

Minimally invasive versus open hepatectomy for the resection of colorectal liver metastases: a systematic review and meta-analysis

Supplementary Appendix 1: Literature Search Summary Chart

Guideline: SAGES/AHPBA Joint Minimally Invasive Hepatectomy Guidelines
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PICO Questions - Run Dates: 4/23-28/20 ; Update run: 9/21/20			
Additional search terms to those listed below:			
Languages: English Age: All Species: Not Animals Publication years: All	Studies: Case series, Clinical study, Comparative study, Evaluation study, Guideline, Meta-analysis, Multicenter study, Systematic review, Validation study NOT Case reports		
Database searched (Coverage)		Additional databases used	
Systematic Reviews __X__ Cochrane Library (2009-2020) Clinical Trials __X__ Clinicaltrials.gov (2000-2020)	Medicine __X__ Embase (1947-2020) __X__ PubMed (1809/1966-2020)	__X__ ICTRP (International Clinical Trials Registry Platform) __X__ Google Scholar	
Statistics after combining all search results			
SEARCH RESULTS	Total Records Identified	2304	
	Total duplicates (after combining all searches: Endnotes: 1165; Covidence: 43; update: 41)	1249	
	Total items to be screened after combining all PICO searches	1055	
1. Should Open vs. MIS (laparoscopic, robotic, hybrid) Hepatectomy be used for resectable* Colon Liver Metastases (CLM), when performed separately from colectomy)			
	Concept A	Concept B	Concept C
MESH terms	hepatectomy	(colorectal neoplasms colonic Neoplasms) neoplasm metastasis	
Text words	hepatectomy OR hepatectomies liver resection laparoscopy AND liver	CLM CRLM CRCLM colorectal cancer colorectal liver metastasis colon AND (metastasis OR metastatic)	Open
Database	Final search strategies		Results
PubMed Q1	((hepatectomies[tw] OR Hepatectomy[tw] OR "hepatectomy"[MeSH Terms] OR "liver resection"[tw] OR (Laparoscopy AND Liver)) AND ("colorectal neoplasms"[MAJR] OR "colorectal cancer"[tw] OR "Colonic Neoplasms"[mh] OR		326

	"colon cancer"[tw] OR (colon [tw] AND (metastasis[tw] OR metastases[tw] OR metastatic[tw])) OR CLM[tw] OR CRLM[tw] OR CRCLM[tw] OR "neoplasm metastasis"[mh]) AND (open [tiab] OR open [ot]) AND (Case Reports[ptyp] OR Clinical Study[ptyp] OR Comparative Study[ptyp] OR Meta-Analysis[ptyp] OR Multicenter Study[ptyp] OR epidemiologic studies[mh] OR systematic[sb] OR randomized[tiab] OR study[tiab])) NOT (("animals"[MH:noexp] NOT "humans"[MH]) OR rat[tiab] OR rats[tiab] OR Dogs[tiab])		
Embase Q1	('colon tumor'/exp OR 'colon tumor' OR 'colorectal liver metastasis'/exp OR 'colorectal liver metastasis' OR 'colorectal cancer'/exp OR 'colorectal cancer' OR 'colon cancer'/exp OR 'colon cancer') AND 'liver resection'/exp OR 'liver resection' AND open:ti,ab,kw AND ([systematic review]/lim OR [meta analysis]/lim OR [clinical study]/lim) NOT [animals]/lim NOT (simultaneous:ti,ab,kw OR synchronous:ti,ab,kw)	329	
Cochrane Q1	(hepatectomy):ti,ab,kw AND ((colorectal cancer):ti,ab,kw) AND (Open):ti,ab,kw	21	
Clinical Trials Q1	Hepatectomy open colon liver metastasis OR colon cancer OR rectal cancer	32	
PubMed Q1 Update	((hepatectomies[tw] OR Hepatectomy[tw] OR "hepatectomy"[MeSH Terms] OR "liver resection"[tw] OR (Laparoscopy AND Liver)) AND ("colorectal neoplasms"[MAJR] OR "colorectal cancer"[tw] OR "Colonic Neoplasms"[mh] OR "colon cancer"[tw] OR (colon [tw] AND (metastasis[tw] OR metastases[tw] OR metastatic[tw])) OR CLM[tw] OR CRLM[tw] OR CRCLM[tw] OR "neoplasm metastasis"[mh]) AND (open [tiab] OR open [ot]) AND (Case Reports[ptyp] OR Clinical Study[ptyp] OR Comparative Study[ptyp] OR Meta-Analysis[ptyp] OR Multicenter Study[ptyp] OR epidemiologic studies[mh] OR systematic[sb] OR randomized[tiab] OR study[tiab])) NOT (("animals"[MH:noexp] NOT "humans"[MH]) OR rat[tiab] OR rats[tiab] OR Dogs[tiab]) AND 2020[DP]	24	
Q1 RESULTS	Total items identified by database searches	748	
	Additional items located by handsearching	70	
	Items rejected at update screening	19	
2. Should Open vs. MIS (laparoscopic, robotic, hybrid) Hepatectomy be used for resectable* Rectal Liver Metastases (CLM), when performed separately from resection of primary cancer?			
	Concept A	Concept B	Concept C
MESH terms	hepatectomy	colorectal neoplasms Colonic Neoplasms Rectal Neoplasms	
Text words	hepatectomy OR hepatectomies liver resection laparoscopy AND Liver	CLM CRLM CRCLM rectal cancer colorectal cancer colorectal liver metastasis colon AND (metastasis OR metastatic[tw])	Open
PubMed Q2	((hepatectomies[tw] OR Hepatectomy[tw] OR "hepatectomy"[MeSH Terms] OR "liver resection"[tw] OR (Laparoscopy AND Liver)) AND ("colorectal		315

