

Multi-Institutional Registry of Large Bowel Cancer in Japan

Vol. 39

Cases treated in 2013

Japan Society for Cancer of the Colon and Rectum

全国登録委員会

委員長 小林 宏寿

委員 浅野 道雄 石黒 めぐみ 石原聡一郎

猪股 雅史 金光 幸秀 小森 康司

松本 寛

まえがき

全国大腸癌登録調査報告書第 39 号 (Multi-Institutional Registry of Large Bowel Cancer in Japan, Vol. 39) をお届けします。本号は 2013 年に大腸癌研究会の会員施設において初回治療された大腸悪性腫瘍 9882 例の調査報告書です。臨床病理学的事項は、大腸癌取り扱い規約第 7 版に従って記載されております。オンラインのみでの公開となり、これまでの部位別の検討を一部省略する一方で、数値のみでなく生存曲線も掲載しました。それに伴い、従来は生命表法で集計していた生存分析は、Kaplan-Meier 法で集計しました。

全国がん登録や院内がん登録、National Clinical Database (NCD) など、様々な registry が本邦で行われていますが、大腸癌研究会が行ってきた大腸癌全国登録、いわゆる臓器がん登録の重要性は今後益々大きくなっていくものと考えます。本邦の質の高い大腸癌の治療は、大腸癌取り扱い規約や大腸癌治療ガイドラインに支えられている面があります。これら大腸癌取り扱い規約や大腸癌治療ガイドラインの作成や改訂において、本全国登録で得られた高質なデータの果たす役割は重要です。

会員施設に勤務されている先生方におかれましては、本登録の意義をご理解いただき、引き続き登録へのご協力をお願い申し上げます。また、登録いただいた会員施設の先生方には、全国登録データ利用の門戸が広く開かれています。是非積極的にご活用いただきますようお願い申し上げます。

2022 年 1 月

大腸癌研究会

会長 杉原 健一

全国大腸癌登録委員会

委員長 小林 宏寿

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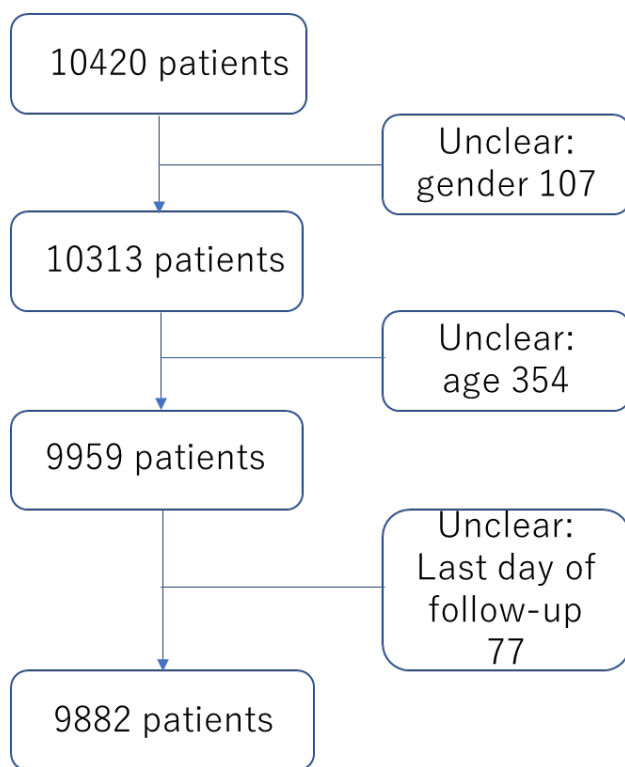
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Data-flow chart (Algorithm of data cleaning)

Analyses were basically performed including the patients who had some missing data, because the percentage of missing data would be helpful to interpret the data more precisely.

Table 1-Treatment

| Treatment | Number | Percentage |
|-----------------------------------|--------|------------|
| Endoscopic excision | 459 | 4.6 |
| Surgery after endoscopic excision | 421 | 4.3 |
| Surgery | 8893 | 90.0 |
| Non-surgery | 109 | 1.1 |
| Total | 9882 | 100 |

Table 2-1 Endoscopic excision-Gender

| Gender | Number | Percentage |
|--------|--------|------------|
| Male | 291 | 63.4 |
| Female | 168 | 36.6 |
| Total | 459 | 100 |

Table 2-2 Endoscopic excision-Age

| | |
|--------------|-------------|
| Age (median) | 66 (33-92) |
| Age (mean) | 65.6 ± 11.3 |

Table 2-3 Endoscopic excision-Age classification

| Age classification | Number | Percentage |
|--------------------|--------|------------|
| 20-29 | 0 | 0 |
| 30-39 | 7 | 1.5 |
| 40-49 | 34 | 7.4 |
| 50-59 | 81 | 17.6 |
| 60-69 | 153 | 33.3 |
| 70-79 | 136 | 29.6 |
| 80-89 | 45 | 9.8 |
| 90=< | 3 | 0.7 |
| Total | 459 | 100 |

Table 2-4 Endoscopic excision-Tumor location

| Tumor location | Number | Percentage |
|----------------|--------|------------|
| Cecum | 18 | 3.9 |
| Ascending | 53 | 11.5 |
| Transverse | 37 | 8.1 |
| Descending | 19 | 4.1 |
| Sigmoid | 181 | 39.4 |
| Rectosigmoid | 48 | 10.5 |
| Upper rectum | 43 | 9.4 |
| Lower rectum | 57 | 12.4 |
| Unknown | 3 | 0.7 |
| Total | 459 | 100 |

Table 2-5 Endoscopic excision-Procedure

| Procedure | Number | Percentage |
|-------------|--------|------------|
| Polypectomy | 54 | 11.8 |
| EMR | 343 | 74.7 |
| ESD | 56 | 12.2 |
| Unknown | 6 | 1.3 |
| Total | 459 | 100 |

Table 2-6 Endoscopic excision-En bloc or piecemeal

| Resection type | Number | Percentage |
|----------------|--------|------------|
| En bloc | 398 | 86.7 |
| Piecemeal | 47 | 10.2 |
| Unknown | 14 | 3.1 |
| Total | 459 | 100 |

Table 2-7 Endoscopic excision-Macroscopic type

| Macroscopic type | Number | Percentage |
|------------------|--------|------------|
| Ip | 120 | 26.1 |
| Isp | 160 | 34.9 |
| Is | 47 | 10.2 |
| Ila | 41 | 8.9 |
| Ilb | 0 | 0 |
| Ilc | 5 | 1.1 |
| Ila+Ilc | 11 | 2.4 |
| Ilc+Ila | 0 | 0 |
| Others | 39 | 8.5 |
| Unknown | 36 | 7.8 |
| Total | 459 | 100 |

Table 2-8 Endoscopic excision-Tumor size

| | |
|--------|----------------|
| Median | 15 (4-130) mm |
| Mean | 17.6 ± 11.7 mm |

Table 2-9 Endoscopic excision-Tumor size 2

| Tumor size | Number | Percentage |
|------------|--------|------------|
| ≤5 mm | 11 | 2.4 |
| 6-10 mm | 92 | 20.0 |
| 11-15 mm | 125 | 27.2 |
| 16-20 mm | 86 | 18.7 |
| 21-30 mm | 59 | 12.9 |
| 31-40 mm | 9 | 2.0 |
| >40 mm | 13 | 2.8 |
| Unknown | 64 | 13.9 |
| Total | 459 | 100 |

Table 2-10 Endoscopic excision-Histologic type

| Histologic type | Number | Percentage |
|---------------------------|--------|------------|
| Well differentiated | 417 | 90.8 |
| Moderately differentiated | 29 | 6.3 |
| Poorly differentiated | 0 | 0 |
| Neuroendocrine tumor | 7 | 1.5 |
| Others | 5 | 1.1 |
| Unknown | 1 | 0.2 |
| Total | 459 | 100 |

Table 2-11 Endoscopic excision-Depth of tumor invasion

| Depth of tumor invasion | Number | Percentage |
|-------------------------|--------|------------|
| pM | 369 | 80.4 |
| pSM | 85 | 18.5 |
| Unknown | 5 | 1.1 |
| Total | 459 | 100 |

Table 2-12 Endoscopic excision-Distance of submucosal invasion

| Distance of submucosal invasion | Number | Percentage |
|---------------------------------|--------|------------|
| <1000 μ m | 24 | 28.2 |
| \geq 1000 μ m | 31 | 36.5 |
| Unknown | 30 | 35.3 |
| Total | 85 | 100 |

Table 2-13 Endoscopic excision-Lymphatic invasion

| Lymphatic invasion | Number | Percentage |
|--------------------|--------|------------|
| ly0 | 434 | 94.6 |
| ly1 | 8 | 1.7 |
| ly2 | 0 | 0 |
| ly3 | 0 | 0 |
| Unknown | 17 | 3.7 |
| Total | 459 | 100 |

