

Simultaneous laparoscopic resection for colorectal cancer and synchronous liver metastases

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Colorectal cancer (CRC)

Epidemiology.

- The 3rd most common malignancy worldwide¹
- Second leading cause of cancer-related death in Western world²
- 20-25% of all patients are presented with synchronous colorectal cancer liver metastases (SCLMs) at the time of diagnosis³
- majority of patients (70-95%) with SCLMs are not candidates for curative treatment⁴
- 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

Staged



1. Classical approach (colorectal resection → systemic chemotherapy → liver resection ± additional systemic chemotherapy)
2. **Reverse (“liver-first”) approach**

Simultaneous



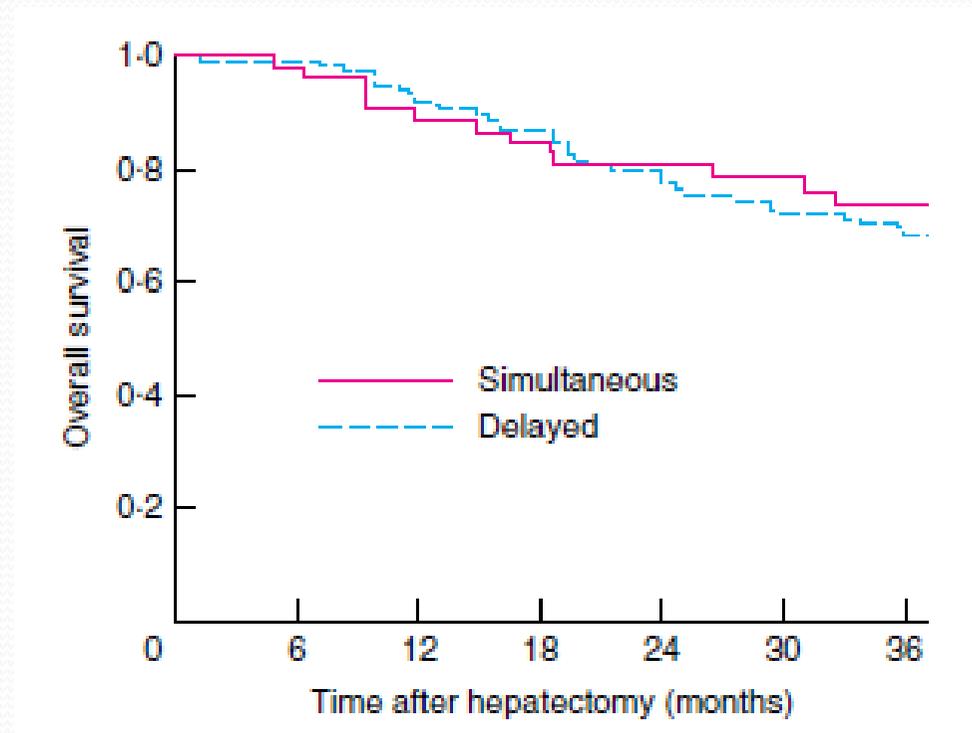
Staged vs Simultaneous Resections for SCLMs

Advantages of simultaneous procedures.

- Avoidance of second operation
- Complete surgery and earlier initiation of adjuvant therapy⁶
- Lower risk of disease dissemination⁸
- Better psychological effect on patient⁷

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 survival⁹ (?)
- Impossibility to perform 'test of time' for assessment of tumour progression¹⁴

