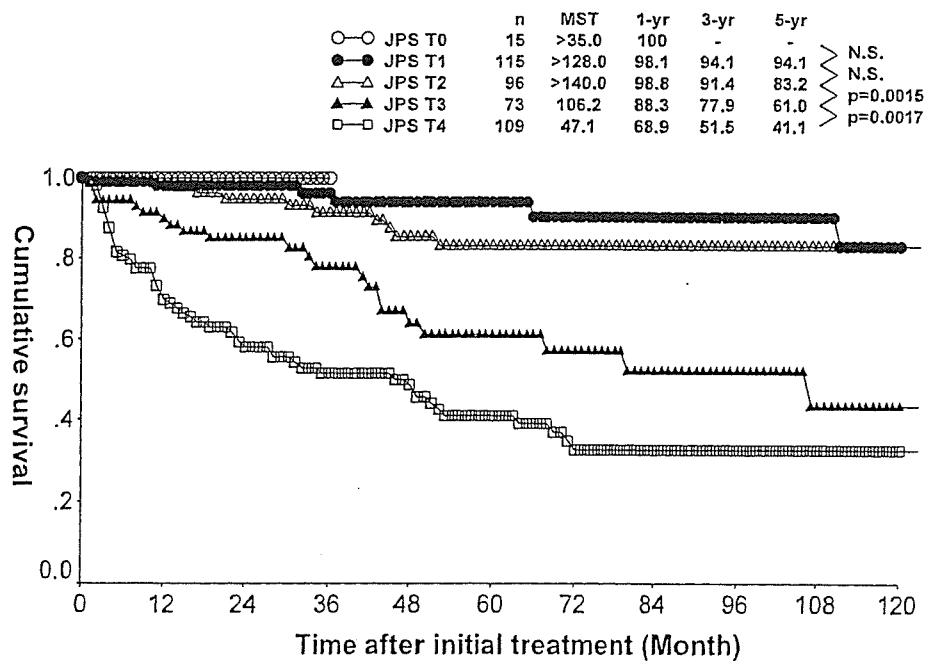
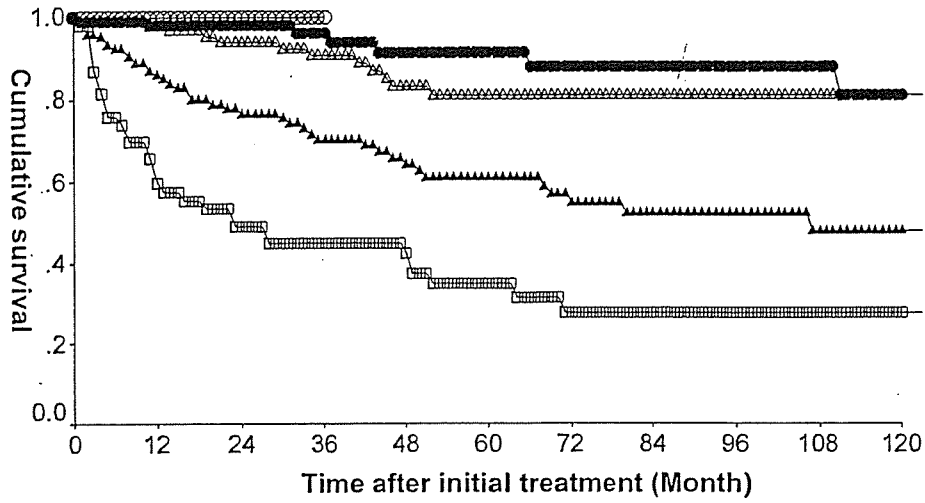


図 8.3.b.15 UICC T 因子ごとにみた内分泌腫瘍の生存率 Survival of the patients with endocrine tumor by UICC T factors

	n	MST	1-yr	3-yr	5-yr	
○-○ UICC T0	3	>35.0	100	-	-	} N.S.
●-● UICC T1	119	>128.0	98.1	94.0	91.5	
△-△ UICC T2	105	>140.0	97.9	90.8	80.9	} N.S.
▲-▲ UICC T3	127	106.5	85.0	70.3	61.0	} p=0.0002
□-□ UICC T4	55	22.8	57.6	44.8	34.9	} p=0.0001



c. リンパ節転移 Lymph node metastasis

表 8.3.c.1 JPS N 因子 JPS N factor

	Insulinoma	Gastrinoma	Glucagonoma	Somatostatino ma	MEN-1	Non- functioning tumor	Other & Unspecified	Total
JPS-N0	32 (97.0%)	2 (50.0%)	5 (83.3%)	4 (80.0%)	61 (70.9%)	143 (62.2%)	247 (67.9%)	32 (97.0%)
JPS-N1	0 (0.0%)	1 (25.0%)	0 (0.0%)	0 (0.0%)	13 (15.1%)	30 (13.0%)	44 (12.1%)	0 (0.0%)
JPS-N2	0 (0.0%)	1 (25.0%)	0 (0.0%)	1 (20.0%)	6 (7.0%)	19 (8.3%)	27 (7.4%)	0 (0.0%)
JPS-N3	1 (3.0%)	0 (0.0%)	1 (16.7%)	0 (0.0%)	6 (7.0%)	38 (16.5%)	46 (12.6%)	1 (3.0%)
Total	33 (100%)	4 (100%)	6 (100%)	5 (100%)	86 (100%)	230 (100%)	364 (100%)	33 (100%)

表 8.3.c.2 UICC N 因子 UICC N factor

	Insulinoma	Gastrinoma	Glucagonoma	Somatostatino ma	MEN-1	Non- functioning tumor	Other & Unspecified	Total
UICC-N0	40 (97.6%)	2 (50.0%)	6 (85.7%)	1 (100%)	4 (80.0%)	69 (71.1%)	146 (62.7%)	268 (69.1%)
UICC-N1	1 (2.4%)	2 (50.0%)	1 (14.3%)	0 (0.0%)	1 (20.0%)	28 (28.9%)	87 (37.3%)	120 (30.9%)
Total	41 (100%)	4 (100%)	7 (100%)	1 (100%)	5 (100%)	97 (100%)	233 (100%)	388 (100%)

図 8.3.c.3 JPS N 因子ごとにみた内分泌腫瘍の生存率 Survival of the patients with endocrine tumor by JPS N factors

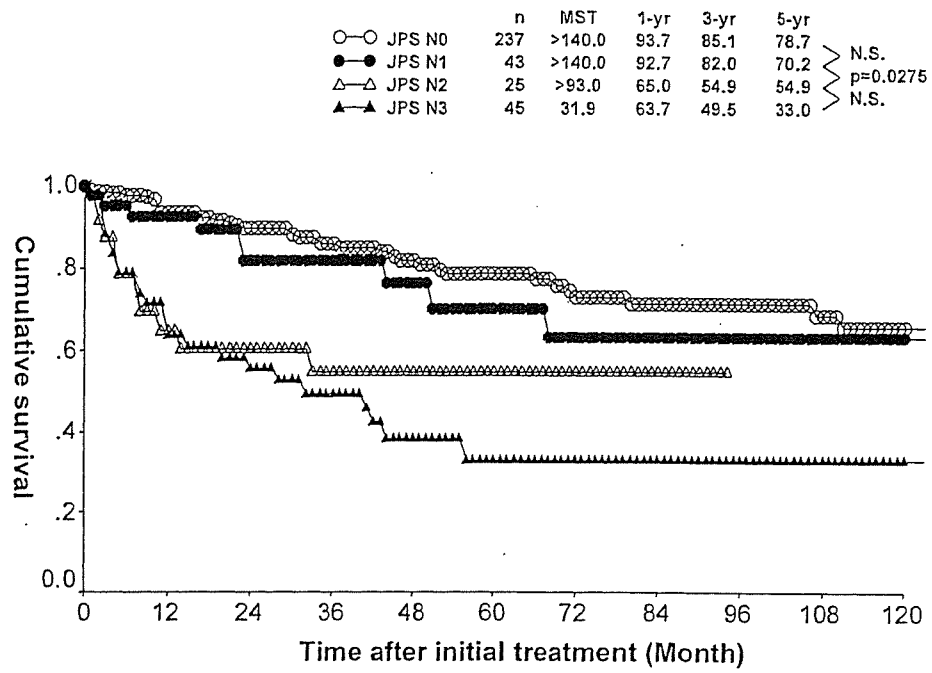
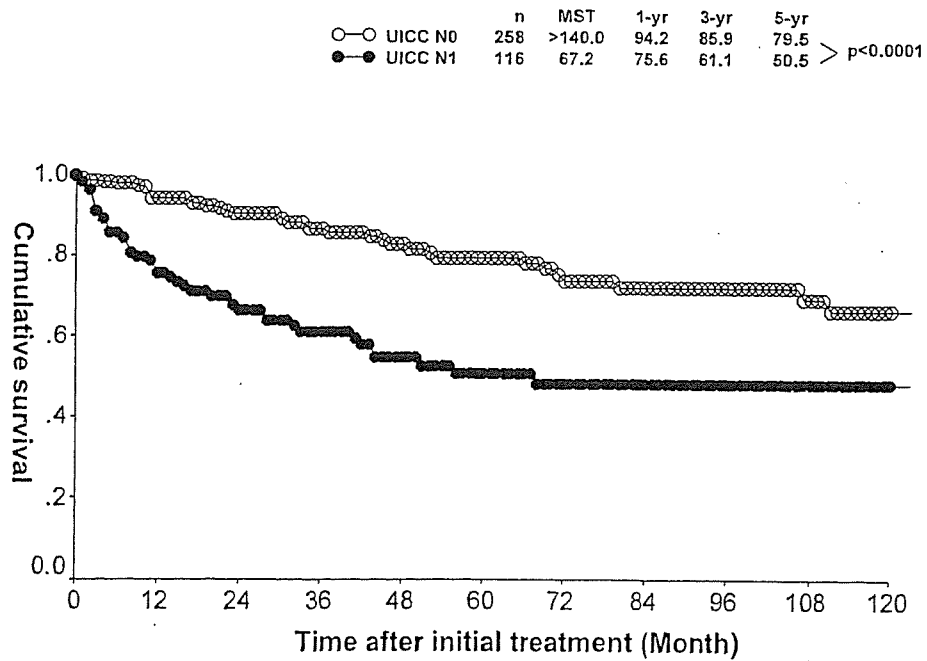