Table 2-14 Endoscopic excision-Venous invasion

| Venous invasion | Number | Percentage |
|-----------------|--------|------------|
| v0 | 437 | 95.2 |
| v1 | 5 | 1.1 |
| v2 | 0 | 0 |
| v3 | 0 | 0 |
| Unknown | 17 | 3.7 |
| Total | 459 | 100 |

Table 2-15 Endoscopic excision-Horizontal margin

| Horizontal margin | Number | Percentage |
|-------------------|--------|------------|
| HM0 | 421 | 91.7 |
| HM1 | 12 | 2.6 |
| Unknown | 26 | 5.7 |
| Total | 459 | 100 |

Table 2-16 Endoscopic excision-Vertical margin

| Vertical margin | Number | Percentage |
|-----------------|--------|------------|
| VM0 | 433 | 94.3 |
| VM1 | 2 | 0.4 |
| Unknown | 24 | 5.2 |
| Total | 459 | 100 |

Table 2-17 Endoscopic excision-Curability

| Curability | Number | Percentage |
|------------|--------|------------|
| cur EA | 404 | 88.0 |
| cur EC | 8 | 1.7 |
| Unknown | 47 | 10.2 |
| Total | 459 | 100 |

Table 3-1 Surgery after endoscopic excision-Gender

| Gender | Number | Percentage |
|--------|--------|------------|
| Male | 260 | 61.8 |
| Female | 161 | 38.2 |
| Total | 421 | 100 |

Table 3-2 Surgery after endoscopic excision-Age

| | |
|--------------|-------------|
| Age (median) | 65 (23-92) |
| Age (mean) | 64.5 ± 11.2 |

Table 3-3 Surgery after endoscopic excision-Age classification

| Age classification | Number | Percentage |
|--------------------|--------|------------|
| 20-29 | 1 | 0.2 |
| 30-39 | 9 | 2.1 |
| 40-49 | 30 | 7.1 |
| 50-59 | 78 | 18.5 |
| 60-69 | 153 | 36.3 |
| 70-79 | 112 | 26.6 |
| 80-89 | 37 | 8.8 |
| 90=< | 1 | 0.2 |
| Total | 421 | 100 |

Table 3-4 Surgery after endoscopic excision-Tumor location

| Tumor location | Number | Percentage |
|--------------------|--------|------------|
| Vermiform appendix | 1 | 0.2 |
| Cecum | 18 | 4.3 |
| Ascending | 48 | 11.4 |
| Transverse | 19 | 4.5 |
| Descending | 19 | 4.5 |
| Sigmoid | 127 | 30.2 |
| Rectosigmoid | 43 | 10.2 |
| Upper rectum | 27 | 6.4 |
| Lower rectum | 52 | 12.4 |
| Proctos | 0 | 0 |
| Unknown | 67 | 15.9 |
| Total | 421 | 100 |

Table 3-5 Surgery after endoscopic excision-Endoscopic procedure

| Procedure | Number | Percentage |
|-------------|--------|------------|
| Polypectomy | 44 | 10.5 |
| EMR | 258 | 61.3 |
| ESD | 73 | 17.3 |
| Others | 2 | 0.5 |
| Unknown | 44 | 10.5 |
| Total | 421 | 100 |

Table 3-6 Surgery after endoscopic excision-En bloc or piecemeal

| Resection | Number | Percentage |
|-----------|--------|------------|
| En bloc | 285 | 67.7 |
| Piecemeal | 55 | 13.1 |
| Unknown | 81 | 19.2 |
| Total | 421 | 100 |

Table 3-7 Surgery after endoscopic excision-Macroscopic type

| Macroscopic type | Number | Percentage |
|------------------|--------|------------|
| Ip | 61 | 14.5 |
| Isp | 88 | 20.9 |
| Is | 74 | 17.6 |
| Ila | 43 | 10.2 |
| IIb | 4 | 1 |
| Ilc | 3 | 0.7 |
| Ila+Ilc | 23 | 5.5 |
| Ilc+Ila | 3 | 0.7 |
| Others | 22 | 5.2 |
| Unknown | 100 | 23.8 |
| Total | 421 | 100 |

Table 3-8 Surgery after endoscopic excision-Tumor size

| | |
|--------|----------------|
| Median | 15 (4-60) mm |
| Mean | 18.2 ± 10.6 mm |

Table 3-9 Surgery after endoscopic excision-Tumor size 2

| Tumor size | Number | Percentage |
|------------|--------|------------|
| <=5 mm | 8 | 1.9 |
| 6-10 mm | 71 | 16.9 |
| 11-15 mm | 82 | 19.5 |
| 16-20 mm | 51 | 12.1 |
| 21-30 mm | 50 | 11.9 |
| 31-40 mm | 19 | 4.5 |
| >40 mm | 10 | 2.4 |
| Unknown | 130 | 30.9 |
| Total | 421 | 100 |

Table 3-10 Surgery after endoscopic excision-Histologic type

| Histologic type | Number | Percentage |
|---------------------------|--------|------------|
| Well differentiated | 238 | 56.5 |
| Moderately differentiated | 88 | 20.9 |
| Poorly differentiated | 3 | 0.7 |
| Mucinous | 1 | 0.2 |
| Signet ring cell | 1 | 0.2 |
| Neuroendocrine tumor | 9 | 2.1 |
| Others | 2 | 0.5 |
| Unknown | 79 | 18.8 |
| Total | 421 | 100 |

Table 3-11 Surgery after endoscopic excision-Depth of tumor invasion (endoscopic)

| Depth of tumor invasion | Number | Percentage |
|-------------------------|--------|------------|
| pM | 23 | 5.5 |
| pSM | 312 | 74.1 |
| pMP | 3 | 0.7 |
| pSS | 0 | 0 |
| Unknown | 83 | 19.7 |
| Total | 421 | 100 |

Table 3-12 Surgery after endoscopic excision-Distance of submucosal invasion

| Distance of submucosal invasion | Number | Percentage |
|---------------------------------|--------|------------|
| <1000 μ m | 33 | 10.6 |
| \geq 1000 μ m | 178 | 57.1 |
| Unknown | 101 | 32.4 |
| Total | 312 | 100 |

Table 3-13 Surgery after endoscopic excision-Lymphatic invasion

| Lymphatic invasion | Number | Percentage |
|--------------------|--------|------------|
| ly0 | 225 | 53.4 |
| ly1 | 86 | 20.4 |
| ly2 | 9 | 2.1 |
| ly3 | 1 | 0.2 |
| Unknown | 100 | 23.8 |
| Total | 421 | 100 |

Table 3-14 Surgery after endoscopic excision-Venous invasion

| Venous invasion | Number | Percentage |
|-----------------|--------|------------|
| v0 | 243 | 57.7 |
| v1 | 68 | 16.2 |
| v2 | 7 | 1.7 |
| v3 | 1 | 0.2 |
| Unknown | 102 | 24.2 |
| Total | 421 | 100 |

Table 3-15 Surgery after endoscopic excision-Horizontal margin

| Horizontal margin | Number | Percentage |
|-------------------|--------|------------|
| HM0 | 230 | 54.6 |
| HM1 | 34 | 8.1 |
| Unknown | 157 | 37.3 |
| Total | 421 | 100 |

Table 3-16 Surgery after endoscopic excision-Vertical margin

| Vertical margin | Number | Percentage |
|-----------------|--------|------------|
| VM0 | 206 | 48.9 |
| VM1 | 57 | 13.5 |
| Unknown | 158 | 37.5 |
| Total | 421 | 100 |

Table 3-17 Surgery after endoscopic excision-Endoscopic curability

| Endoscopic curability | Number | Percentage |
|-----------------------|--------|------------|
| cur EA | 136 | 32.3 |
| cur EC | 133 | 31.6 |
| Unknown | 152 | 36.1 |
| Total | 421 | 100 |

Table 3-18 Surgery after endoscopic excision-Operative approach

| Operative approach | Number | Percentage |
|--------------------|--------|------------|
| Transanal | 1 | 0.2 |
| Laparoscopic | 224 | 53.2 |
| Open | 158 | 37.5 |
| Unknown | 38 | 9.0 |
| Total | 421 | 100 |

Table 3-19 Surgery after endoscopic excision-Type of anastomosis

| Type of anastomosis | Number | Percentage |
|-----------------------|--------|------------|
| End-to-end | 177 | 42 |
| Side-to-end | 13 | 3.1 |
| End-to-side | 5 | 1.2 |
| Side-to-side | 5 | 1.2 |
| Functional end-to-end | 96 | 22.8 |
| Unknown | 125 | 29.7 |
| Total | 421 | 100 |

Table 3-20 Surgery after endoscopic excision-Type of anastomosis 2

| Type of anastomosis | Number | Percentage |
|---------------------|--------|------------|
| Handsewn | 49 | 11.6 |
| Stapling | 260 | 61.8 |
| Unknown | 112 | 26.6 |
| Total | 421 | 100 |

Table 3-21 Surgery after endoscopic excision-Lymph node dissection

| Type of anastomosis | Number | Percentage |
|---------------------|--------|------------|
| D0 | 4 | 1.0 |
| D1 | 25 | 5.9 |
| D2 | 263 | 62.5 |
| D3 | 120 | 28.5 |
| Unknown | 9 | 2.1 |
| Total | 421 | 100 |