Staged vs Simultaneous Resections for SCLMs

The meta-analysis performed by Chen J et al. (2011)¹⁵

Table 1 Characteristics of included studies

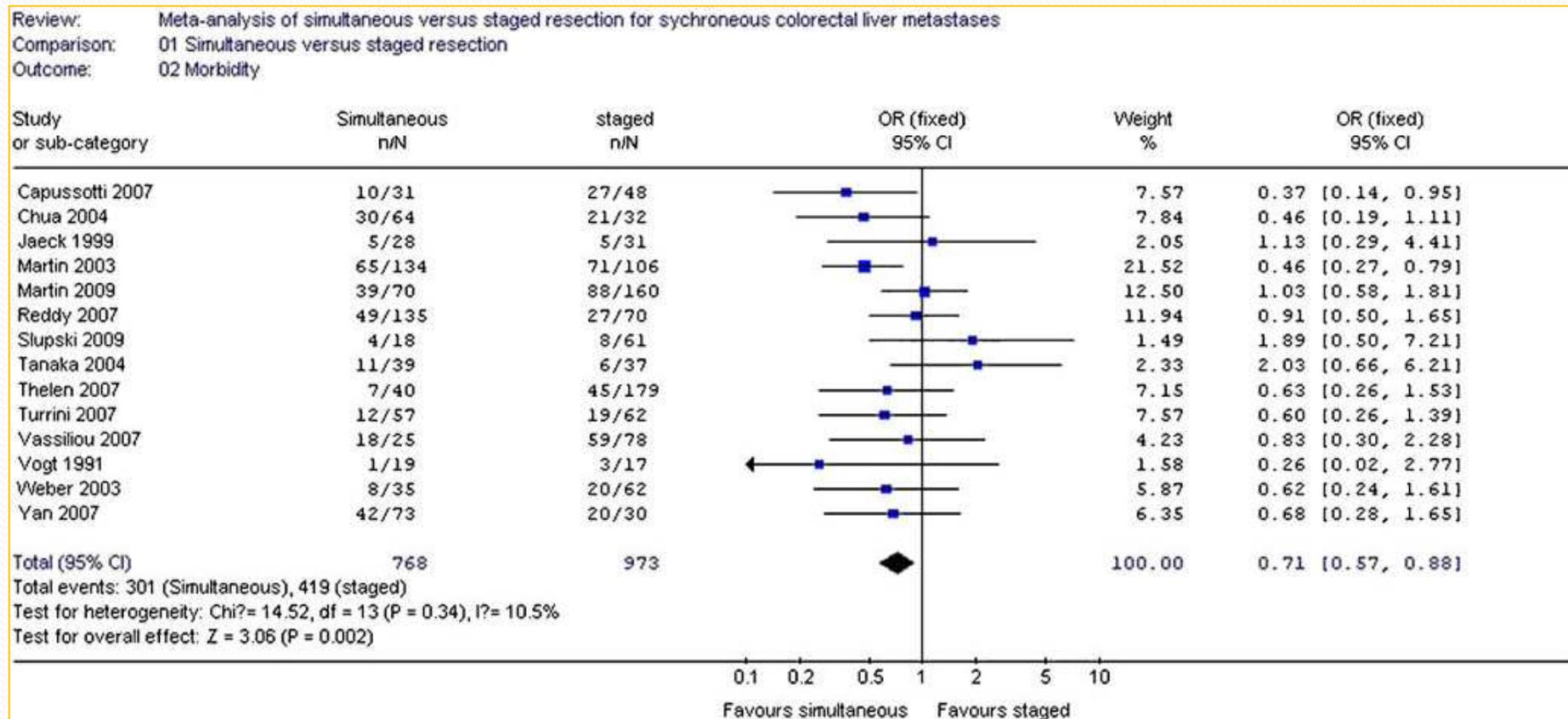
First author	Year	Country	Study type	Simultaneous resection		Staged resection		Quality score
				Patients	Age	Patients	Age	
Capussotti et al. [29]	2007	Italy	Retro	70	64.9	57	60	8
Chua et al. [16]	2004	America	Retro	64	63	32	61	8
Jaeck et al. [36]	1999	France	Retro	28	56	31	60	6
Martin et al. [15]	2003	America	Retro	134	64	106	61	8
Martin et al. [27]	2009	America	Retro	70	58	160	61	8
Reddy et al. [30]	2007	America	Retro	135	57	475	58	8
Slupski et al. [35]	2009	Poland	Retro	28	59.4	61	60.2	7
Tanaka et al. [28]	2004	Japan	Retro	39	64	37	65	8
Thelen et al. [31]	2007	German	Retro	40	60.5	179	59.7	7
Turrini et al. [32]	2007	France	Retro	57	60	62	59	9
Vassiliou et al. [33]	2007	Greece	Retro	25	63	78	61	7
Vogt et al. [25]	1991	German	Retro	19	NR	17	NR	6
Weber et al. [26]	2003	France	Retro	35	58	62	60	8
Yan et al. [34]	2007	Australia	Retro	73	60	30	59	8