	neoplasms"[MAJR] OR "colorectal cancer"[tw] OR "Rectal Neoplasms"[mh] OR "rectal cancer"[tw] OR (rectal [tw] AND (metastasis[tw] OR metastases[tw] OR metastatic[tw])) OR CLM[tw] OR CRLM[tw] OR CRCLM[tw] OR "neoplasm metastasis"[mh]) AND (open [tiab] OR open [ot]) AND (Case Reports[ptyp] OR Clinical Study[ptyp] OR Comparative Study[ptyp] OR Meta-Analysis[ptyp] OR Multicenter Study[ptyp] OR epidemiologic studies[mh] OR systematic[sb] OR randomized[tiab] OR study[tiab])) NOT (("animals"[MH:noexp] NOT "humans"[MH]) OR rat[tiab] OR rats[tiab] OR Dogs[tiab])		
Embase Q2	('rectum cancer'/exp OR 'rectum cancer' OR 'rectum tumor'/exp OR 'rectum tumor' OR 'colorectal liver metastasis'/exp OR 'colorectal liver metastasis' OR 'colorectal cancer'/exp OR 'colorectal cancer') AND 'liver resection'/exp OR 'liver resection' AND open:ti,ab,kw AND ([systematic review]/lim OR [meta analysis]/lim OR [clinical study]/lim) NOT [animals]/lim NOT (simultaneous:ti,ab,kw OR synchronous:ti,ab,kw)	316	
Cochrane Q2	(hepatectomy):ti,ab,kw AND ((colorectal cancer):ti,ab,kw) AND (Open):ti,ab,kw	21	
Clinical Trials Q2	Hepatectomy open colon liver metastasis OR colon cancer OR rectal cancer	32	
PubMed Q2 Update	((hepatectomies[tw] OR Hepatectomy[tw] OR "hepatectomy"[MeSH Terms] OR "liver resection"[tw] OR (Laparoscopy AND Liver)) AND ("colorectal neoplasms"[MAJR] OR "colorectal cancer"[tw] OR "Rectal Neoplasms"[mh] OR "rectal cancer"[tw] OR (rectal [tw] AND (metastasis[tw] OR metastases[tw] OR metastatic[tw])) OR CLM[tw] OR CRLM[tw] OR CRCLM[tw] OR "neoplasm metastasis"[mh]) AND (open [tiab] OR open [ot]) AND (Case Reports[ptyp] OR Clinical Study[ptyp] OR Comparative Study[ptyp] OR Meta-Analysis[ptyp] OR Multicenter Study[ptyp] OR epidemiologic studies[mh] OR systematic[sb] OR randomized[tiab] OR study[tiab])) NOT (("animals"[MH:noexp] NOT "humans"[MH]) OR rat[tiab] OR rats[tiab] OR Dogs[tiab]) AND 2020[dp]	21	
Q2 RESULTS	Total items identified by database searches	721	
	Additional items located by handsearching	70	
	Items rejected at update screening	21	
3. Should Open vs MIS Hepatectomy be used for synchronous, resectable* and isolated liver metastasis(es) from colon cancer, when performed simultaneously with colectomy?			
	Concept A	Concept B	Concept C
MESH terms	hepatectomy	colectomy Colonic Neoplasms Rectal Neoplasms	
Text words	hepatectomy OR hepatectomies liver resection laparoscopy AND Liver	(colon OR bowel) AND resection colectomy OR colectomies hemicolectomy OR hemicolectomies	simultaneous synchronous
PubMed Q3	((hepatectomies[tw] OR Hepatectomy[tw] OR "hepatectomy"[MeSH Terms] OR "liver resection"[tw] OR (Laparoscopy AND Liver)) AND (Colectomy[mh] OR ((colon OR bowel) AND resection) OR colectomy[tw] OR Hemicolectomy[tw] OR Hemicolectomies[tw] OR colectomies [tw]) AND ("Synchronous"[tw] OR "simultaneous"[tw]) AND (Case Reports[ptyp] OR Clinical Study[ptyp] OR		337