Table 3-22 Surgery after endoscopic excision-Histologic type after surgery

| Histologic type | Number | Percentage |
|---------------------------|--------|------------|
| Well differentiated | 204 | 48.5 |
| Moderately differentiated | 107 | 25.4 |
| Poorly differentiated | 3 | 0.7 |
| Mucinous | 0 | 0 |
| Signet ring cell | 1 | 0.2 |
| Neuroendocrine tumor | 7 | 1.7 |
| Others | 1 | 0.2 |
| Unknown | 98 | 23.3 |
| Total | 421 | 100 |

Table 3-23 Surgery after endoscopic excision-Depth of tumor invasion after surgery

| Depth of tumor invasion | Number | Percentage |
|-------------------------|--------|------------|
| pM | 16 | 3.8 |
| pSM | 263 | 62.5 |
| pMP | 23 | 5.5 |
| pSS | 15 | 3.6 |
| pSE | 4 | 1.0 |
| pSI | 1 | 0.2 |
| pA | 2 | 0.5 |
| pAI | 1 | 0.2 |
| Unknown | 96 | 22.8 |
| Total | 421 | 100 |

Table 3-24 Surgery after endoscopic excision-Lymph node metastasis

| Lymph node metastasis | Number | Percentage |
|-----------------------|--------|------------|
| pN0 | 370 | 87.9 |
| pN1 | 42 | 10.0 |
| pN2 | 4 | 1.0 |
| pN3 | 0 | 0 |
| Unknown | 5 | 1.2 |
| Total | 421 | 100 |

Table 3-25 Surgery after endoscopic excision-Number of lymph node retrieved

| | |
|---|-------------|
| Number of lymph node retrieved (median) | 13 (0-62) |
| Number of lymph node retrieved (mean) | 14.9 ± 10.0 |

Table 3-26 Surgery after endoscopic excision-Number of positive lymph node

| | |
|----------------------------------|-----------|
| Number of positive node (median) | 0 (0-8) |
| Number of positive node (mean) | 0.2 ± 0.7 |

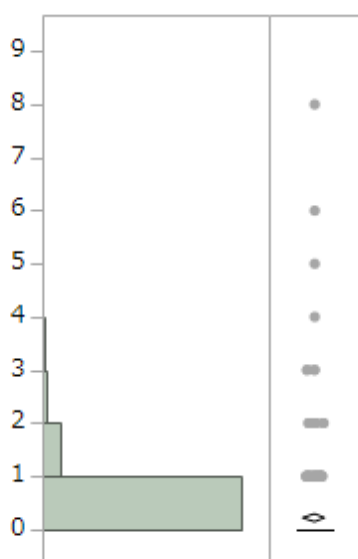


Table 3-27 Surgery after endoscopic excision-Liver metastasis

| Liver metastasis | Number | Percentage |
|------------------|--------|------------|
| H0 | 385 | 91.4 |
| H1 | 0 | 0 |
| H2 | 1 | 0.2 |
| H3 | 0 | 0 |
| Unknown | 35 | 8.3 |
| Total | 421 | 100 |

Table 3-28 Surgery after endoscopic excision-Peritoneal metastasis

| Peritoneal metastasis | Number | Percentage |
|-----------------------|--------|------------|
| P0 | 380 | 90.3 |
| P1 | 1 | 0.2 |
| P2 | 0 | 0 |
| P3 | 0 | 0 |
| Unknown | 40 | 9.5 |
| Total | 421 | 100 |

Table 3-29 Surgery after endoscopic excision-Pulmonary metastasis

| Peritoneal metastasis | Number | Percentage |
|-----------------------|--------|------------|
| LM0 | 384 | 91.2 |
| LM1 | 1 | 0.2 |
| LM2 | 0 | 0 |
| LM3 | 0 | 0 |
| Unknown | 36 | 8.6 |
| Total | 421 | 100 |

Table 3-30 Surgery after endoscopic excision-Distant metastasis other than liver

| Distant metastasis | Number | Percentage |
|--------------------|--------|------------|
| M0 | 385 | 91.4 |
| M1 | 0 | 0 |
| Unknown | 36 | 8.6 |
| Total | 421 | 100 |

Table 3-31 Surgery after endoscopic excision-Curability after surgery

| Curability | Number | Percentage |
|------------|--------|------------|
| Cur A | 410 | 97.4 |
| Cur B | 1 | 0.2 |
| Cur C | 1 | 0.2 |
| Unknown | 9 | 2.1 |
| Total | 421 | 100 |

Table 3-32 Surgery after endoscopic excision-Recurrence after surgery

| Recurrence | Number | Percentage |
|------------|--------|------------|
| Absent | 381 | 90.5 |
| Present | 15 | 3.6 |
| Unknown | 25 | 5.9 |
| Total | 421 | 100 |

Table 3-33 Surgery after endoscopic excision-Recurrence site after surgery

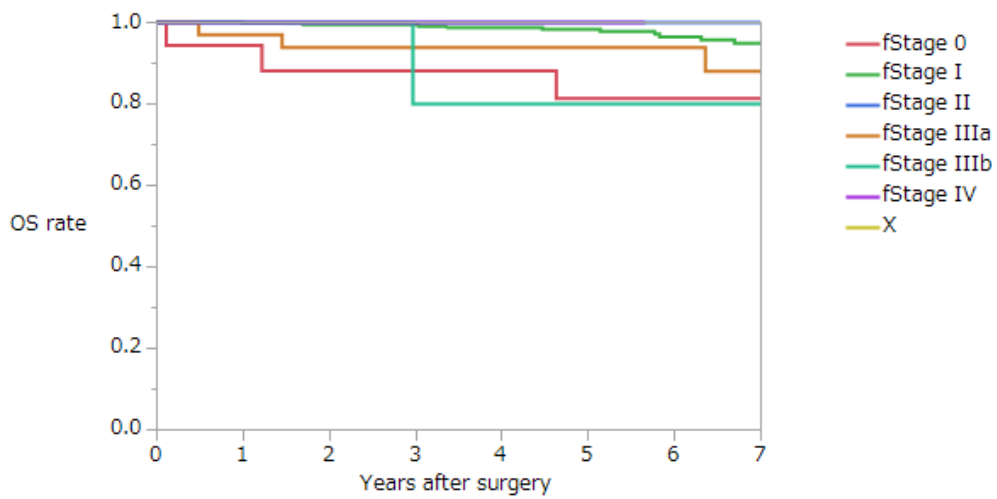
| Fisrt recurrence site | Number |
|---------------------------|--------|
| Anastomosis | 1 |
| Regional lymph node | 3 |
| Local | 1 |
| Lymph node (not regional) | 2 |
| Liver | 9 |
| Lung | 1 |
| Peritoneum | 0 |
| Bone | 0 |
| Brain | 0 |
| Adrenal gland | 0 |
| Skin | 1 |
| Others | 0 |
| (overlapping+) | |

Table 3-34 Surgery after endoscopic excision-Treatment after recurrence

| Treatment for recurr | Number |
|----------------------|--------|
| None | 1 |
| Curative surgery | 9 |
| Palliative surgery | 0 |
| Radiotherapy | 0 |
| Chemotherapy | 5 |
| Unknown | 0 |
| Total | 15 |

Table3-35 Surgery after endoscopic excision-Overall survival rates after surgery (%)

| Group | Number of patients | 1 year | 2 years | 3 years | 4 years | 5 years |
|------------|--------------------|--------|---------|---------|---------|---------|
| Stage 0 | 19 | 94.1 | 88.2 | 88.2 | 88.2 | 81.4 |
| Stage I | 300 | 99.7 | 99.3 | 99.3 | 98.6 | 98.2 |
| Stage II | 15 | 100 | 100 | 100 | 100 | 100 |
| Stage IIIa | 36 | 97.1 | 93.9 | 93.9 | 93.9 | 93.9 |
| Stage IIIb | 6 | 100 | 100 | 80 | 80 | 80 |
| Stage IV | 4 | 100 | 100 | 100 | 100 | 100 |
| Unknown | 41 | | | | | |
| All | 421 | 99.2 | 98.3 | 98.1 | 97.5 | 96.9 |