Retro retrospective, *NR* not recorded

Staged vs Simultaneous Resections for SCLMs

Results

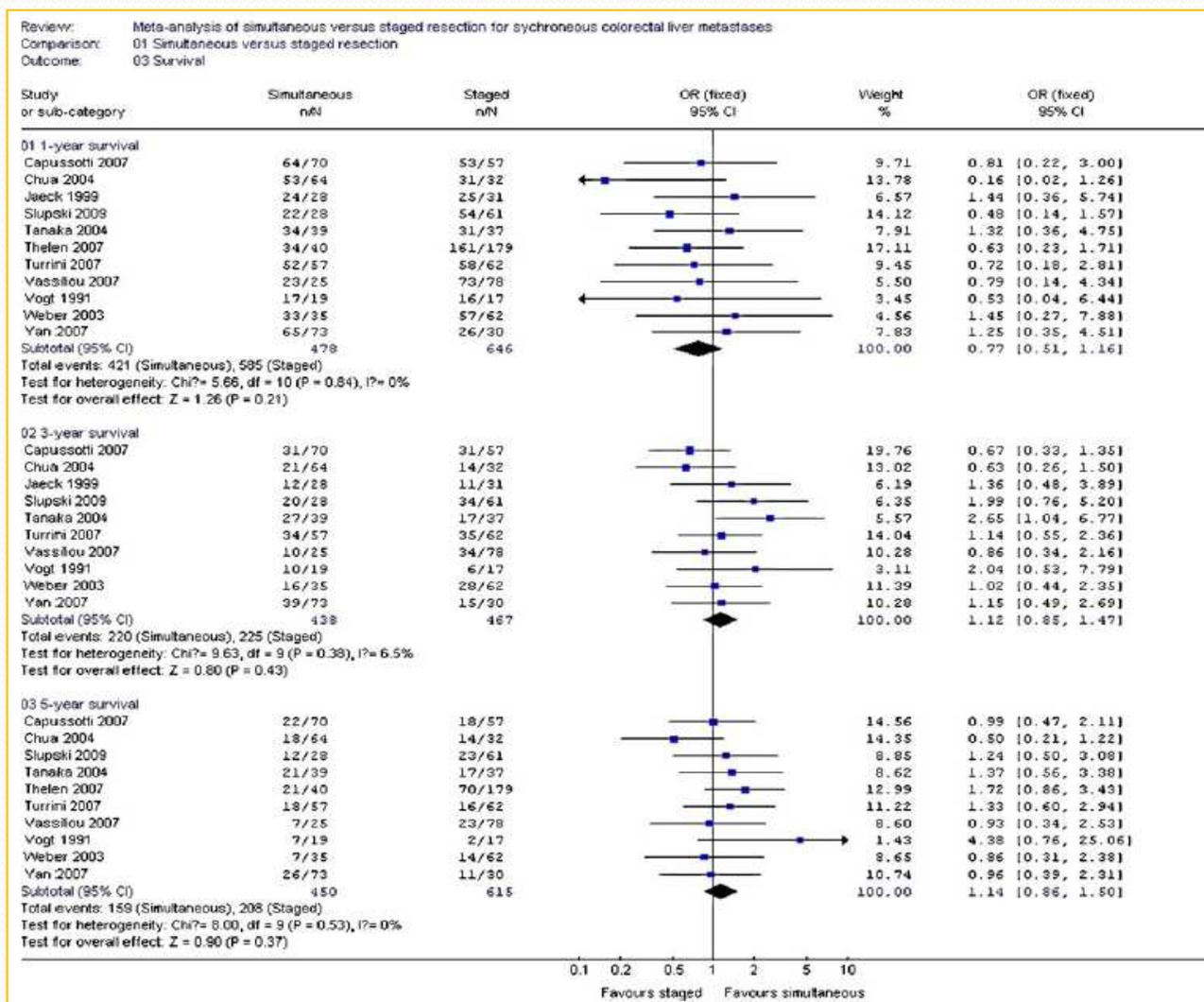
- Lower perioperative morbidity and hospital stay in simulataneous resection