図 8.3.c.4 UICC N 因子ごとにみた内分泌腫瘍の生存率 Survival of the patients with endocrine tumor by UICC N factors



d. 遠隔転移 Distant metastasis

表 8.3.d.1 JPS M 因子 JPS M factor

	Insulinoma	Gastrinoma	Glucagonoma	Somatostatinoma	MEN-1	Non-functioning tumor	Other & Unspecified	Total
JPS-M0	43 (95.6%)	4 (80.0%)	6 (85.7%)	1 (100%)	5 (100%)	70 (71.4%)	211 (68.5%)	340 (72.5%)
JPS-M1	2 (4.4%)	1 (20.0%)	1 (14.3%)	0 (0.0%)	0 (0.0%)	28 (28.6%)	97 (31.5%)	129 (27.5%)
Total	45 (100%)	5 (100%)	7 (100%)	1 (100%)	5 (100%)	98 (100%)	308 (100%)	469 (100%)

表 8.3.d.2 UICC M 因子 UICC M factor

	Insulinoma	Gastrinoma	Glucagonoma	Somatostatinoma	MEN-1	Non-functioning tumor	Other & Unspecified	Total
UICC-M0	43 (95.6%)	4 (80.0%)	6 (85.7%)	1 (100%)	5 (100%)	70 (70.7%)	208 (66.7%)	337 (71.1%)
UICC-M1	2 (4.4%)	1 (20.0%)	1 (14.3%)	0 (0.0%)	0 (0.0%)	29 (29.3%)	104 (33.3%)	137 (28.9%)
Total	45 (100%)	5 (100%)	7 (100%)	1 (100%)	5 (100%)	99 (100%)	312 (100%)	474 (100%)

図 8.3.d.3 JPS M 因子ごとにみた内分泌腫瘍の生存率 Survival of the patients with endocrine tumor by JPS M factors

	n	MST	1-yr	3-yr	5-yr	
○—○ JPS M0	325	>140.0	94.6	87.5	80.4	> p<0.0001
●—● JPS M1	127	43.4	69.6	53.4	38.1	

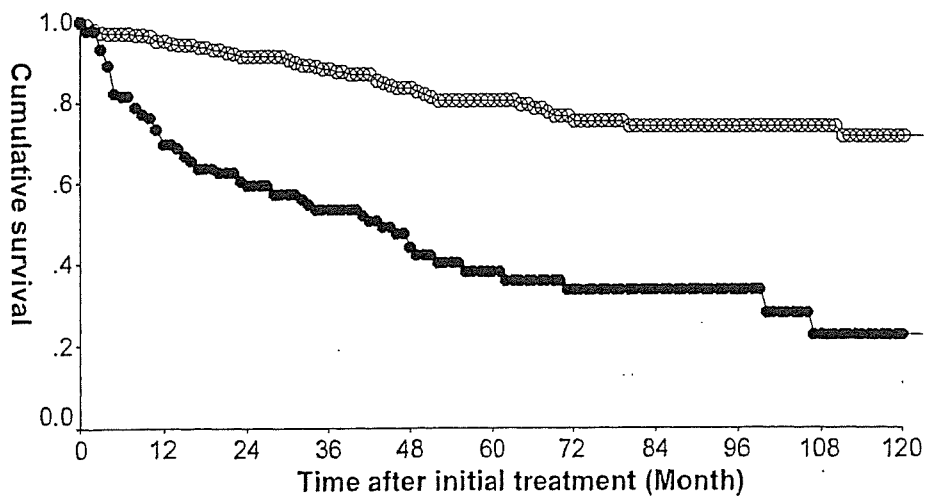
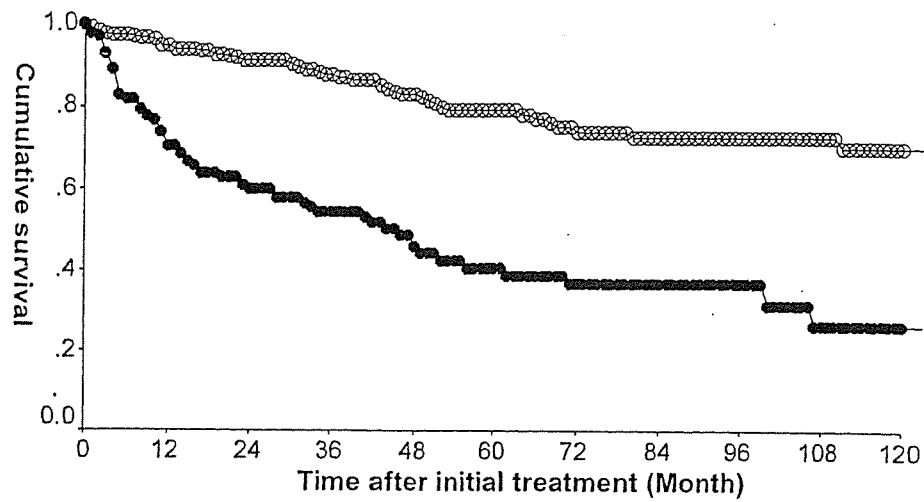


図 8.3.d.4 UICC M 因子ごとにみた内分泌膵臓腫瘍の生存率 Survival of the patients with endocrine tumor by UICC M factors

	n	MST	1-yr	3-yr	5-yr	
○ UICC M0	322	>140.0	94.1	87.4	79.3	> p<0.0001
● UICC M1	135	45.3	70.6	54.4	40.6	



e. 病期分類 Stage

表 8.3.e.1 JPS Stage

	Insulinoma	Gastrinoma	Glucagonoma	Somatostatinoma	MEN-1	Non-functioning tumor	Other & Unspecified	Total
JPS-Stage 0	5 (15.2%)	0 (0.0%)	1 (16.7%)	0 (0.0%)	0 (0.0%)	4 (4.3%)	2 (0.8%)	12 (3.1%)
JPS-Stage I	23 (69.7%)	1 (25.0%)	2 (33.3%)	0 (0.0%)	2 (50.0%)	16 (17.4%)	35 (14.4%)	79 (20.7%)
JPS-Stage II	3 (9.1%)	1 (25.0%)	2 (33.3%)	0 (0.0%)	1 (25.0%)	24 (26.1%)	41 (16.9%)	72 (18.8%)
JPS-Stage III	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	15 (16.3%)	35 (14.4%)	50 (13.1%)
JPS-Stage IVa	0 (0.0%)	1 (25.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	5 (5.4%)	30 (12.3%)	36 (9.4%)
JPS-Stage IVb	2 (6.1%)	1 (25.0%)	1 (16.7%)	0 (0.0%)	1 (25.0%)	28 (30.4%)	100 (41.2%)	133 (34.8%)
Total	33 (100%)	4 (100%)	6 (100%)	0 (0.0%)	4 (100%)	92 (100%)	243 (100%)	382 (100%)

表 8.3.e.2 UICC Stage

	Insulinoma	Gastrinoma	Glucagonoma	Somatostatinoma	MEN-1	Non-functioning tumor	Other & Unspecified	Total
UICC-Stage 0	1 (2.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (1.1%)	1 (0.4%)	3 (0.7%)
UICC-Stage Ia	31 (79.5%)	1 (25.0%)	4 (57.1%)	0 (0.0%)	1 (25.0%)	19 (20.2%)	37 (14.5%)	93 (23.0%)
UICC-Stage Ib	4 (10.3%)	1 (25.0%)	2 (28.6%)	1 (100%)	1 (25.0%)	25 (26.6%)	40 (15.7%)	74 (18.3%)
UICC-Stage IIa	1 (2.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (25.0%)	7 (7.4%)	33 (12.9%)	42 (10.4%)
UICC-Stage IIb	0 (0.0%)	1 (25.0%)	0 (0.0%)	0 (0.0%)	1 (25.0%)	13 (13.8%)	23 (9.0%)	38 (9.4%)
UICC-Stage III	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	17 (6.7%)	17 (4.2%)
UICC-Stage IV	2 (5.1%)	1 (25.0%)	1 (14.3%)	0 (0.0%)	0 (0.0%)	29 (30.9%)	104 (40.8%)	137 (33.9%)
Total	39 (100%)	4 (100%)	7 (100%)	1 (100%)	4 (100%)	94 (100%)	255 (100%)	404 (100%)

図 8.3.e.3 JPS Stage ごとにみた内分泌腫瘍の生存率 Survival of the patients with endocrine tumor by JPS Stage