Overall survival of all patients with surgery after endoscopic excision

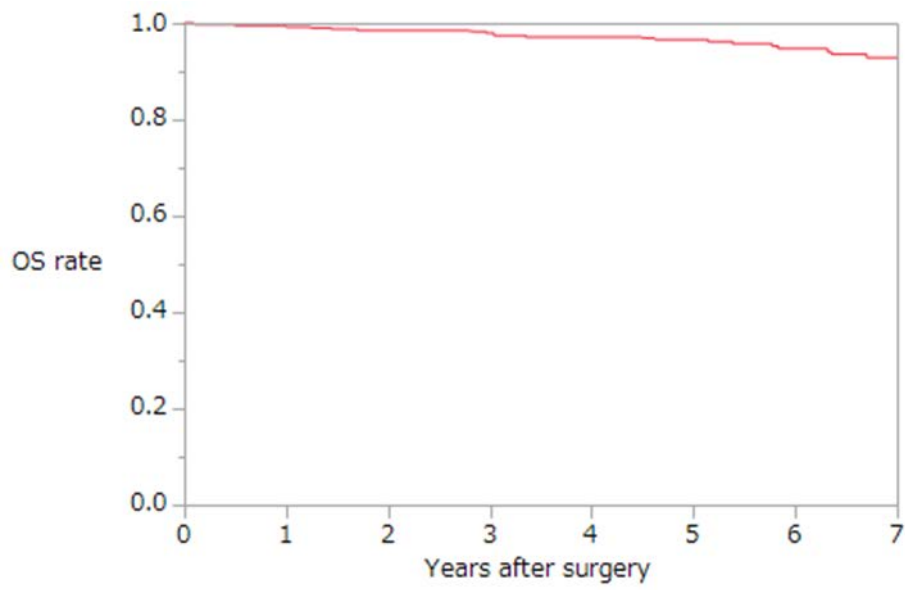


Table 4-1 Surgery-Gender

| Gender | Number | Percentage |
|--------|--------|------------|
| Male | 5120 | 57.6 |
| Female | 3773 | 42.4 |
| Total | 8893 | 100 |

Table 4-2 Surgery-Age

| | |
|--------------|-------------|
| Age (median) | 69 (12-99) |
| Age (mean) | 67.8 ± 11.8 |

Table 4-3 Surgery-Age classification

| Age classification | Number | Percentage |
|--------------------|--------|------------|
| <20 | 3 | 0.03 |
| 20-29 | 23 | 0.3 |
| 30-39 | 152 | 1.7 |
| 40-49 | 504 | 5.7 |
| 50-59 | 1203 | 13.5 |
| 60-69 | 2792 | 31.4 |
| 70-79 | 2783 | 31.3 |
| 80-89 | 1317 | 14.8 |
| 90=< | 116 | 1.3 |
| Total | 8893 | 100 |

Table 4-4 Surgery-Tumor location

| Tumor location | Number | Percentage |
|----------------------|--------|------------|
| Vermiformis appendix | 48 | 0.50 |
| Cecum | 695 | 7.8 |
| Ascending | 1409 | 15.8 |
| Transverse | 808 | 9.1 |
| Descending | 383 | 4.3 |
| Sigmoid | 1995 | 22.4 |
| Rectosigmoid | 1070 | 12 |
| Upper rectum | 949 | 10.7 |
| Lower rectum | 1202 | 13.5 |
| Proctos (anal canal) | 74 | 0.80 |
| Unknown | 260 | 2.9 |
| Total | 8893 | 100 |

Table 4-5 Surgery-Preoperative serum CEA value

| Preoperative serum CEA value | Number | Percentage |
|------------------------------|--------|------------|
| Normal | 4978 | 56.0 |
| <2 x ULN | 1331 | 15.0 |
| <4 x ULN | 778 | 8.7 |
| <8 x UNL | 479 | 5.4 |
| >=8 x UNL | 806 | 9.1 |
| Unknown | 521 | 5.9 |
| Total | 8893 | 100 |

Table 4-6 Surgery-Multiple primary cancers

| Multiple primary cancers | Number | Percentage |
|------------------------------|--------|------------|
| Absent | 7499 | 84.3 |
| Synchronous | 407 | 4.6 |
| Metachronous | 752 | 8.5 |
| Synchronous and metachronous | 42 | 0.5 |
| Unknown | 193 | 2.2 |
| Total | 8893 | 100 |

Table 4-7 Surgery-Synchronous multiple colorectal cancers

| Synchronous multiple CRC | Number | Percentage |
|--------------------------|--------|------------|
| Absent | 6165 | 69.3 |
| Present | 465 | 5.2 |
| Unknown | 2263 | 25.4 |
| Total | 8893 | 100 |

Table 4-8 Surgery-Metachronous multiple colorectal cancers

| Metachronous multiple CRC | Number | Percentage |
|---------------------------|--------|------------|
| Absent | 6425 | 72.2 |
| Present | 167 | 1.9 |
| Unknown | 2301 | 25.9 |
| Total | 8893 | 100 |

Table 4-9 Operative procedure

| Operative procedure | Number | Percentage |
|----------------------------|--------|------------|
| Polypectomy | 0 | 0.00 |
| Tumorectomy | 51 | 0.6 |
| Local excision | 28 | 0.3 |
| Appendectomy | 9 | 0.10 |
| Ileocecal resection | 869 | 9.8 |
| Partial colectomy | 578 | 6.5 |
| Right hemicolectomy | 1518 | 17.1 |
| Left hemicolectomy | 330 | 3.7 |
| Sigmoidectomy | 1505 | 16.9 |
| Subtotal colectomy | 57 | 0.6 |
| Total colectomy | 20 | 0.2 |
| Total proctocolectomy | 36 | 0.4 |
| High anterior resection | 874 | 9.8 |
| Low anterior resection | 1707 | 19.2 |
| Hartmann's operation | 364 | 4.1 |
| Abdominoperineal resection | 474 | 5.3 |
| Others | 168 | 1.9 |
| Unknown | 305 | 3.4 |
| Total | 8893 | 100 |

Table 4-10 Surgery-Operative approach

| Operative approach | Number | Percentage |
|--------------------|--------|------------|
| Transanal | 67 | 0.8 |
| Laparoscopic | 4373 | 49.2 |
| Open | 3658 | 41.1 |
| Others | 24 | 0.3 |
| Unknown | 771 | 8.7 |
| Total | 8893 | 100 |

Table 4-11 Surgery-Type of anastomosis

| Type of anastomosis | Number | Percentage |
|-----------------------|--------|------------|
| End-to-end | 3729 | 41.9 |
| Side-to-end | 215 | 2.4 |
| End-to-side | 145 | 1.6 |
| Side-to-side | 99 | 1.1 |
| Functional end-to-end | 2061 | 23.2 |
| Unknown | 2644 | 29.7 |
| Total | 8893 | 100 |

Table 4-12 Surgery-Type of anastomosis 2

| Type of anastomosis | Number | Percentage |
|---------------------|--------|------------|
| Handsewn | 1015 | 11.4 |
| Stapling | 5440 | 61.1 |
| Unknown | 2438 | 27.4 |
| Total | 8893 | 100 |

Table 4-13 Surgery- Lymph node dissection

| Lymph node dissection | Number | Percentage |
|-----------------------|--------|------------|
| D0 | 214 | 2.4 |
| D1 | 394 | 4.4 |
| D2 | 2405 | 27.0 |
| D3 | 5286 | 59.4 |
| Unknown | 594 | 6.7 |
| Total | 8893 | 100 |

Table 4-14 Surgery-Tumor size

| Tumor size | Number | Percentage |
|------------|--------|------------|
| <=20 mm | 1462 | 16.4 |
| 21-40 mm | 2780 | 31.3 |
| 41-60 mm | 2161 | 24.3 |
| 61-80 mm | 948 | 10.7 |
| 81-100 mm | 334 | 3.8 |
| >100 mm | 119 | 1.3 |
| Unknown | 1089 | 12.2 |
| Total | 8893 | 100 |

Table 4-15 Surgery-Histologic type

| Histologic type | Number | Percentage |
|---------------------------|--------|------------|
| Well differentiated | 3361 | 37.8 |
| Moderately differentiated | 4516 | 50.8 |
| Poorly differentiated | 266 | 3.0 |
| Mucinous | 281 | 3.2 |
| Signet ring cell | 23 | 0.3 |
| Neuroendocrine tumor | 40 | 0.5 |
| Others | 67 | 0.8 |
| Unknown | 339 | 3.8 |
| Total | 8893 | 100 |

Table 4-16 Surgery-Histologic type 2

| Histologic type | Number | Percentage |
|--------------------|--------|------------|
| Adenocarcinoma | 8447 | 95.0 |
| Other malignancies | 107 | 1.2 |
| Unknown | 339 | 3.8 |
| Total | 8893 | 100 |

Table 4-17 Surgery-Depth of tumor invasion

| Depth of tumor invasion | Number | Percentage |
|-------------------------|--------|------------|
| pTis | 293 | 3.3 |
| pM | 1070 | 12.0 |
| pSM | 1175 | 13.2 |
| pMP | 3385 | 38.1 |
| pSS | 1419 | 16.0 |
| pSI | 465 | 5.2 |
| pA | 595 | 6.7 |
| pAI | 60 | 0.7 |
| Unknown | 431 | 4.8 |
| Total | 8893 | 100 |

Table 4-18 Surgery-Number of invaded organs during surgery

| Number of invaded organs | Number | Percentage |
|--------------------------|--------|------------|
| 0 | 2771 | 31.2 |
| 1 | 622 | 7 |
| 2 | 120 | 1.3 |
| 3 or more | 59 | 0.7 |
| Unknown | 5321 | 59.8 |
| Total | 8893 | 100 |