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 bias¹⁵

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 ileus¹⁶
- Short recovery period and *earlier start of adjuvant chemotherapy*

On the other hand..

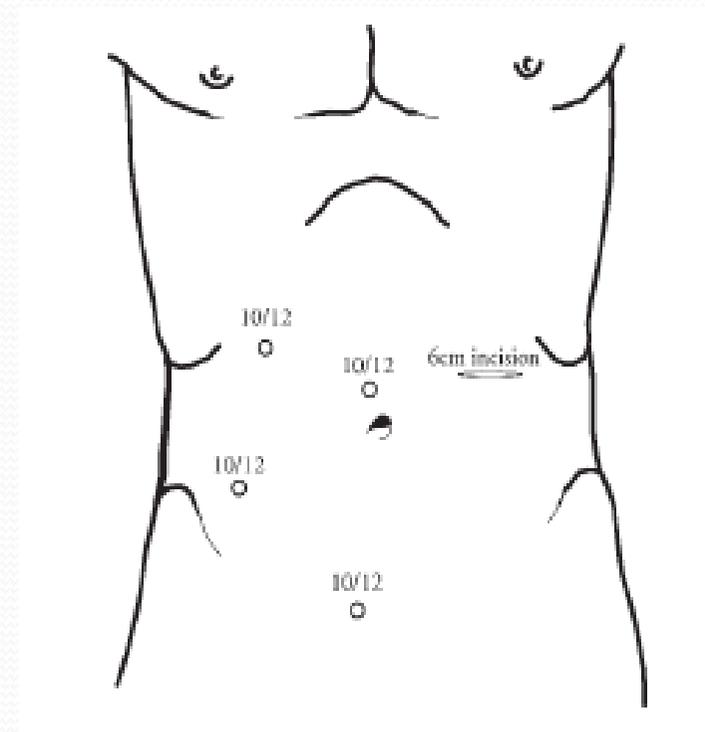
- Has some technical difficulties
- Requires advanced skills in laparoscopy

Different techniques in laparoscopic simultaneous resection for SCLMs ^{17,18}

Total laparoscopic



Laparoscopic hand-assisted





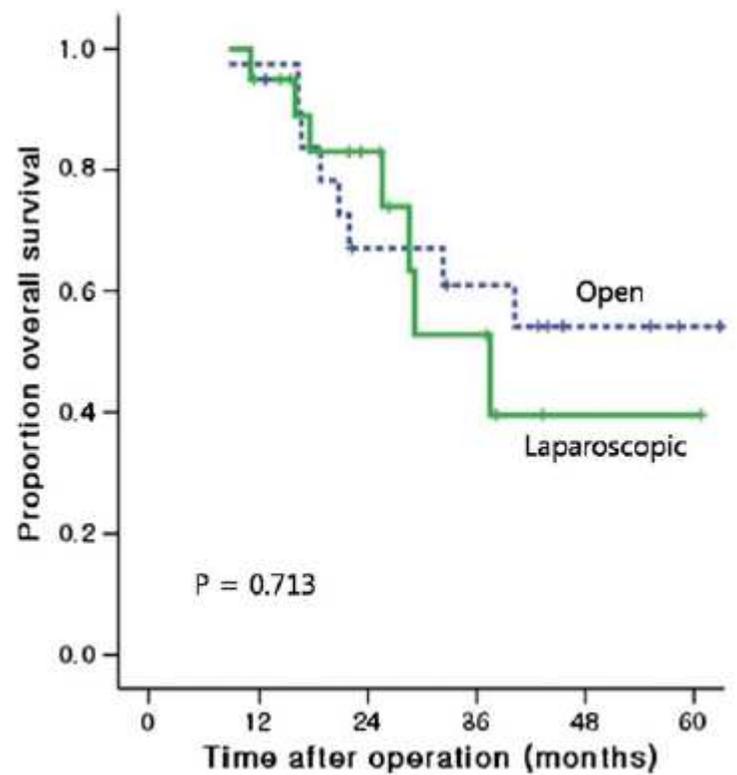
Laparoscopic simultaneous resection for SCLMs