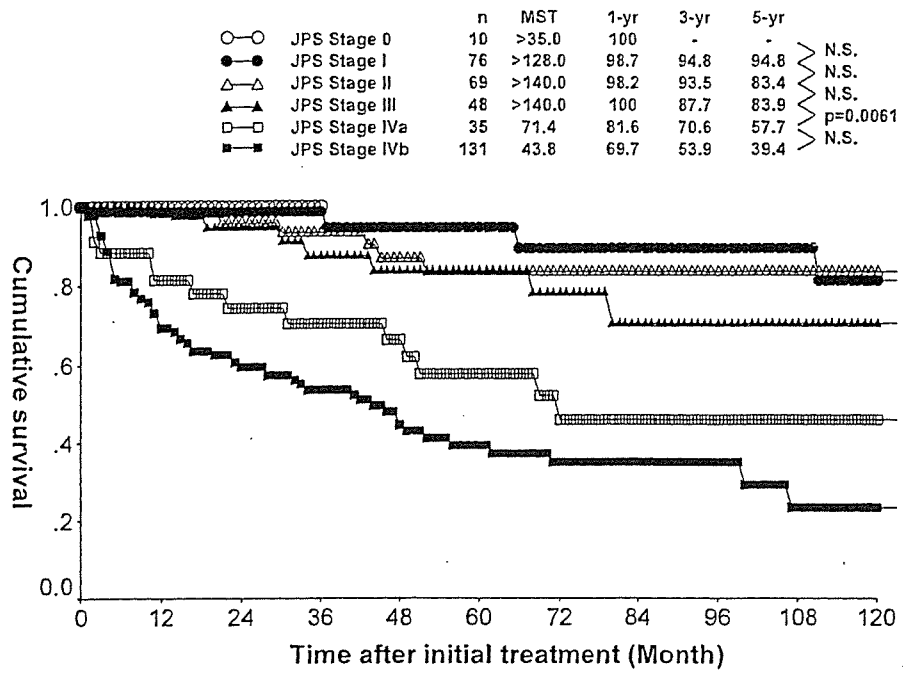
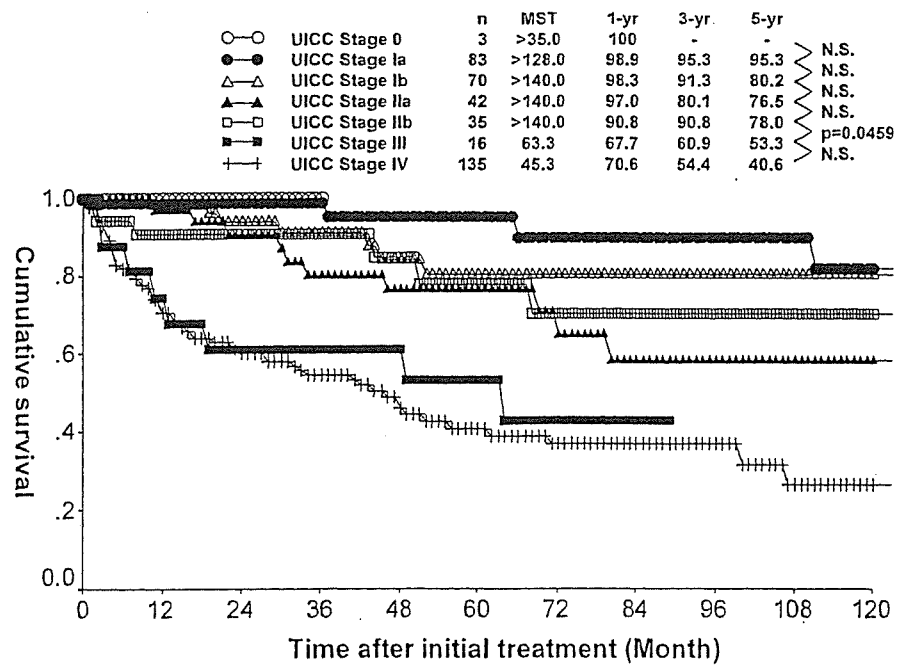


図 8.3.e.4 UICC Stage ごとにみた内分泌腫瘍の生存率 Survival of the patients with endocrine tumor by UICC Stage



IV. 手術治療 Surgical treatment
a. 治療法 Trend of treatment

表 8.4.a.1 組織型分類ごとの治療法 Treatment according to the histological classification

	Insulinoma	Gastrinoma	Glucagonoma	Somatostatinoma	MEN-1	Non-functioning tumor	Other & Unspecified	Total
1. 膵切除術 Pancreatectomy	43 (95.6%)	5 (100%)	7 (100%)	1 (100%)	5 (100%)	83 (83.0%)	280 (87.2%)	424 (87.6%)
2. 姑息手術 Palliative operation	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	22 (6.9%)	22 (4.5%)
3. 単開腹 Exploratory laparotomy	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	9 (2.8%)	9 (1.9%)
4. 非手術 No surgical treatment	2 (4.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	16 (16.0%)	9 (2.8%)	27 (5.6%)
5. 非手術剖検 Autopsy cases	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (1.0%)	1 (0.3%)	2 (0.4%)
Total	45 (100%)	5 (100%)	7 (100%)	1 (100%)	5 (100%)	100 (100%)	321 (100%)	484 (100%)
切除率 Rate of pancreatectomy	95.6%	100%	100%	100%	100%	83.0%	87.2%	87.6%

表 8.4.a.2 占拠部位別にみた治療法 Treatment according to the locus of primary tumor

	膵頭部 Pancreatic head	膵体尾部 Pancreatic body and tail	2区域 Two areas of the pancreas	膵全体 Whole pancreas	Total
1. 膵切除術 Pancreatectomy	168 (88.4%)	203 (91.9%)	47 (87.0%)	4 (44.4%)	422 (89.0%)
2. 姑息手術 Palliative operation	13 (6.8%)	2 (0.9%)	2 (3.7%)	4 (44.4%)	21 (4.4%)
3. 単開腹 Exploratory laparotomy	3 (1.6%)	2 (0.9%)	2 (3.7%)	1 (11.1%)	8 (1.7%)
4. 非手術 No surgical treatment	6 (3.2%)	12 (5.4%)	3 (5.6%)	0 (0.0%)	21 (4.4%)
	0 (0.0%)	2 (0.9%)	0 (0.0%)	0 (0.0%)	2 (0.4%)
Total	190 (100%)	221 (100%)	54 (100%)	9 (100%)	474 (100%)
切除率 Rate of pancreatectomy	88.4%	91.9%	87.0%	44.4%	89.0%

b. 膵切除術 Pancreatectomy

表 8.4.b.1 膵切除の種類 Method of pancreatectomy

	Insulinoma	Gastrinoma	Glucagonoma	Somatostatinoma	MEN-1	Non-functioning tumor	Other & Unspecified	Total
01. TP (total pancreatectomy)	0 (0.0%)	0 (0.0%)	1 (14.3%)	0 (0.0%)	0 (0.0%)	2 (2.4%)	19 (6.8%)	22 (5.2%)
02. PD (pancreaticoduodenectomy)	0 (0.0%)	1 (20.0%)	0 (0.0%)	1 (100%)	1 (20.0%)	11 (13.3%)	71 (25.4%)	85 (20.0%)
03. PD (subtotal 二区域以上)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
04. PPPD (pylorus-preserving PD)	2 (4.7%)	1 (20.0%)	1 (14.3%)	0 (0.0%)	1 (20.0%)	18 (21.7%)	23 (8.2%)	46 (10.8%)
05. SSPPD (subtotal stomach-preserving PD)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (1.2%)	1 (0.4%)	2 (0.5%)
06. DPPHR (duodenum-preserving pancreatic head resection)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
07. DP (tail) (distal pancreatectomy)	4 (9.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	7 (8.4%)	30 (10.7%)	41 (9.7%)
08. DP (body-tail)	7 (16.3%)	2 (40.0%)	1 (14.3%)	0 (0.0%)	0 (0.0%)	17 (20.5%)	91 (32.5%)	118 (27.8%)
09. DP (subtotal 二区域以上)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (20.0%)	3 (3.6%)	9 (3.2%)	13 (3.1%)
10. SPDP (spleen-preserving DP)	3 (7.0%)	0 (0.0%)	1 (14.3%)	0 (0.0%)	1 (20.0%)	2 (2.4%)	0 (0.0%)	7 (1.7%)
11. MP (middle pancreatectomy)	4 (9.3%)	1 (20.0%)	3 (42.9%)	0 (0.0%)	0 (0.0%)	3 (3.6%)	8 (2.9%)	19 (4.5%)
12. PR (partial resection)	12 (27.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (20.0%)	13 (15.7%)	8 (2.9%)	34 (8.0%)
13. その他 Others	11 (25.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	5 (6.0%)	5 (1.8%)	21 (5.0%)
99. 不明 Unknown	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (1.2%)	15 (5.4%)	16 (3.8%)
Total	43 (100%)	5 (100%)	7 (100%)	1 (100%)	5 (100%)	83 (100%)	280 (100%)	424 (100%)

表 8.4.b.2 占拠部位別にみた膵切除の種類 Pancreatectomy according to the locus of primary tumor

	膵頭部 Pancreatic head	膵体尾部 Pancreatic body and tail	2区域 Two areas of the pancreas	膵全体 Whole pancreas	Total
01. TP (total pancreatectomy)	8 (4.8%)	2 (1.0%)	7 (14.9%)	4 (100%)	21 (5.0%)
02. PD (pancreaticoduodenectomy)	80 (47.6%)	2 (1.0%)	3 (6.4%)	0 (0.0%)	85 (20.1%)
03. PD (subtotal 二区域以上)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
04. PPPD (pylorus-preserving PD)	45 (26.8%)	1 (0.5%)	0 (0.0%)	0 (0.0%)	46 (10.9%)
05. SSPPD (subtotal stomach-preserving PD)	2 (1.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (0.5%)
06. DPPHR (duodenum-preserving pancreatic head resection)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
07. DP (tail) (distal pancreatectomy)	1 (0.6%)	39 (19.2%)	1 (2.1%)	0 (0.0%)	41 (9.7%)
08. DP (body-tail)	0 (0.0%)	91 (44.8%)	27 (57.4%)	0 (0.0%)	118 (28.0%)
09. DP (subtotal 二区域以上)	1 (0.6%)	7 (3.4%)	5 (10.6%)	0 (0.0%)	13 (3.1%)
10. SPDP (spleen-preserving DP)	0 (0.0%)	7 (3.4%)	0 (0.0%)	0 (0.0%)	7 (1.7%)
11. MP (middle pancreatectomy)	2 (1.2%)	17 (8.4%)	0 (0.0%)	0 (0.0%)	19 (4.5%)
12. PR (partial resection)	13 (7.7%)	19 (9.4%)	2 (4.3%)	0 (0.0%)	34 (8.1%)
13. その他 Others	11 (6.5%)	10 (4.9%)	0 (0.0%)	0 (0.0%)	21 (5.0%)
99. 不明 Unknown	5 (3.0%)	8 (3.9%)	2 (4.3%)	0 (0.0%)	15 (3.6%)
Total	168 (100%)	203 (100%)	47 (100%)	4 (100%)	422 (100%)