Table 4-19 Surgery-Lymphatic invasion

| Lymphatic invasion | Number | Percentage |
|--------------------|--------|------------|
| ly0 | 3723 | 41.9 |
| ly1 | 3213 | 36.1 |
| ly2 | 1089 | 12.2 |
| ly3 | 381 | 4.3 |
| Unknown | 487 | 5.5 |
| Total | 8893 | 100 |

Table 4-20 Surgery-Venous invasion

| Venous invasion | Number | Percentage |
|-----------------|--------|------------|
| v0 | 2987 | 33.6 |
| v1 | 3084 | 34.7 |
| v2 | 1721 | 19.4 |
| v3 | 624 | 7 |
| Unknown | 477 | 5.4 |
| Total | 8893 | 100 |

Table 4-21 Surgery-Interstitium

| Interstitium | Number | Percentage |
|----------------------|--------|------------|
| Medullary pattern | 418 | 4.7 |
| Intermediate pattern | 4614 | 51.9 |
| Scirrhous pattern | 76 | 0.9 |
| Unknown | 3785 | 42.6 |
| Total | 8893 | 100 |

Table 4-22 Surgery-Infiltrative growth pattern

| Infiltrative growth pattern | Number | Percentage |
|-----------------------------|--------|------------|
| INF α | 593 | 6.7 |
| INF β | 5871 | 66.0 |
| INF γ | 204 | 2.3 |
| Unknown | 2225 | 25.0 |
| Total | 8893 | 100 |

Table 4-23 Surgery-Proximal margin

| Proximal margin | Number | Percentage |
|-----------------|--------|------------|
| PM0 | 8336 | 93.7 |
| PM1 | 7 | 0.08 |
| Unknown | 550 | 6.2 |
| Total | 8893 | 100 |

Table 4-24 Surgery-Distal margin

| Distal margin | Number | Percentage |
|---------------|--------|------------|
| DM0 | 8313 | 93.5 |
| DM1 | 10 | 0.1 |
| Unknown | 570 | 6.4 |
| Total | 8893 | 100 |

Table 4-25 Surgery-Circumferential resection margin

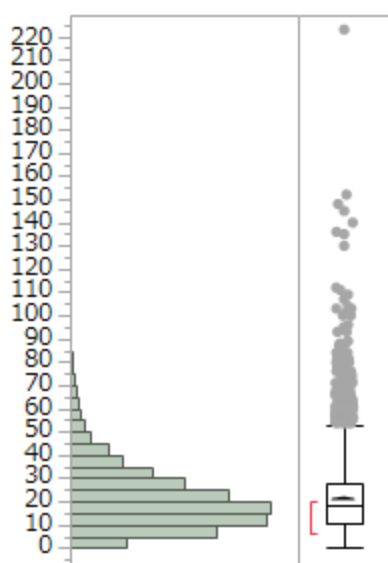
| Circumferential resection margin | Number | Percentage |
|----------------------------------|--------|------------|
| RM0 | 7513 | 84.5 |
| RM1 | 191 | 2.1 |
| Unknown | 1189 | 13.4 |
| Total | 8893 | 100 |

Table 4-26 Surgery-lymph node metastasis

| Lymph node metastasis | Number | Percentage |
|-----------------------|--------|------------|
| pN0 | 5024 | 56.5 |
| pN1 | 2040 | 22.9 |
| pN2 | 934 | 10.5 |
| pN3 | 411 | 4.6 |
| Unknown | 484 | 5.4 |
| Total | 8893 | 100 |

Table 4-27 Surgery-number of lymph node retrieved (N = 7241)

| | |
|---|-------------|
| Number of lymph node retrieved (median) | 18 (0-23) |
| Number of lymph node retrieved (mean) | 21.3 ± 14.7 |



* 外れ値検出のある箱ひげ図には次のものが表示されます。

- IQR = 第 3 四分位点- 第 1 四分位点
- 箱の端から $1.5 \times \text{IQR}$ までの範囲にある一番遠くの点までのひげ
- 外れ値の可能性のある点
- 半分のオブザベーションが含まれる最も短い範囲を示す赤い括弧

Table 4-28 Surgery-number of positive lymph node (N = 7245)

| | |
|----------------------------------|-----------|
| Number of positive node (median) | 0 (0-62) |
| Number of positive node (mean) | 1.5 ± 3.4 |

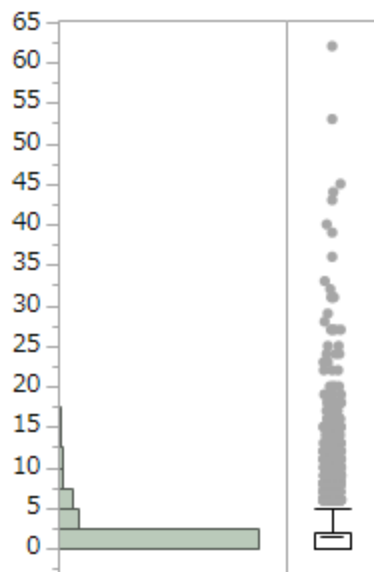


Table 4-29 Surgery-number of paracolic lymph node retrieved (N = 7228)

| | |
|---|------------|
| Number of lymph node retrieved (median) | 11 (0-193) |
| Number of lymph node retrieved (mean) | 12.6 ± 9.9 |

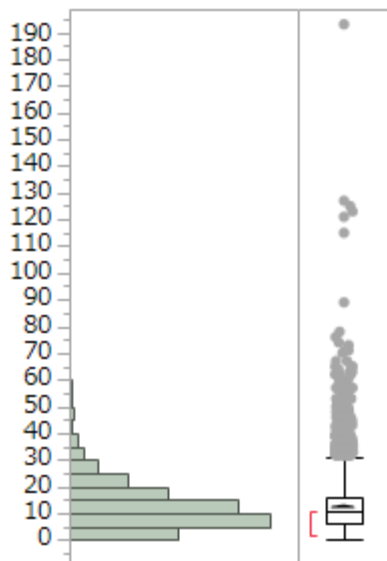


Table 4-30 Surgery-number of positive paracolic lymph node (N = 7229)

| | |
|----------------------------------|-----------|
| Number of positive node (median) | 0 (0-60) |
| Number of positive node (mean) | 1.2 ± 2.6 |

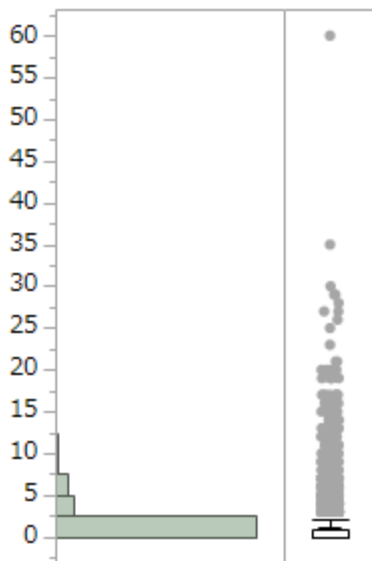


Table 4-31 Surgery-number of intermediate lymph node retrieved (N = 6924)

| | |
|---|-----------|
| Number of lymph node retrieved (median) | 5 (0-57) |
| Number of lymph node retrieved (mean) | 5.7 ± 4.5 |

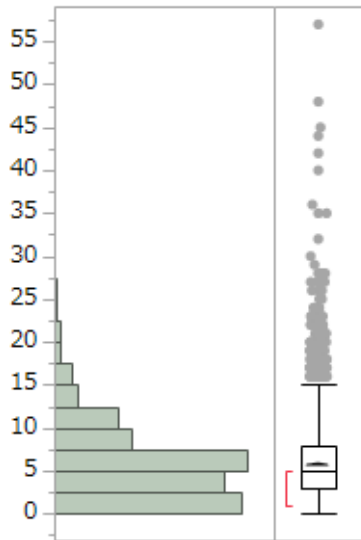


Table 4-32 Surgery-number of positive intermediate lymph node (N = 6929)

| | |
|----------------------------------|-----------|
| Number of positive node (median) | 0 (0-14) |
| Number of positive node (mean) | 0.3 ± 1.0 |



Table 4-33 Surgery-number of main lymph node retrieved (N = 5524)

| | |
|---|-----------|
| Number of lymph node retrieved (median) | 2 (0-30) |
| Number of lymph node retrieved (mean) | 3.2 ± 3.3 |

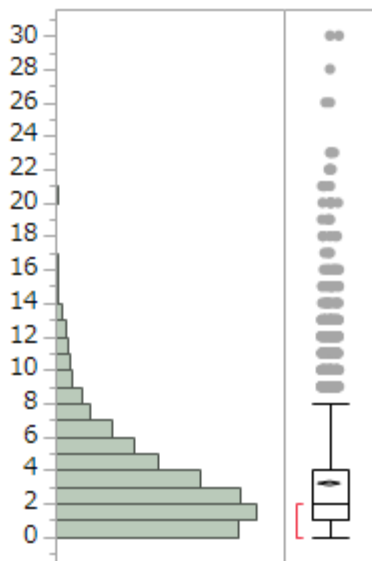


Table 4-34 Surgery-number of positive main lymph node (N = 5528)

| | |
|----------------------------------|-----------|
| Number of positive node (median) | 0 (0-14) |
| Number of positive node (mean) | 0.1 ± 0.6 |

