Simultaneous laparoscopic resection for colorectal cancer and synchronous liver metastases

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Colorectal cancer (CRC)

Epidemiology.

- The 3rd most common malignancy worldwide\(^1\)
- Second leading cause of cancer-related death in Western world\(^2\)
- 20-25\% of all patients are presented with synchronous colorectal cancer liver metastases (SCLMs) at the time of diagnosis\(^3\)
- Majority of patients (70-95\%) with SCLMs are not candidates for curative treatment\(^4\)
- Surgical resection of SCLMs provides 5-year survival of 30\% \(^5\)
Surgery for SCLMs --- Strategy

The optimal timing of resection is ....
Surgery for SCLMs

Treatment strategies for resections

1. Classical approach (colorectal resection → systemic chemotherapy → liver resection ± additional systemic chemotherapy)
2. Reverse ("liver-first") approach
Staged vs Simultaneous Resections for SCLMs

*Advantages of simultaneous procedures.*

- Avoidance of second operation
- Complete surgery and earlier initiation of adjuvant therapy\(^6\)
- Lower risk of disease dissemination\(^8\)
- Better psychological effect on patient\(^7\)
Staged vs Simultaneous Resections for SCLMs

- Similar overall survival between two groups
  (R. J. de Haas et al. 2010)
  Hopital Paul Brousse, Paris
  55 pat simultaneous
  173 pat staged, classic
Staged vs Simultaneous Resections for SCLMs

Disadvantages of simultaneous procedures from literature

- Significant length of incision or two incisions at the same time due to necessity of having adequate exposition
- High rate of early postoperative morbidity and mortality, following simultaneous resections \(^{10,11}\) (?)
- Increased risk of anastomotic leakage (impaired liver function; massive blood loss, transient portal hypertension and intestinal edema in case of pedicle clamping) \(^{6,12}\) (?)
- Higher incidence of postoperative infectious complications (hepatic acute-phase response) \(^{13}\) (?)
- Decreased long-term disease-free survival, despite of similar overall survival \(^{9}\) (?)
- Impossibility to perform ‘test of time’ for assessment of tumour progression \(^{14}\)
Staged vs Simultaneous Resections for SCLMs

The meta-analysis performed by Chen J et al. (2011)

<table>
<thead>
<tr>
<th>First author</th>
<th>Year</th>
<th>Country</th>
<th>Study type</th>
<th>Simultaneous resection</th>
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*Retro* retrospective, *NR* not recorded
Staged vs Simultaneous Resections for SCLMs

Results
- Lower perioperative morbidity and hospital stay in simultaneous resection
Staged vs Simultaneous Resections for SCLMs

Results
- No significant difference between two groups in overall 1, 3, 5-year survival
Staged vs Simultaneous Resections for SCLMs

**Shortcomings of the study**

- Only retrospective studies included
- Not any RCT performed up-to-date
- High heterogeneity caused by differences in sample sizes and perioperative data
- Potential publication bias

Hence, the results should be interpreted carefully!
Laparoscopic simultaneous resection for SCLMs

*Seems advantageous, compared with open approach, in terms of...*

- Good visualization during the operation (for example, in narrow pelvis)
- Reduced trauma (parietal damage in the abdomen and length of incision)
- Less postoperative pain
- Faster recovery of bowel function
- Lower rate of postoperative ileus
- Short recovery period and *earlier start of adjuvant chemotherapy*

*On the other hand...*

- Has some technical difficulties
- Requires advanced skills in laparoscopy
Different techniques in laparoscopic simultaneous resection for SCLMs \(^{17,18}\)

**Total laparoscopic**

**Laparoscopic hand-assisted**
Laparoscopic simultaneous resection for SCLMs

*According to study reports, appears to be.*

- Feasible and safe, particularly in combined procedures with minor hepatectomies
- No increase of morbidity and short hospital stay
- Facilitates intraoperative staging and prevents unnecessary laparotomy
- Provides better quality of life
Laparoscopic simultaneous resection for SCLMs

- No significant difference in overall survival rates, compared with open technique \(^{20}\)
Laparoscopic simultaneous resection for SCLMs

*Can indicate to conversion...*

- Abdominal adhesions
- Narrow pelvis
- Major bleeding during transection of liver
- ....

*Present limitations...*

- General limitations for laparoscopy
- Lesion location in posterior and superior segments of liver (I, VII, VIII) and close relation to major vessels\(^\text{16}\)
- The necessity of vascular control performing major hepatectomies\(^\text{16}\)
- ......
Discussion

- Feasible, safe and similar results
- Open / laparoscopic
- What type of colon resections and liver resection
Reference list


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Laparoscopic assisted combined resection for SCLMs

- 1 supraumbilical port set to create pneumoperitoneum, followed by 4 additional ports for colorectal resection
- 10mm port set at convenient site and upper-midline incision for specimen extraction and subsequent liver resection
Simultaneous resection for SCLMs

**Several restrictions**

- Presence of chronic liver diseases\(^\text{15}\)
- Identification of preoperatively unrecognized metastatic lesions
- Colon perforation, because of higher risk of peritoneal carcinomatosis\(^\text{15}\)
- Urgent surgery due to complications from CRC (i.e. bleeding, stenosis)
- Major hepatic resections\(^\text{9}\)