表 8.4.b.3 年別にみた膵切除の種類 Yearly trend of pancreatectomy

Year	TP	PD, subtotal PD, PPPD, SSPPD	DP, subtotal DP, spleen preserving DP	MP, PR	Total
1981	2	3	0	0	5
1982	0	0	5	0	5
1983	2	4	2	0	8
1984	1	3	3	0	7
1985	1	5	6	0	12
1986	1	3	1	0	5
1987	0	2	6	0	8
1988	0	5	8	0	13
1989	1	3	7	0	11
1990	1	5	7	0	13
1991	1	1	8	0	10
1992	1	4	5	0	10
1993	3	4	9	2	18
1994	0	4	6	3	13
1995	1	7	9	1	18
1996	0	11	13	1	25
1997	1	13	6	2	22
1998	1	5	5	1	12
1999	1	5	7	2	15
2000	1	5	12	2	20
2001	2	5	13	8	28
2002	0	11	15	13	39
2003	1	10	12	11	34
2004	0	15	14	7	36
Total	22	133	179	53	387

c. 癌遺残の評価 Evaluation of residual cancer

表 8.4.c.1 膵切除断端における癌浸潤 Infiltration of cancer cells at pancreatic cut end margin (PCM)

	Insulinoma	Gastrinoma	Glucagonoma	Somatostatinoma	MEN-1	Non-functioning tumor	Other & Unspecified	Total
0. PCM 陰性 PCM negative	38 (100%)	5 (100%)	6 (100%)	1 (100%)	4 (100%)	78 (100%)	237 (96.3%)	369 (97.6%)
1. PCM 陽性 PCM positive	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	9 (3.7%)	9 (2.4%)
Total	38 (100%)	5 (100%)	6 (100%)	1 (100%)	4 (100%)	78 (100%)	246 (100%)	378 (100%)

表 8.4.c.2 術式と PCM Procedure of pancreatectomy and PCM

Year	TP	PD, subtotal PD, PPPD, SSPPD	DP, subtotal DP, spleen preserving DP	MP, PR	Total
0. PCM 陰性 PCM negative	15 (100%)	119 (99.2%)	160 (95.8%)	47 (100%)	341 (97.7%)
1. PCM 陽性 PCM positive	0 (0.0%)	1 (0.8%)	7 (4.2%)	0 (0.0%)	8 (2.3%)
Total	15 (100%)	120 (100%)	167 (100%)	47 (100%)	349 (100%)

表 8.4.c.3 胆管切除断端における癌浸潤 Infiltration of cancer cells at bile duct cut end margin (BCM)

	Insulinoma	Gastrinoma	Glucagonoma	Somatostatinoma	MEN-1	Non-functioning tumor	Other & Unspecified	Total
0. BCM 陰性 BCM negative	26 (100%)	4 (100%)	4 (100%)	1 (100%)	3 (100%)	65 (100%)	191 (100%)	294 (100%)
1. BCM 陽性 BCM positive	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (2.6%)	18 (7.2%)	21 (5.6%)
Total	26 (100%)	4 (100%)	4 (100%)	1 (100%)	3 (100%)	65 (100%)	193 (100%)	296 (100%)

表 8.4.c.4 膵周囲剥離面における癌浸潤 Infiltration of cancer cells at dissected pancreatic tissue margin (DPM)

	Insulinoma	Gastrinoma	Glucagonoma	Somatostatinoma	MEN-1	Non-functioning tumor	Other & Unspecified	Total
0. DPM 陰性 DPM negative	35 (100%)	4 (80.0%)	6 (100%)	1 (100%)	4 (100%)	76 (97.4%)	231 (92.8%)	357 (94.4%)
1. DPM 陽性 DPM positive	0 (0.0%)	1 (20.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (2.6%)	18 (7.2%)	21 (5.6%)
Total	35 (100%)	5 (100%)	6 (100%)	1 (100%)	4 (100%)	78 (100%)	249 (100%)	378 (100%)

表 8.4.c.5 術式と DPM Procedure of pancreatectomy and DPM

	TP	PD, subtotal PD, PPPD, SSPPD	DP, subtotal DP, spleen preserving DP	MP, PR	Total
0. DPM 陰性 DPM negative	16 (80.0%)	110 (91.7%)	158 (96.9%)	47 (100%)	331 (94.6%)
1. DPM 陽性 DPM positive	4 (20.0%)	10 (8.3%)	5 (3.1%)	0 (0.0%)	19 (5.4%)
Total	20 (100%)	120 (100%)	163 (100%)	47 (100%)	350 (100%)

表 8.4.c.6 癌遺残度 Residual tumor

	Insulinoma	Gastrinoma	Glucagonoma	Somatostatinoma	MEN-1	Non-functioning tumor	Other & Unspecified	Total
0. R0	39 (100%)	3 (75.0%)	7 (100%)	1 (100%)	3 (100%)	70 (88.6%)	55 (32.5%)	178 (58.9%)
1. R1	0 (0.0%)	1 (25.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (2.5%)	56 (33.1%)	59 (19.5%)
2. R2	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	7 (8.9%)	58 (34.3%)	65 (21.5%)
Total	39 (100%)	4 (100%)	7 (100%)	1 (100%)	3 (100%)	79 (100%)	169 (100%)	302 (100%)

表 8.4.c.7 術式と癌遺残度 Procedure of pancreatectomy and residual tumor

	TP	PD, subtotal PD, PPPD, SSPPD	DP, subtotal DP, spleen preserving DP	MP, PR	Total
0. R0	7 (58.3%)	59 (53.2%)	61 (58.7%)	37 (77.1%)	164 (59.6%)
1. R1	0 (0.0%)	17 (15.3%)	21 (20.2%)	11 (22.9%)	49 (17.8%)
2. R2	5 (41.7%)	35 (31.5%)	22 (21.2%)	0 (0.0%)	62 (22.5%)
Total	12 (100%)	111 (100%)	104 (100%)	48 (100%)	275 (100%)

図 8.4.c.8 膵切除断端における癌浸潤と内分泌腫瘍の生存率 Survival of patients with endocrine tumor after pancreatectomy according to the infiltration of cancer cells at pancreatic cut end margin (PCM)

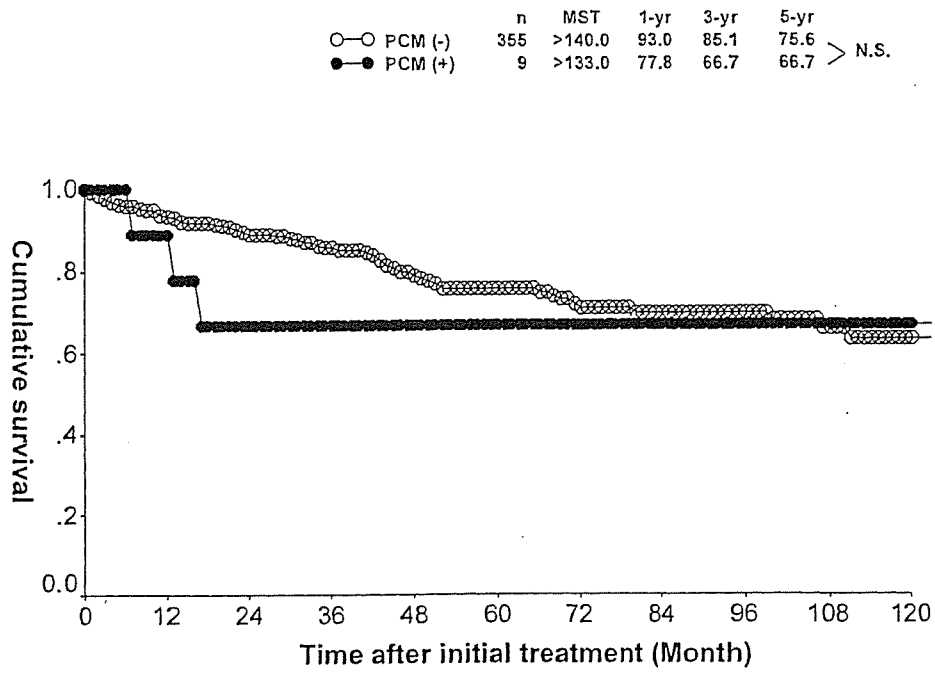


図 8.4.c.9 膵周囲剥離面における癌浸潤と内分泌腫瘍の生存率 Survival of patients with endocrine tumor after pancreatectomy according to the infiltration of cancer cells at dissected pancreatic tissue margin (DPM)