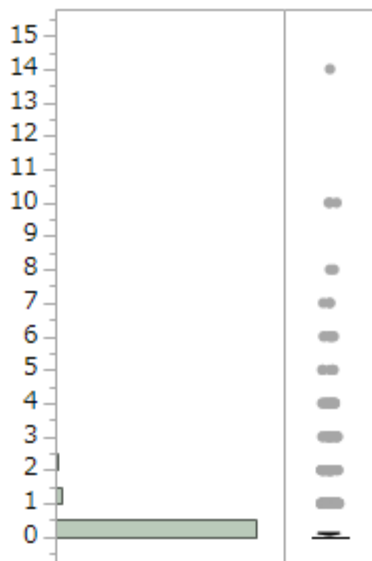


Table 4-35 Surgery-number of lateral pelvic lymph node retrieved (N = 946)

| | |
|---|------------|
| Number of lymph node retrieved (median) | 0 (0-50) |
| Number of lymph node retrieved (mean) | 7.1 ± 10.3 |

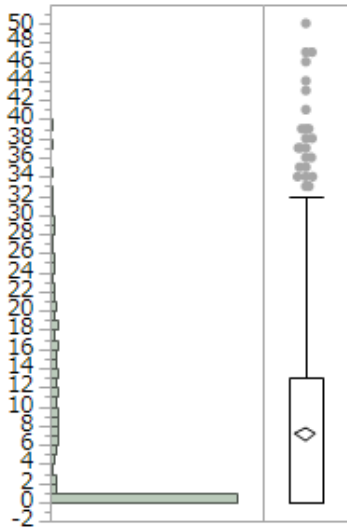


Table 4-36 Surgery-number of positive lateral pelvic lymph node (N = 947)

| | |
|----------------------------------|---------------|
| Number of positive node (median) | 0 (0-28) |
| Number of positive node (mean) | 0.3 ± 1.6 |

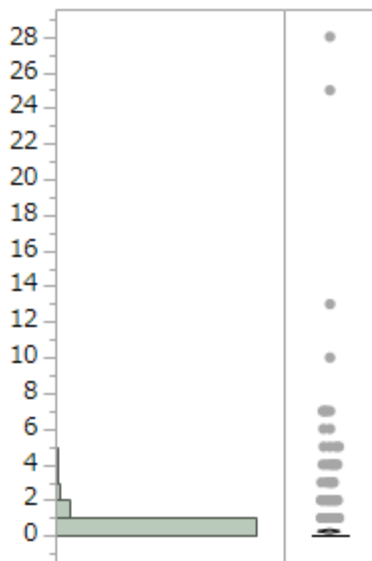


Table 4-37 Surgery-liver metastasis

| Liver metastasis | Number | Percentage |
|------------------|--------|------------|
| H0 | 7286 | 81.9 |
| H1 | 411 | 4.6 |
| H2 | 264 | 3.0 |
| H3 | 242 | 2.7 |
| Unknown | 690 | 7.8 |
| Total | 8893 | 100 |

Table 4-38 Surgery-Peritoneal metastasis

| Peritoneal metastasis | Number | Percentage |
|-----------------------|--------|------------|
| P0 | 7484 | 84.2 |
| P1 | 152 | 1.7 |
| P2 | 82 | 0.9 |
| P3 | 116 | 1.3 |
| Unknown | 1059 | 11.9 |
| Total | 8893 | 100 |

Table 4-39 Surgery-Distant metastasis other than liver

| Distant metastasis | Number | Percentage |
|--------------------|--------|------------|
| M0 | 7353 | 82.7 |
| M1 | 632 | 7.1 |
| Unknown | 908 | 10.2 |
| Total | 8893 | 100 |

Table 4-40 Surgery-Lung metastasis

| Lung metastasis | Number | Percentage |
|-----------------|--------|------------|
| LM0 | 7463 | 83.9 |
| LM1 | 190 | 2.1 |
| LM2 | 54 | 0.6 |
| LM3 | 84 | 0.9 |
| Unknown | 1103 | 12.4 |
| Total | 8893 | 100 |

Table 4-41 Surgery-Curability after surgery

| Curability | Number | Percentage |
|------------|--------|------------|
| Cur A | 7032 | 79.1 |
| Cur B | 305 | 3.4 |
| Cur C | 1044 | 11.7 |
| Unknown | 512 | 5.8 |
| Total | 8893 | 100 |

Table 4-42 Surgery-Recurrence after surgery

| recurrence | Number | Percentage |
|------------|--------|------------|
| Absent | 6564 | 73.8 |
| Present | 1471 | 16.5 |
| Unknown | 858 | 9.6 |
| Total | 8893 | 100 |

Table 4-43 Surgery-Recurrence rate according to stage

| | Stage 0 | Stage I | Stage II | Stage IIIa | Stage IIIb | Stage IV | Unknown |
|---------|------------|-------------|-------------|-------------|------------|------------|------------|
| Absent | 283 (89.8) | 1537 (91.9) | 1995 (82.3) | 1008 (74.6) | 578 (58.6) | 660 (46.2) | 503 (70.4) |
| Present | 6 (1.9) | 64 (3.8) | 300 (12.4) | 289 (21.4) | 357 (36.2) | 355 (24.9) | 100 (14.0) |
| Unknown | 26 (8.3) | 71 (4.3) | 130 (5.4) | 54 (4.0) | 52 (5.3) | 413 (28.9) | 112 (15.7) |
| Total | 315 | 1672 | 2425 | 1351 | 987 | 1428 | 715 |

Table 4-44 Surgery-Recurrence site after surgery

| First recurrence site | Number |
|---------------------------|--------|
| Anastomosis | 75 |
| Regional lymph node | 104 |
| Local | 139 |
| Lymph node (not regional) | 141 |
| Liver | 564 |
| Lung | 456 |
| Peritoneum | 211 |
| Bone | 41 |
| Brain | 11 |
| Adrenal gland | 8 |
| Skin | 3 |
| Others | 75 |
| (overlapping+) | |

Table 4-45 Surgery-Treatment after recurrence

| Treatment for recurrence | Number | Percentage |
|--------------------------|--------|------------|
| None | 293 | 19.9 |
| Curative surgery | 505 | 34.3 |
| Palliative surgery | 34 | 2.3 |
| Radiation | 48 | 3.3 |
| Chemotherapy | 562 | 38.2 |
| Others | 17 | 1.2 |
| Unknown | 12 | 0.8 |
| Total | 1471 | 100 |

Table 4-46 Surgery-Overall survival rates after surgery (%)

| Group | Number of patients | 1 year | 2 years | 3 years | 4 years | 5 years |
|------------|--------------------|--------|---------|---------|---------|---------|
| Stage 0 | 315 | 98.3 | 96.5 | 94.5 | 94.1 | 93.2 |
| Stage I | 1672 | 98.4 | 96.6 | 95.0 | 93.3 | 91.4 |
| Stage II | 2425 | 96.5 | 94.1 | 91.6 | 87.9 | 85.1 |
| Stage IIIa | 1351 | 96.1 | 92.5 | 89.5 | 85.8 | 83.1 |
| Stage IIIb | 987 | 95.7 | 86.4 | 80.3 | 74.2 | 70.0 |
| Stage IV | 1428 | 76.6 | 59.8 | 46.0 | 37.7 | 31.9 |
| Unknown | 715 | | | | | |
| All | 8893 | 93.4 | 87.7 | 83.0 | 78.8 | 75.7 |

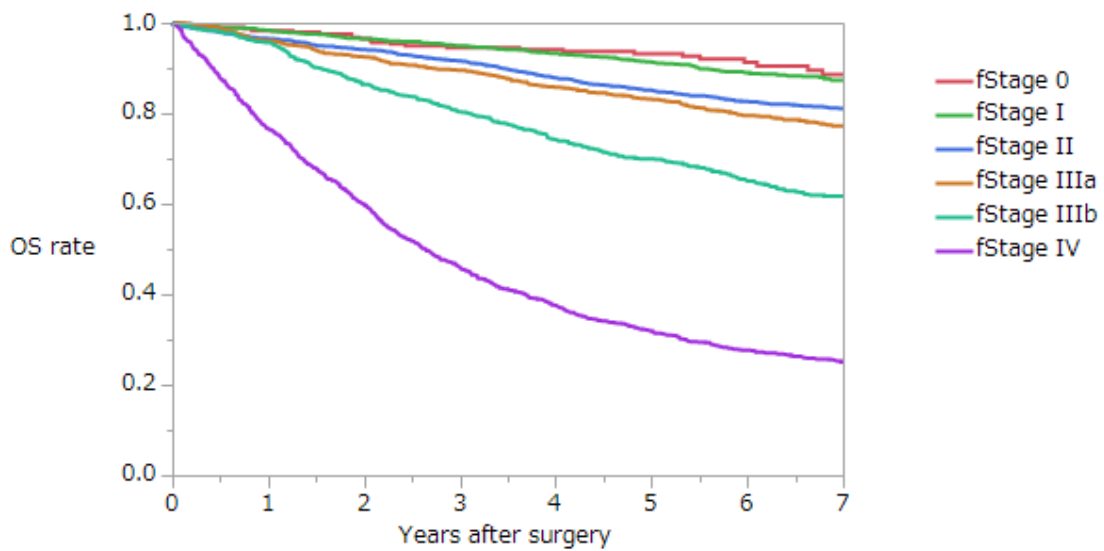


Table 4-47 Surgery-Overall survival rates after surgery (colon) (%)