According to study reports, appears to be.

- Feasible and safe, particularly in combined procedures with minor hepatectomies¹⁷
- No increase of morbidity and short hospital stay ¹⁷
- 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 technique²⁰



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 vessels¹⁶
- The necessity of vascular control performing major hepatectomies¹⁶
-

Discussion

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

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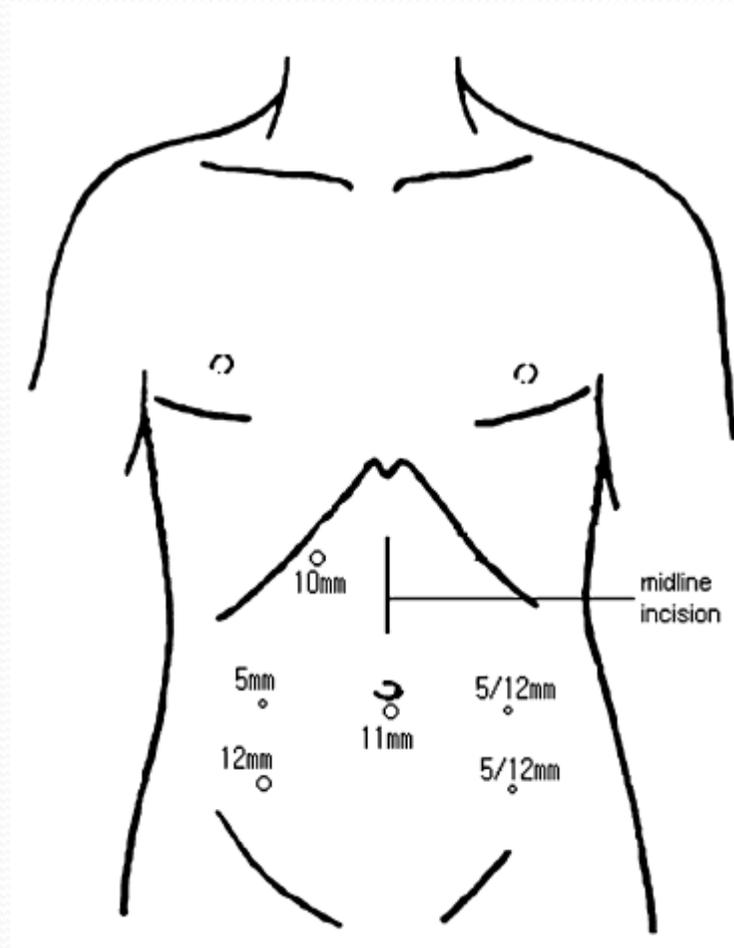
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Laparoscopic assisted combined resection for SCLMs¹⁹

- 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

- Presense of chronic liver diseases¹⁵
- Identification of preoperatively unrecognized metastatic lesions
- Colon perforation, because of higher risk of peritoneal carcinomatosis¹⁵
- Urgent sugery due to complications from CRC (i.e. bleeding, stenosis)
- Major hepatic resections⁹