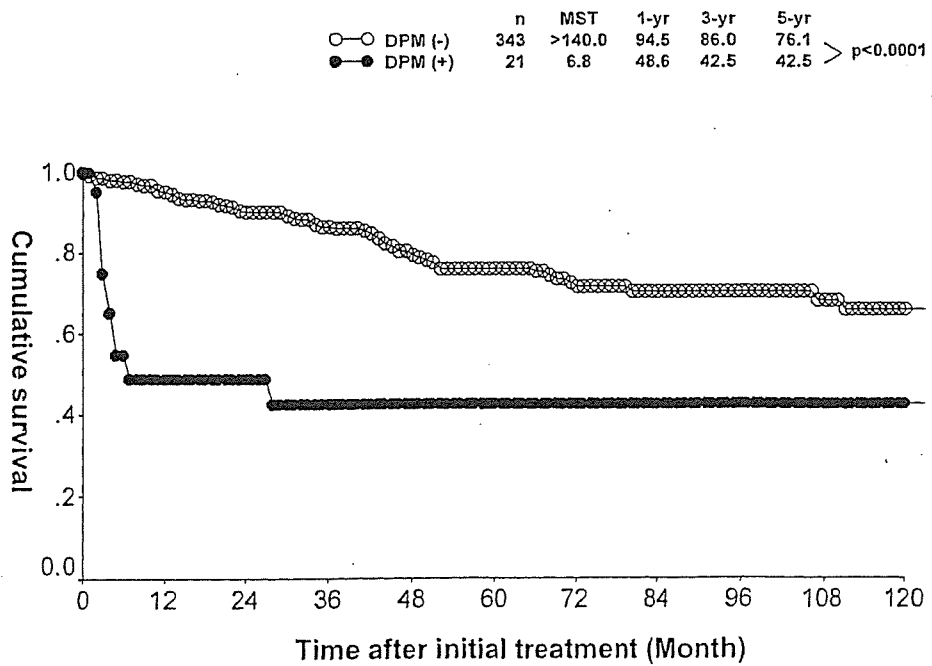
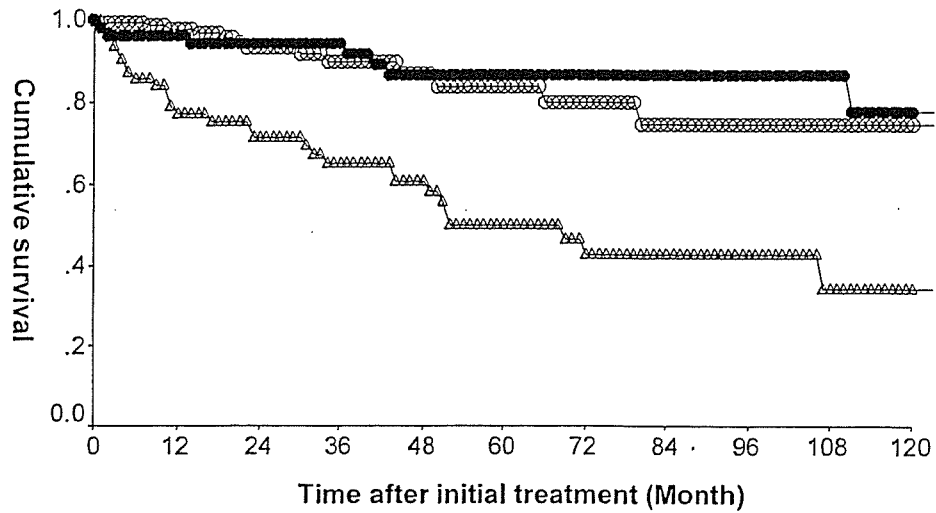


図 8.4.c.10 癌遺残度 と内分泌腫瘍の生存率 Survival of patients with endocrine tumor after pancreatectomy according to the residual tumor

	n	MST	1-yr	3-yr	5-yr	
○—○ R0	170	>140.0	97.9	89.9	84.0	} N.S. p=0.0002
●—● R1	55	>140.0	96.4	91.8	86.7	
△—△ R2	64	68.0	77.3	65.3	50.1	



V. 病理組織所見 Histological findings
a. 病理学的進展度 Histological extent

表 8.5.a.1 癌の実質と間質量比 Cancer-stroma relationship

	Insulinoma	Gastrinoma	Glucagonoma	Somatostatinoma	MEN-1	Non-functioning tumor	Other & Unspecified	Total
1. 髄様型 Medullary type	6 (85.7%)	1 (50.0%)	0 (0.0%)	0 (0.0%)	1 (50.0%)	28 (59.6%)	91 (58.7%)	127 (59.6%)
2. 中間型 Intermediate type	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (50.0%)	16 (34.0%)	56 (36.1%)	73 (34.3%)
3. 硬性型 Scirrhous type	1 (14.3%)	1 (50.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (6.4%)	8 (5.2%)	13 (6.1%)
Total	7 (100%)	2 (100%)	0 (100%)	0 (100%)	2 (100%)	47 (100%)	155 (100%)	213 (100%)

表 8.5.a.2 癌の周囲組織に対する浸潤増殖様式 Growth patterns of tumors infiltrating surrounding tissue

	Insulinoma	Gastrinoma	Glucagonoma	Somatostatinoma	MEN-1	Non-functioning tumor	Other & Unspecified	Total
1. INF α	7 (77.8%)	0 (0.0%)	1 (50.0%)	0 (0.0%)	0 (0.0%)	27 (55.1%)	97 (54.8%)	132 (55.2%)
2. INF β	2 (22.2%)	1 (100%)	1 (50.0%)	0 (0.0%)	1 (100%)	19 (38.8%)	71 (40.1%)	95 (39.7%)
3. INF γ	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (6.1%)	28 (13.2%)	42 (13.6%)
Total	9 (100%)	1 (100%)	2 (100%)	0 (100%)	1 (100%)	49 (100%)	177 (100%)	239 (100%)

表 8.5.a.3 リンパ管侵襲 Lymphatic invasion

	Insulinoma	Gastrinoma	Glucagonoma	Somatostatinoma	MEN-1	Non-functioning tumor	Other & Unspecified	Total
0. ly0 No lymphatic invasion	20 (95.2%)	4 (80.0%)	4 (80.0%)	0 (0.0%)	4 (100%)	42 (67.7%)	119 (56.1%)	193 (62.5%)
1. ly1 Slight lymphatic invasion	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	8 (12.9%)	50 (23.6%)	58 (18.8%)
2. ly2 Moderate lymphatic invasion	1 (4.8%)	0 (0.0%)	1 (20.0%)	0 (0.0%)	0 (0.0%)	12 (19.4%)	28 (13.2%)	42 (13.6%)
3. ly3 Marked lymphatic invasion	0 (0.0%)	1 (20.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	15 (7.1%)	16 (5.2%)
Total	21 (100%)	5 (100%)	5 (100%)	0 (100%)	4 (100%)	62 (100%)	212 (100%)	309 (100%)

表 8.5.a.4 静脈侵襲 venous invasion

	Insulinoma	Gastrinoma	Glucagonoma	Somatostatinoma	MEN-1	Non-functioning tumor	Other & Unspecified	Total
0. v0 No venous invasion	20 (95.2%)	3 (60.0%)	4 (80.0%)	3 (75.0%)	0 (0.0%)	36 (57.1%)	108 (48.6%)	174 (54.4%)
1. v1 Slight venous invasion	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	9 (14.3%)	52 (23.4%)	61 (19.1%)
2. v2 Moderate venous invasion	1 (4.8%)	1 (20.0%)	1 (20.0%)	0 (0.0%)	0 (0.0%)	14 (22.2%)	34 (15.3%)	51 (15.9%)
3. v3 Marked venous invasion	0 (0.0%)	1 (20.0%)	0 (0.0%)	1 (25.0%)	0 (0.0%)	4 (6.3%)	28 (12.6%)	34 (10.6%)
Total	21 (100%)	5 (100%)	5 (100%)	4 (100%)	0 (100%)	63 (100%)	222 (100%)	320 (100%)

表 8.5.a.5 膵内神経浸潤 Intrapancreatic nerve invasion

	Insulinoma	Gastrinoma	Glucagonoma	Somatostatinoma	MEN-1	Non-functioning tumor	Other & Unspecified	Total
0. ne0 No neural invasion	19 (95.0%)	3 (75.0%)	4 (100%)	0 (0.0%)	4 (100%)	40 (66.7%)	126 (69.6%)	196 (71.8%)
1. ne1 Slight neural invasion	1 (5.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	11 (18.3%)	30 (16.6%)	42 (15.4%)
2. ne2 Moderate neural invasion	0 (0.0%)	1 (25.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	8 (13.3%)	16 (8.8%)	25 (9.2%)
3. ne3 Marked neural invasion	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (1.7%)	9 (5.0%)	10 (3.7%)
Total	20 (100%)	4 (100%)	4 (100%)	0 (100%)	4 (100%)	60 (100%)	181 (100%)	273 (100%)

表 7.5.a.6 主膵管内進展 Spread within the main pancreatic duct

	Insulinoma	Gastrinoma	Glucagonoma	Somatostatinoma	MEN-1	Non-functioning tumor	Other & Unspecified	Total
0. MPD (-) No evidence of spread	19 (95.0%)	4 (100%)	4 (100%)	0 (0.0%)	4 (100%)	59 (96.7%)	173 (88.7%)	263 (91.3%)
1. MPD (+) Spread present	1 (5.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (3.3%)	22 (11.3%)	25 (8.7%)
2. MPD (b) Borderline	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Total	20 (100%)	4 (100%)	4 (100%)	0 (100%)	4 (100%)	61 (100%)	195 (100%)	288 (100%)

b. 病理組織分類と生存率 Histological classification and the survival

図 8.5.b.1 組織型分類と内分泌腫瘍術後生存率 Survival of patients with endocrine tumor after pancreatectomy according to the histological classification

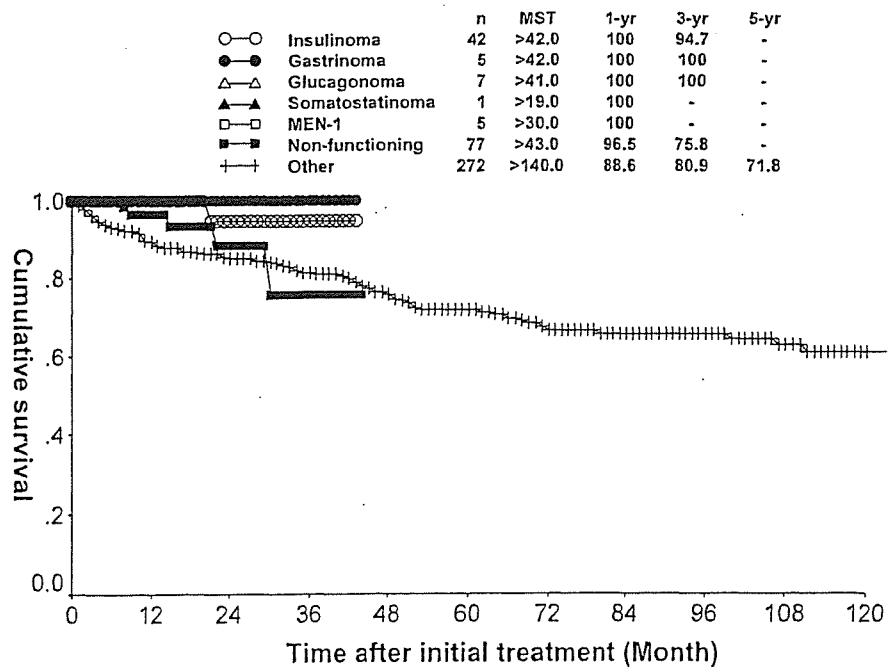


図 8.5.b.2 癌の実質間質比と内分泌腫瘍術後生存率 Survival of patients with endocrine tumor after pancreatectomy according to cancer-stroma relationship

	n	MST	1-yr	3-yr	5-yr	
○—○ Medullary	124	>140.0	92.2	88.1	75.7	} N.S. } N.S.
●—● Intermediate	69	>140.0	89.0	77.4	66.1	
△—△ Scirrhus	13	>113.0	83.1	72.7	72.7	