| Group | Number of patients | 1 year | 2 years | 3 years | 4 years | 5 years |
|------------|--------------------|--------|---------|---------|---------|---------|
| Stage 0 | 209 | 98.0 | 95.2 | 94.1 | 93.4 | 92.1 |
| Stage I | 914 | 98.6 | 96.4 | 94.8 | 93.1 | 91.6 |
| Stage II | 1569 | 96.5 | 94.5 | 91.9 | 87.9 | 85.1 |
| Stage IIIa | 796 | 95.7 | 91.9 | 88.3 | 85.3 | 82.7 |
| Stage IIIb | 549 | 94.6 | 84.3 | 78.4 | 73.2 | 70.3 |
| Stage IV | 905 | 73.6 | 55.8 | 43.0 | 34.4 | 28.7 |
| All | 4942 | 92.4 | 86.3 | 81.7 | 77.5 | 74.5 |

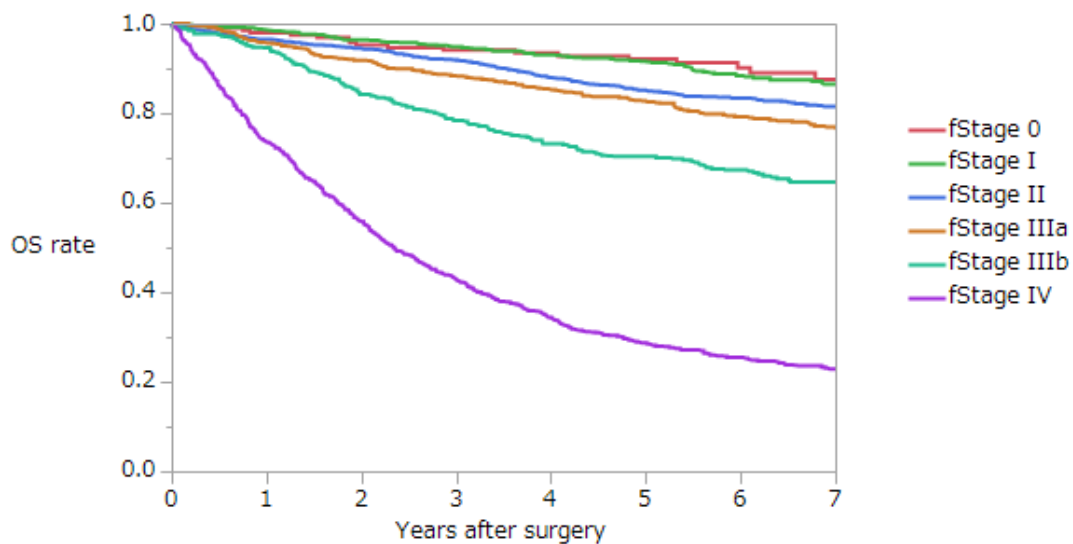


Table 4-48 Surgery-Overall survival rates after surgery (rectum) (%)

| Group | Number of patients | 1 year | 2 years | 3 years | 4 years | 5 years |
|------------|--------------------|--------|---------|---------|---------|---------|
| Stage 0 | 91 | 98.8 | 98.8 | 96.0 | 96.0 | 96.0 |
| Stage I | 718 | 98.0 | 96.6 | 94.9 | 93.2 | 90.6 |
| Stage II | 803 | 96.8 | 93.4 | 91.0 | 87.4 | 84.7 |
| Stage IIIa | 517 | 96.7 | 93.2 | 90.9 | 86.1 | 83.1 |
| Stage IIIb | 423 | 96.9 | 89.0 | 82.4 | 74.9 | 68.8 |
| Stage IV | 458 | 82.7 | 67.8 | 51.3 | 43.1 | 37.7 |
| All | 3010 | 95.0 | 89.9 | 85.0 | 80.6 | 77.1 |

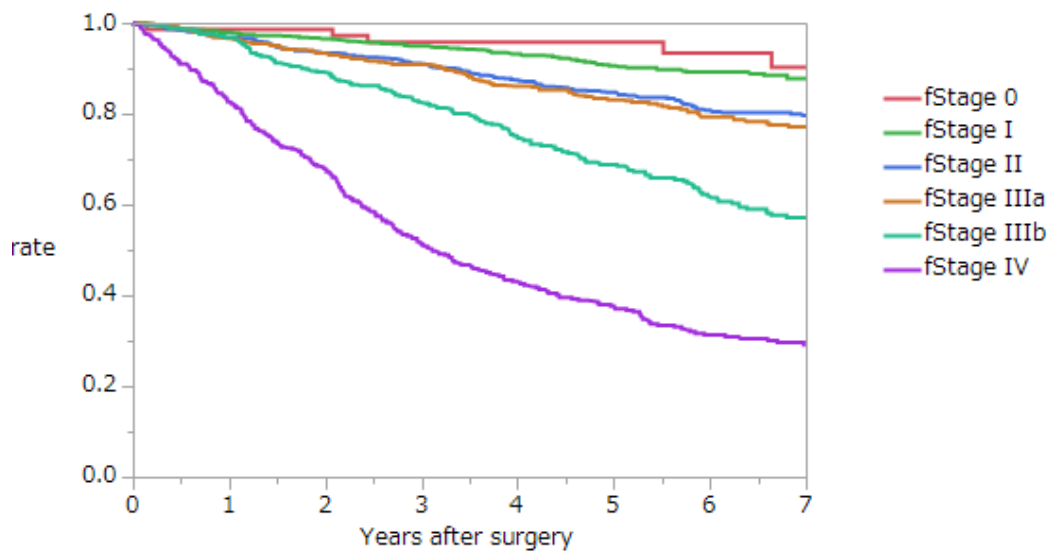


Table 4-49 Surgery-Overall survival rates according to liver metastasis (%)

| Group | Number of patients | 1 year | 2 years | 3 years | 4 years | 5 years |
|------------------------|--------------------|--------|---------|---------|---------|---------|
| H0 | 7286 | 95.8 | 91.5 | 88.2 | 84.6 | 81.5 |
| H1 | 411 | 84.9 | 71.0 | 59.4 | 48.2 | 40.1 |
| H2 | 264 | 71.6 | 52.7 | 35.7 | 28.3 | 23.7 |
| H3 | 242 | 64.3 | 46.2 | 29.5 | 20.2 | 16.9 |
| Unknown | 690 | | | | | |
| All except for unknown | 8203 | 93.6 | 88.0 | 83.5 | 79.4 | 76.0 |

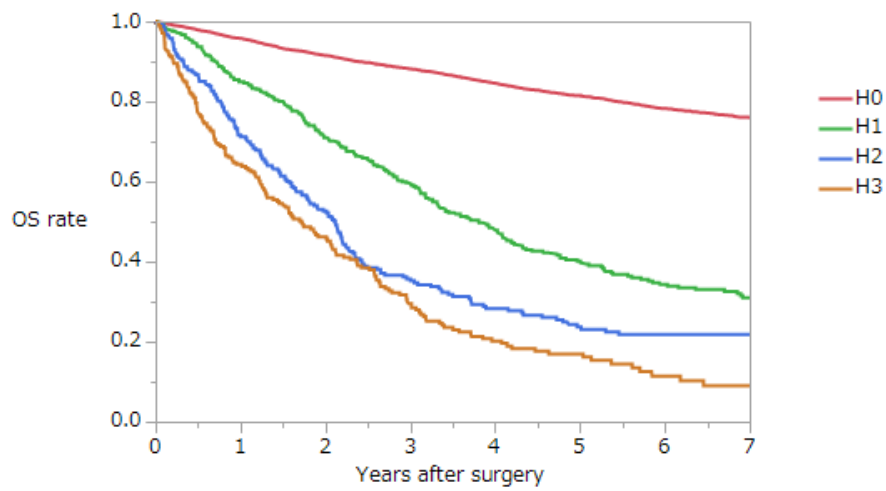


Table 4-50 Surgery-Overall survival rates according to peritoneal metastasis (%)

| Group | Number of patients | 1 year | 2 years | 3 years | 4 years | 5 years |
|------------------------|--------------------|--------|---------|---------|---------|---------|
| P0 | 7484 | 94.7 | 89.6 | 85.4 | 81.2 | 78.2 |
| P1 | 152 | 70.8 | 55.0 | 39.1 | 27.3 | 20.4 |
| P2 | 82 | 67.8 | 48.6 | 25.9 | 21.1 | 15.6 |
| P3 | 116 | 51.2 | 30.8 | 21.9 | 15.7 | 11.2 |
| Unknown | 1059 | | | | | |
| All except for unknown | 7834 | 93.3 | 87.7 | 83.0 | 78.7 | 75.6 |

