

# Simultaneous Liver and Lung Resection for Metastatic Colorectal Cancer: A Scoping Review

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## BACKGROUND

- 1/3 patients with colorectal cancer develop metastases, most commonly in liver and lung
- Surgical resection of liver and lung metastasis is offered in select patients often using a staged approach
- Simultaneous resection is gaining interest to reduce morbidity associated with multiple anesthetics and hospital stays

## OBJECTIVES

- To summarize current literature describing simultaneous liver and lung metastasectomy in colorectal cancer patients
- Describe intra-operative details and post-operative outcomes of simultaneous resection techniques
- Explore the potential safety and feasibility of this surgical approach

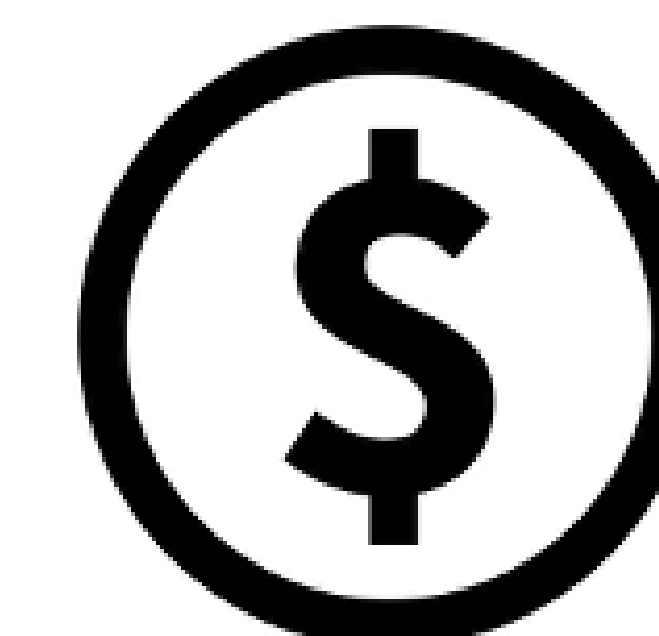
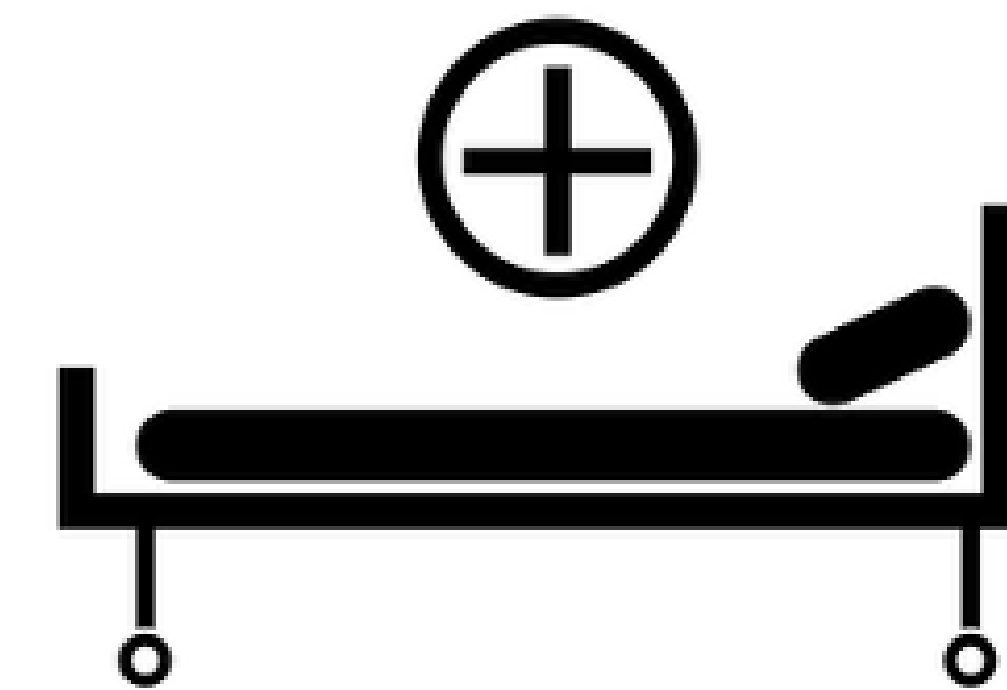
## METHODS

- Structured search strategy identified English articles between 1990 to 2025 in Medline, Embase, Cochrane and Web of Science databases
- Included patients who underwent simultaneous resection of colorectal cancer liver and lung metastases within a single anesthetic period through varying techniques
- Two reviewers assessed articles and performed standardized data extraction of outcomes of interest

## RESULTS

- 2687 articles; 12 studies included
- 108 patients underwent simultaneous resection
- 95% surgeries performed via open approach
- 73% performed liver resection first

| LUNG                                                                                                                                                                                                        | LIVER                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• Wedge resection most common</li><li>• Major resections minority of cases</li><li>• 67% right sided lesions</li><li>• Bilateral/left lesions also resected</li></ul> | <ul style="list-style-type: none"><li>• Even distribution of minor/major resections</li></ul> |



| INTRA-OPERATIVE DETAILS                                                                                                                           | HOSPITAL LENGTH OF STAY                                                                                                                                          | HOSPITAL COSTS                                                                                      | POST-OPERATIVE OUTCOMES                                                                                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• OR time → range 3-13 hours</li><li>• Extent of liver resection increased OR time and blood loss</li></ul> | <ul style="list-style-type: none"><li>• Range 4-39 days</li><li>• Mean 6-9 days (open approaches) (N=3)</li><li>• Reduced LOS vs staged approach (N=1)</li></ul> | <ul style="list-style-type: none"><li>• Decreased hospital costs vs staged approach (N=1)</li></ul> | <ul style="list-style-type: none"><li>• 25% peri-operative complication rate</li><li>• No 90-day mortality</li><li>• 5-year OS comparable to staged resection</li></ul> |

## CONCLUSION

- In select patients, simultaneous resection may be a safe and feasible approach
- Limited by missing reported data, heterogenous outcome reporting and wide time frame
- Future studies should consider standard outcomes reporting, compare to staged approaches, and assess the role of minimally invasive surgery
- Studies should also attempt to capture decision making and patient quality of life outcomes

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LOS – Length of Stay, OR – Operating Room, OS – Overall Survival