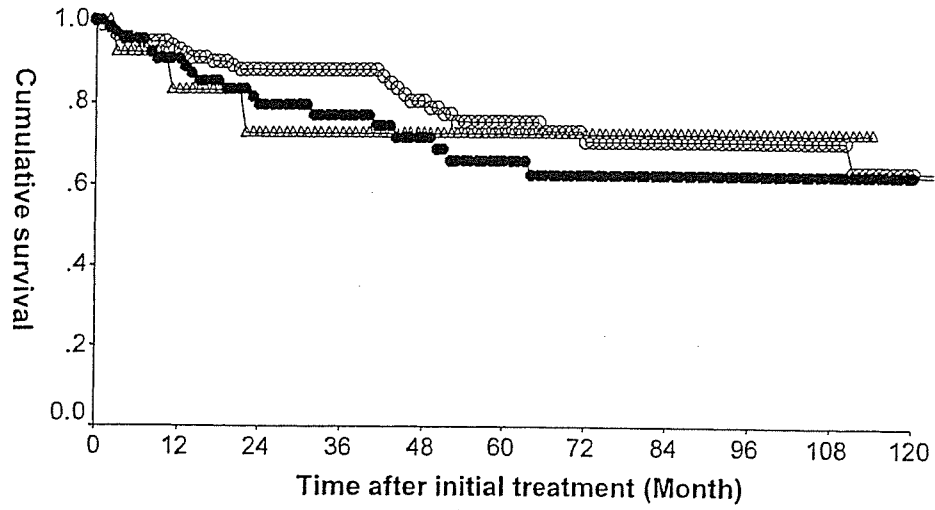


図 8.5.b.3 癌の周囲組織に対する浸潤増殖様式と内分泌腫瘍術後生存率 Survival of patients with endocrine tumor after pancreatectomy according to growth patterns of tumors infiltrating surrounding tissue

	n	MST	1-yr	3-yr	5-yr	
○—○ INF α	129	>140.0	95.1	89.2	82.5	} p=0.0029 } N.S.
●—● INF β	92	>140.0	86.9	74.1	59.6	
△—△ INF γ	11	>48.0	71.5	71.5	-	

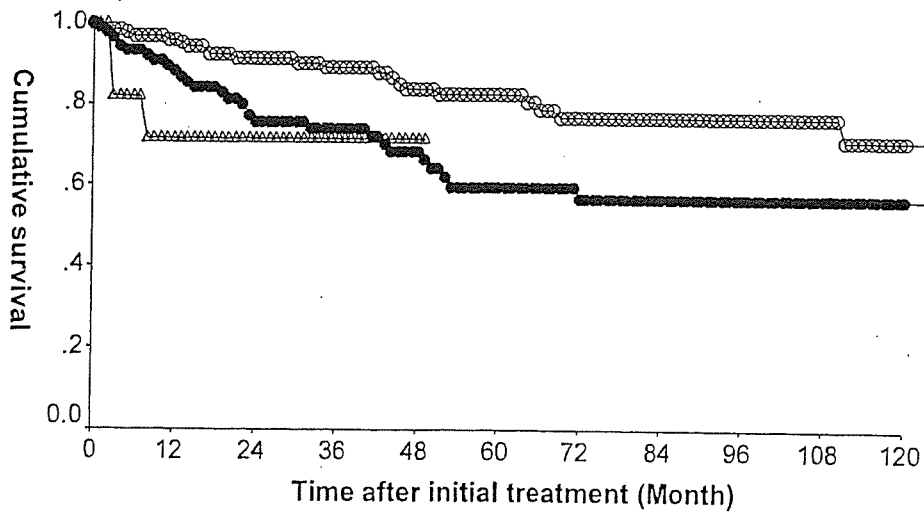


図 8.5.b.4 リンパ管侵襲と内分泌腫瘍術後生存率 Survival of patients with endocrine tumor after pancreatectomy according to lymphatic invasion

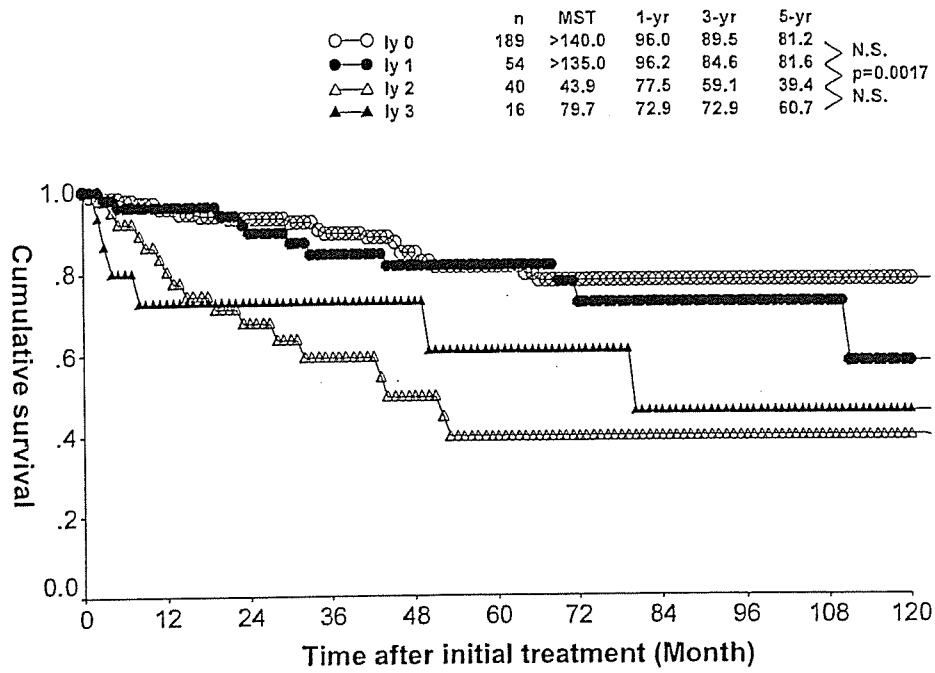


図 8.5.b.5 静脈侵襲と内分泌腫瘍術後生存率 Survival of patients with endocrine tumor after pancreatectomy according to venous invasion

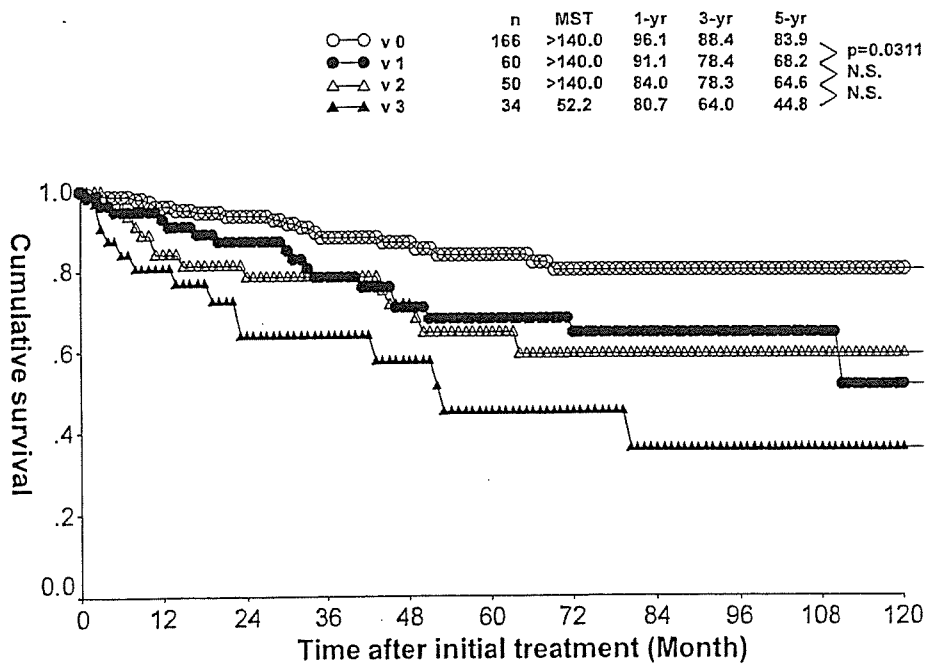


図 8.5.b.6 膵内神経浸潤と内分泌腫瘍術後生存率 Survival of patients with endocrine tumor after pancreatectomy according to intrapancreatic nerve invasion

	n	MST	1-yr	3-yr	5-yr	
○-○ ne 0	188	>140.0	95.3	90.4	83.2	} p=0.0090 } N.S. } N.S.
●-● ne 1	41	>135.0	89.1	72.2	63.7	
△-△ ne 2	25	>93.0	87.2	67.3	58.9	
▲-▲ ne 3	10	52.1	68.6	68.6	34.3	