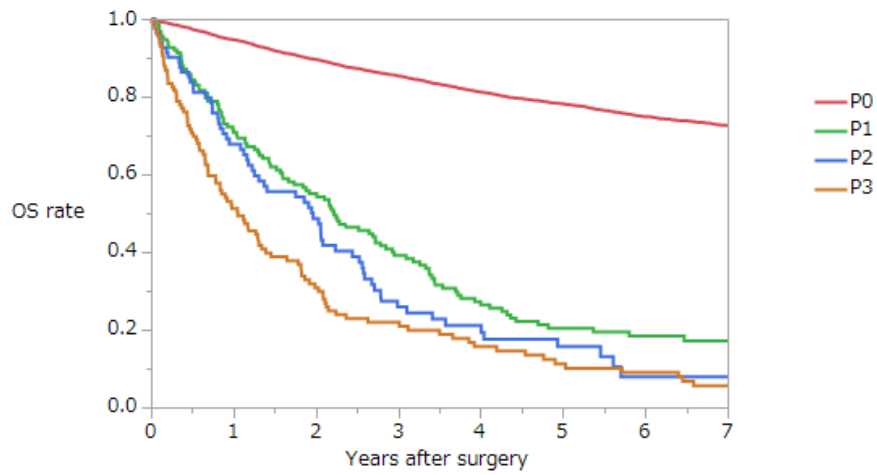


Table 4-51 Surgery-Overall survival rates according to lung metastasis (%)

| Group | Number of patients | 1 year | 2 years | 3 years | 4 years | 5 years |
|------------------------|--------------------|--------|---------|---------|---------|---------|
| LM0 | 7463 | 94.0 | 89.0 | 84.7 | 80.6 | 77.6 |
| LM1 | 190 | 80.1 | 61.0 | 45.7 | 39.2 | 31.8 |
| LM2 | 54 | 68.8 | 49.8 | 37.4 | 29.9 | 26.6 |
| LM3 | 84 | 76.5 | 45.1 | 36.2 | 19.2 | 13.1 |
| Unknown | 1103 | | | | | |
| All except for unknown | 7790 | 93.3 | 87.6 | 83.0 | 78.7 | 75.6 |

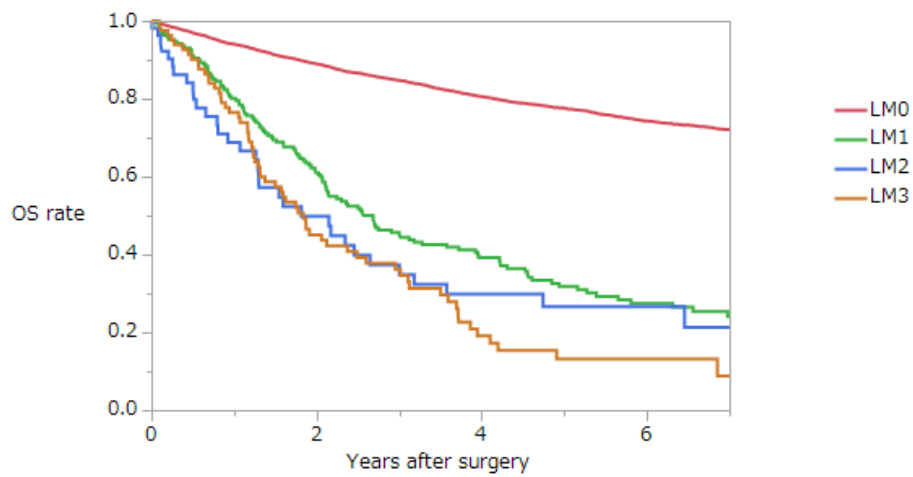


Table 4-52 Surgery-Overall survival rates according to distant metastasis other than liver metastasis (%)

| Group | Number of patients | 1 year | 2 years | 3 years | 4 years | 5 years |
|------------------------|--------------------|--------|---------|---------|---------|---------|
| M0 | 7353 | 95.4 | 90.9 | 87.1 | 83.2 | 80.0 |
| M1 | 632 | 73.0 | 53.5 | 39.2 | 30.9 | 25.0 |
| Unknown | 908 | | | | | |
| All except for unknown | 7985 | 93.6 | 88.0 | 83.4 | 79.2 | 75.8 |

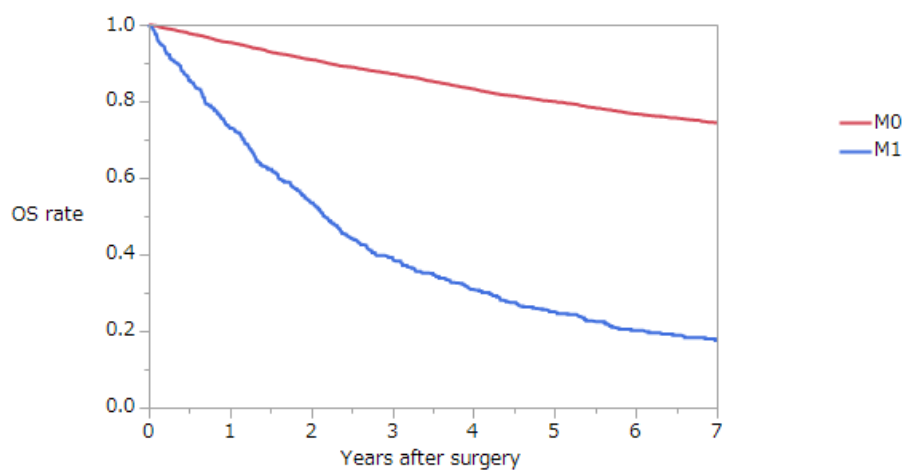
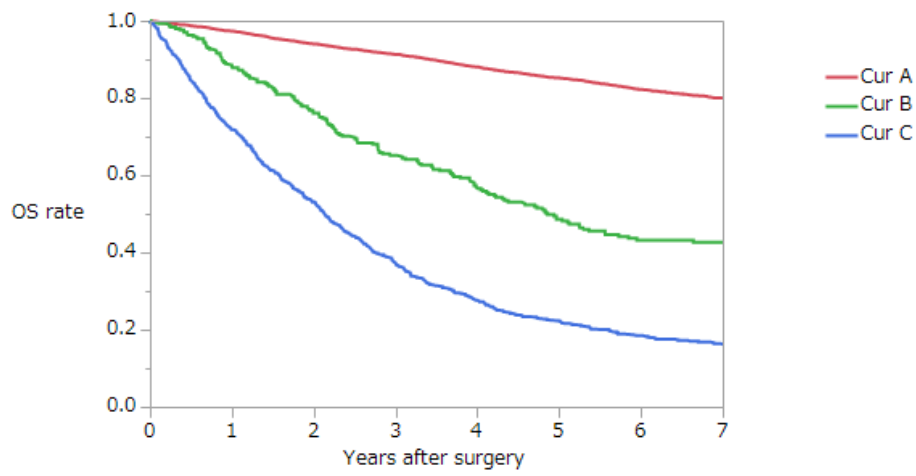


Table 4-53 Surgery-Overall survival rates according to curability (%)

| Group | Number of patients | 1 year | 2 years | 3 years | 4 years | 5 years |
|------------------------|--------------------|--------|---------|---------|---------|---------|
| Cur A | 7032 | 97.4 | 94.1 | 91.3 | 88.1 | 85.3 |
| Cur B | 305 | 88.2 | 76.1 | 65.2 | 57.0 | 48.6 |
| Cur C | 1044 | 71.8 | 53.1 | 37.3 | 27.6 | 22.3 |
| Unknown | 512 | | | | | |
| All except for unknown | 8381 | 93.9 | 88.5 | 84.0 | 79.9 | 76.6 |



Participating institutions

相澤病院 外科
愛知県がんセンター中央病院 消化器外科
旭川医科大学 消化管外科
有田胃腸病院
石川県立中央病院 消化器外科
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国立病院機構埼玉病院 外科
札幌医科大学 消化器・総合、乳腺・内分泌外科学
静岡がんセンター 大腸外科
順天堂大学医学部附属浦安病院 消化器・一般外科
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帝京大学ちば総合医療センター 外科
東京医科大学 消化器外科・小児外科
東京慈恵会医科大学 下部消化管外科
東京女子医科大学 消化器・一般外科
東京女子医科大学東医療センター 外科
東京大学 腫瘍外科
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南風病院
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Multi-institutional Registry of Large Bowel Cancer
in Japan

Vol. 39
Cases treated in 2013

2022年（令和4年）1月31日発行

発行者
大腸癌研究会

全国登録委員会：帝京大学医学部附属溝口病院
〒213-8507 神奈川県川崎市高津区二子 5-1-1
TEL 044-844-3333