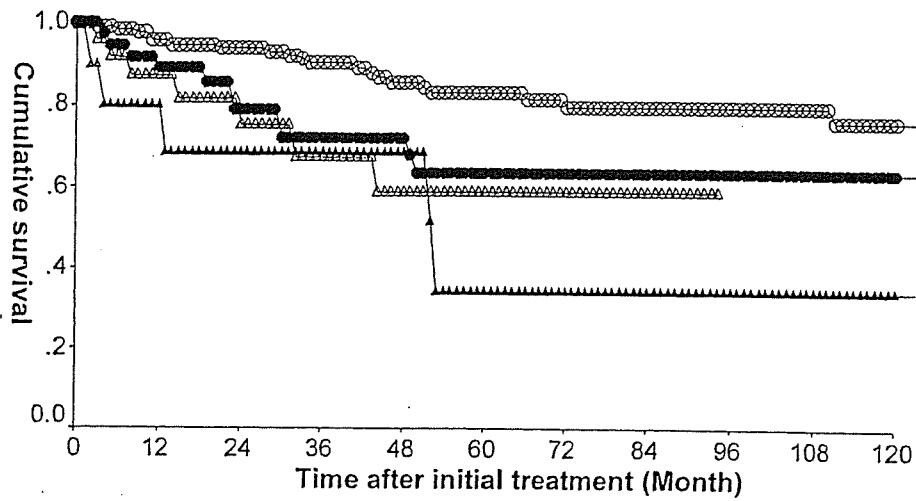
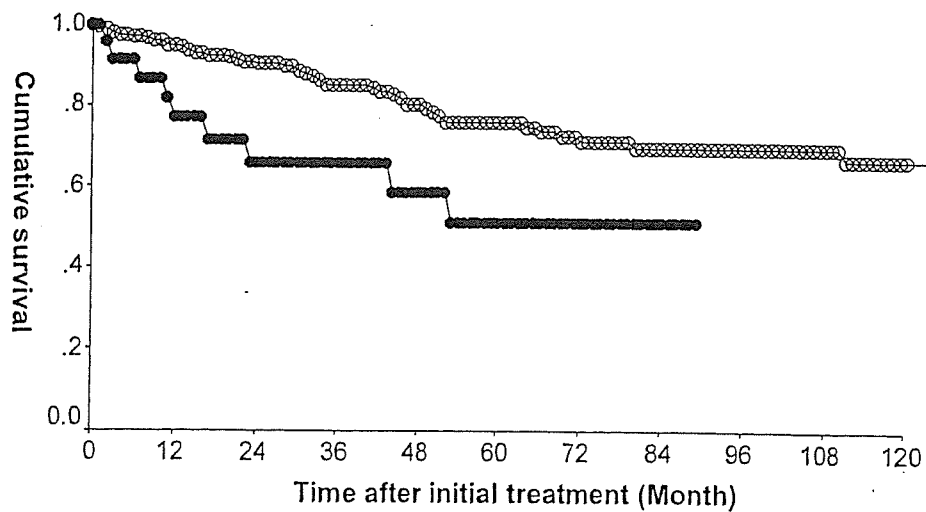


図 8.5.b.7 主膵管内進展と内分泌腫瘍術後生存率 Survival of patients with endocrine tumor after pancreatectomy according to Spread within the main pancreatic duct

	n	MST	1-yr	3-yr	5-yr	
○-○ mpd (-)	254	>140.0	94.5	85.2	75.9	} p=0.0035
●-● mpd (+)	24	>88.0	77.2	65.7	51.1	
mpd (b)	0					



VI. 合併症 Complications

a. 術後合併症 Complications after pancreatectomy

表 8.6.a.1 術式と術後合併症 Operative procedures and complications (With overlap)

	TP	PD, subtotal PD, PPPD, SSPPD	DP, subtotal DP, spleen preserving DP	MP, PR	Total
術後早期合併症 Early abdominal complications					
消化管出血 GI bleeding	1/18 (5.6%)	3/123 (2.4%)	2/165 (1.2%)	1/51 (2.0%)	7/357 (2.0%)
腹腔内出血 Intraperitoneal bleeding	3/19 (15.8%)	2/123 (1.6%)	1/165 (0.6%)	1/51 (2.0%)	7/358 (2.0%)
膵空腸吻合不全 Pancreatic anastomosis insufficiency	2/18 (11.1%)	9/122 (7.4%)	0/164 (0.0%)	5/51 (9.8%)	16/355 (4.5%)
胆管空腸吻合不全 Biliary anastomosis insufficiency	2/19 (10.5%)	4/124 (3.2%)	0/164 (0.0%)	0/51 (0.0%)	6/358 (1.7%)
胃空腸吻合不全 Gastric anastomosis insufficiency	1/18 (5.6%)	2/123 (1.6%)	0/163 (0.0%)	0/51 (0.0%)	3/355 (0.8%)
胃排出遅延 Delayed gastric emptying	0/3 (0.0%)	2/33 (6.1%)	3/43 (7.0%)	1/28 (3.6%)	6/107 (5.6%)
吻合部狭窄 Anastomotic stenosis	0/3 (0.0%)	0/33 (0.0%)	0/43 (0.0%)	0/28 (0.0%)	0/107 (0.0%)
急性膵炎 Acute pancreatitis	1/18 (5.6%)	2/123 (1.6%)	2/165 (1.2%)	2/51 (3.9%)	7/357 (2.0%)
膵液瘻 Pancreatic fistula	1/17 (5.9%)	8/124 (6.5%)	24/166 (14.5%)	17/51 (33.3%)	50/358 (14.0%)
胆汁瘻 Biliary fistula	3/19 (15.8%)	2/123 (1.6%)	2/164 (1.2%)	0/51 (0.0%)	7/350 (2.0%)
腹膜炎 Peritonitis	0/18 (0.0%)	2/122 (1.6%)	1/165 (0.6%)	2/51 (3.9%)	5/356 (1.4%)
術後早期全身合併症 Early systemic complications					
肝不全 Liver failure	2/18 (11.1%)	1/123 (0.8%)	0/165 (0.0%)	0/51 (0.0%)	3/357 (0.8%)
腎不全 Renal failure	2/18 (11.1%)	1/123 (0.8%)	0/165 (0.0%)	0/51 (0.0%)	3/357 (0.8%)
低血糖 Hypoglycemia	2/18 (11.1%)	1/123 (0.8%)	1/165 (0.6%)	0/51 (0.0%)	4/357 (1.1%)
肺合併症 Pulmonary complication	3/18 (16.7%)	2/123 (1.6%)	1/165 (0.6%)	0/51 (0.0%)	6/357 (1.7%)
心不全 Heart failure	0/18 (0.0%)	2/123 (1.6%)	1/165 (0.6%)	0/51 (0.0%)	3/357 (0.8%)
術後晚期合併症 Late complications					
イレウス Ileus	1/16 (6.3%)	5/121 (4.1%)	1/161 (0.6%)	0/50 (0.0%)	7/348 (2.0%)
糖尿病 Diabetes mellitus	11/17 (64.7%)	3/120 (2.5%)	8/161 (5.0%)	3/50 (6.0%)	25/348 (7.2%)
頑固な下痢 Persistent diarrhea	2/16 (12.5%)	7/120 (5.8%)	2/161 (1.2%)	0/50 (0.0%)	11/347 (3.2%)
栄養不良 Malnutrition	2/16 (12.5%)	10/118 (8.5%)	1/161 (0.6%)	0/50 (0.0%)	13/345 (3.8%)
ケトアシドーシス Ketoacidosis	1/16 (6.3%)	1/119 (0.8%)	0/161 (0.0%)	0/50 (0.0%)	2/346 (0.6%)
感染症 Infection	3/16 (18.8%)	4/120 (3.3%)	4/161 (2.5%)	0/50 (0.0%)	11/347 (3.2%)
胆管炎 Cholangitis	0/16 (0.0%)	5/120 (4.2%)	1/161 (0.6%)	0/50 (0.0%)	6/347 (1.7%)
Total	22	133	179	53	38

それぞれの%は有効症例数に対する割合のため、Total に対する割合とは一致しない。Each percentage is the ratio to the informative cases and does not match the total number of cases.

第9章 その他の腫瘍 Miscellaneous tumors

1. 背景因子 Background of the patients with miscellaneous tumors

a. 症例数の推移 Trend of number of cases

表 9.1.a.1 その他の腫瘍症例数の推移 Annual trend of cases with miscellaneous tumors.

Year	Serous cystadenoma	Serous cystadeno- carcinoma	Male mucinous cystadenoma?	Male mucinous cystadenocarcinoma?	Solid pseudopapillary tumor
1981				5	
1982				2	
1983		1		7	
1984				4	
1985				8	
1986				6	
1987		15		3	
1988				13	
1989				13	
1990				17	
1991				8	
1992				14	
1993		2		16	
1994		2		12	
1995		0		17	
1996		3		12	
1997		0		10	
1998		1		6	
1999		1		5	
2000		1	1	3	
2001	13	0	1	4	8
2002	15	0	7	0	12
2003	13	1	0	1	11
2004	20	0	2	1	13
Total	61	27	11	187	44

2000年までの症例は漿液性嚢胞腺癌、粘液性嚢胞腺癌としてのみ登録され、漿液性嚢胞腺腫、粘液性嚢胞腺腫および Solid pseudopapillary tumor の登録は2001年症例から。Cases before 2001 were registered only as serous or mucinous cystadenocarcinoma. Serous and mucinous cystadenoma and solid pseudopapillary tumor were registered after 2001 cases.

表 9.1.a.2 その他の腫瘍年齢性別分布 Age and sex distribution of cases with miscellaneous tumors.

	Serous cystadenoma		Serous cystadenocarcinoma		Male mucinous cystadenoma?	Male mucinous cystadenocarcinoma?	Solid pseudopapillary tumor	
	Male	Female	Male	Female	Male	Male	Male	Female
10-19	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (9.1%)	0 (0.0%)	2 (25.0%)	7 (20.0%)
20-29	1 (6.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	8 (22.9%)
30-39	2 (12.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	6 (3.3%)	3 (37.5%)	9 (25.7%)
40-49	2 (12.5%)	6 (13.6%)	2 (13.3%)	1 (8.3%)	1 (9.1%)	13 (7.1%)	2 (25.0%)	4 (11.4%)
50-59	3 (18.8%)	9 (20.5%)	4 (26.7%)	2 (16.7%)	3 (27.3%)	24 (13.2%)	0 (0.0%)	2 (5.7%)
60-69	1 (6.3%)	16 (36.4%)	5 (33.3%)	6 (50.0%)	3 (27.3%)	62 (34.1%)	0 (0.0%)	3 (8.6%)
70-79	6 (37.5%)	11 (25.0%)	3 (20.0%)	2 (16.7%)	3 (27.3%)	72 (39.6%)	0 (0.0%)	2 (5.7%)
80-89	1 (6.3%)	2 (4.5%)	1 (6.7%)	1 (8.3%)	0 (0.0%)	5 (2.7%)	1 (12.5%)	0 (0.0%)
90-99	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Total	16 (100.0%)	44 (100.0%)	15 (100.0%)	12 (100.0%)	11 (100.0%)	182 (100.0%)	8 (100.0%)	35 (100.0%)

II. 腫瘍の臨床病理学的因子 Clinicopathological properties of miscellaneous tumors

a. 局所進展 Local extent

表 9.2.a.1 腫瘍の大きさ Tumor size

	Serous cystadenoma	Serous cystadenocarcinoma	Male mucinous cystadenoma?	Male mucinous cystadenocarcinoma?	Solid pseudopapillary tumor
1. TS1 (≤ 2.0 cm)	10 (18.5%)	1 (4.0%)	4 (40.0%)	24 (15.2%)	2 (4.7%)
2. TS2 (2.1- 4.0 cm)	22 (40.7%)	16 (64.0%)	2 (20.0%)	48 (30.4%)	14 (32.6%)
3. TS3 (4.1- 6.0 cm)	11 (20.4%)	5 (20.0%)	2 (20.0%)	41 (25.9%)	13 (30.2%)
4. TS4 (> 6.0 cm)	11 (20.4%)	3 (12.0%)	2 (20.0%)	45 (28.5%)	14 (32.6%)
Total	54 (100.0%)	25 (100.0%)	10 (100.0%)	158 (100.0%)	43 (100.0%)

表 9.2.a.2 腫瘍の占拠部位 Locus of the primary tumor

	Serous cystadenoma	Serous cystadenocarcinoma	Male mucinous cystadenoma?	Male mucinous cystadenocarcinoma?	Solid pseudopapillary tumor
膵頭部 Pancreatic head	18 (30.5%)	17 (65.4%)	7 (63.6%)	103 (58.9%)	13 (29.5%)
膵体尾部 Tail and body	35 (59.3%)	8 (30.8%)	2 (18.2%)	37 (21.1%)	29 (65.9%)
2 区域以上 Two areas	6 (10.2%)	1 (3.8%)	2 (18.2%)	30 (17.1%)	2 (4.5%)
膵全体 Whole pancreas	0 (0.0%)	0 (0.0%)	0 (0.0%)	5 (2.9%)	0 (0.0%)
Total	59 (100.0%)	26 (100.0%)	11 (100.0%)	175 (100.0%)	44 (100.0%)

b. 卵巣様間質 Ovarian like stroma

表 9.2.b.1 卵巣様間質 Ovarian like stroma

	Serous cystadenoma	Serous cystadenocarcinoma	Male mucinous cystadenoma?	Male mucinous cystadenocarcinoma?	Solid pseudopapillary tumor
0. 卵巣様間質なし No OLS	22 (100.0%)	1 (100.0%)	4 (100.0%)	4 (100.0%)	26 (100.0%)
1. 卵巣様間質なし No OLS	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Total	22 (100.0%)	1 (100.0%)	4 (100.0%)	4 (100.0%)	26 (100.0%)

c. 病理組織分類と生存率 Histological classification and the survival of patients

図 9.2.c.1 漿液性嚢胞腫瘍の病理組織分類と生存率 Survival of the patients with serous cystic neoplasms

	n	MST	1-yr	3-yr	5-yr	
○—○ Serous cystadenoma	58	>45.0	100	100	-	> p<0.0001
●—● Serous cystadenocarcinoma	27	11.7	48.6	13.2	13.2	

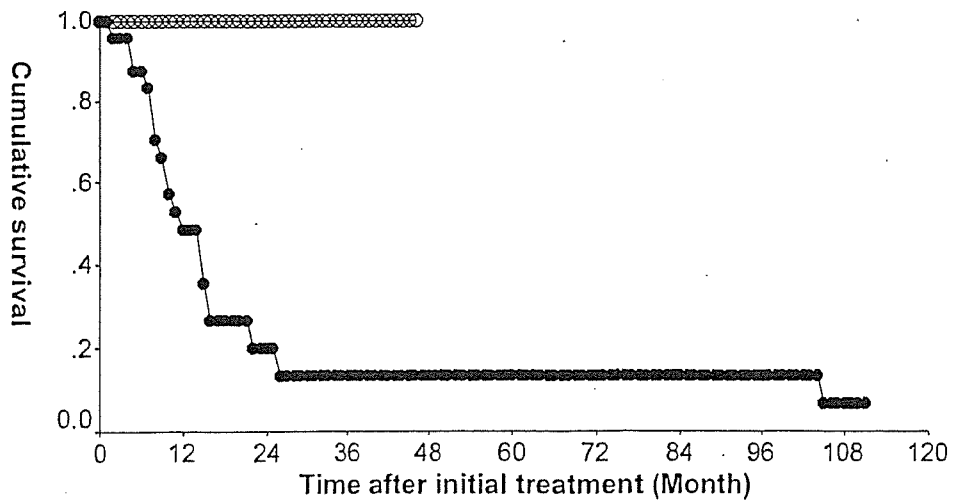


図 9.2.c.2 男性の粘液性嚢胞腫瘍として登録された症例の病理組織分類と生存率 Survival of patients registered as male mucinous cystic neoplasms

	n	MST	1-yr	3-yr	5-yr
○—○ Male mucinous cystadenoma?	11	>36.0	100	83.3	-
●—● Male mucinous cystadenocarcinoma?	184	78.2	78.2	59.1	52.8

> N.S.

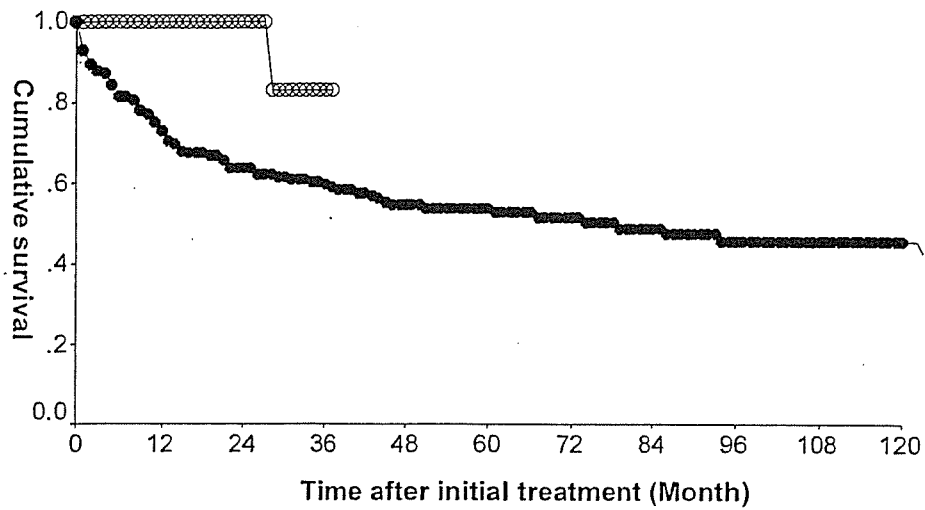
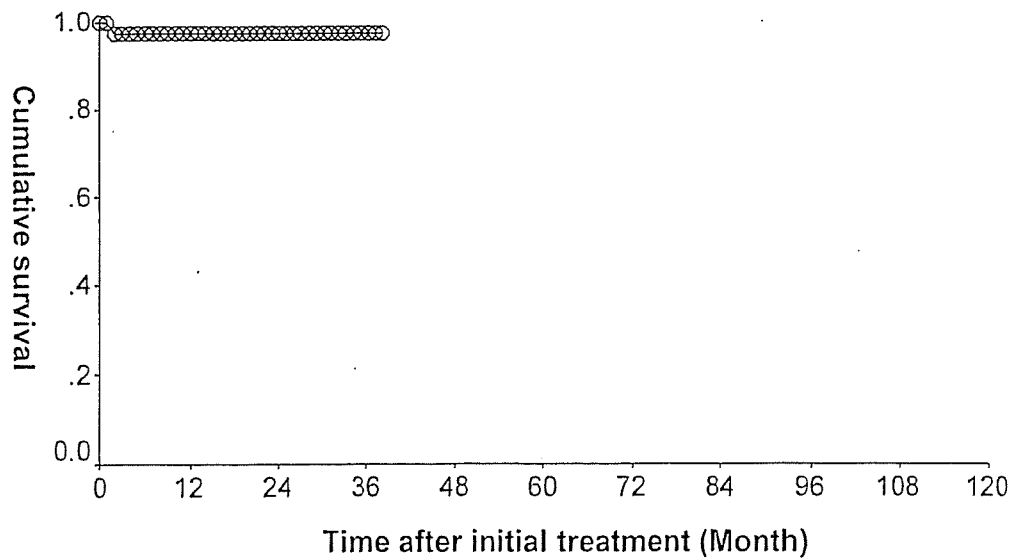


図 9.2.c.3 Solid pseudopapillary tumor の生存率 Survival of patients with solid and pseudopapillary tumors

	n	MST	1-yr	3-yr	5-yr
○—○ Solid and pseudopapillary tumor	44	>36.0	100	83.3	-



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