	Comparative Study[ptyp] OR Meta-Analysis[ptyp] OR Multicenter Study[ptyp] OR epidemiologic studies[mh] OR systematic[sb] OR randomized[tiab] OR study[tiab])) NOT (("animals"[MH:noexp] NOT "humans"[MH]) OR rat[tiab] OR rats[tiab] OR Dogs[tiab])		
Embase Q3	('liver resection'/exp OR 'liver resection') AND ('colon resection'/exp OR 'colon resection') AND (simultaneous:ti,ab,kw OR synchronous:ti,ab,kw) AND ([systematic review]/lim OR [meta analysis]/lim OR [clinical study]/lim) NOT [animals]/lim	212	
Cochrane Q3	(hepatectomy):ti,ab,kw AND ((colectomy):ti,ab,kw OR ((colon):ti,ab,kw AND (resection):ti,ab,kw))	21	
Clinical Trials Q3	Hepatectomy AND (Colectomy OR "Simultaneous Resection")	10	
PubMed Q3 Update	((hepatectomies[tw] OR Hepatectomy[tw] OR "hepatectomy"[MeSH Terms] OR "liver resection"[tw] OR (Laparoscopy AND Liver)) AND (Colectomy[mh] OR ((colon OR bowel) AND resection) OR colectomy[tw] OR Hemicolectomy[tw] OR Hemicolectomies[tw] OR colectomies [tw]) AND ("Synchronous"[tw] OR "simultaneous"[tw]) AND (Case Reports[ptyp] OR Clinical Study[ptyp] OR Comparative Study[ptyp] OR Meta-Analysis[ptyp] OR Multicenter Study[ptyp] OR epidemiologic studies[mh] OR systematic[sb] OR randomized[tiab] OR study[tiab])) NOT (("animals"[MH:noexp] NOT "humans"[MH]) OR rat[tiab] OR rats[tiab] OR Dogs[tiab]) AND 2020[dp]	4	
Q3 RESULTS	Total items identified by database searches	588	
	Additional items located by handsearching	39	
	Items rejected at update screening	0	
4. Should Open vs MIS Hepatectomy be used for synchronous, resectable* and isolated liver metastasis(es) from rectal cancer, when performed simultaneously with resection of primary cancer?			
	Concept A	Concept B	Concept C
MESH terms	hepatectomy	proctectomy	
Text words	hepatectomy OR hepatectomies liver resection laparoscopy AND Liver	(rectum OR Abdominoperineal) AND (resection OR excision) proctectomy OR proctectomies	simultaneous synchronous
PubMed Q4	((hepatectomies[tw] OR Hepatectomy[tw] OR "hepatectomy"[MeSH Terms] OR "liver resection"[tw] OR (Laparoscopy AND Liver)) AND (Proctectomy[mh] OR ((rectum OR Abdominoperineal OR Abdomino-perineal) AND (resection OR Excision)) OR Proctectomy[tw] OR Proctectomies[tw]) AND ("Synchronous"[tw] OR "simultaneous"[tw]) AND (Case Reports[ptyp] OR Clinical Study[ptyp] OR Comparative Study[ptyp] OR Meta-Analysis[ptyp] OR Multicenter Study[ptyp] OR epidemiologic studies[mh] OR systematic[sb] OR randomized[tiab] OR study[tiab])) NOT (("animals"[MH:noexp] NOT "humans"[MH]) OR rat[tiab] OR rats[tiab] OR Dogs[tiab])		76
Embase Q4	('rectum cancer'/exp OR 'rectum cancer' OR 'rectum tumor'/exp OR 'rectum tumor' OR 'colorectal liver metastasis'/exp OR 'colorectal liver metastasis' OR 'colorectal cancer'/exp OR 'colorectal cancer') AND 'liver resection'/exp OR 'liver		82

	resection' AND (simultaneous:ti,ab,kw OR synchronous:ti,ab,kw) AND ([systematic review]/lim OR [meta analysis]/lim OR [clinical study]/lim) NOT [animals]/lim	
Cochrane Q4	(hepatectomy):ti,ab,kw AND ((Proctectomy):ti,ab,kw OR ((Abdominoperineal):ti,ab,kw OR (rectum):ti,ab,kw) AND ((resection):ti,ab,kw)OR (excision):ti,ab,kw))	27
Clinical Trials Q4	Hepatectomy AND Colectomy	2
PubMed Q4 Update	((hepatectomies[tw] OR Hepatectomy[tw] OR "hepatectomy"[MeSH Terms] OR "liver resection"[tw] OR (Laparoscopy AND Liver)) AND (Proctectomy[mh] OR ((rectum OR Abdominoperineal OR Abdomino-perineal) AND (resection OR Excision)) OR Proctectomy[tw] OR Proctectomies[tw]) AND ("Synchronous"[tw] OR "simultaneous"[tw]) AND (Case Reports[ptyp] OR Clinical Study[ptyp] OR Comparative Study[ptyp] OR Meta-Analysis[ptyp] OR Multicenter Study[ptyp] OR epidemiologic studies[mh] OR systematic[sb] OR randomized[tiab] OR study[tiab])) NOT (("animals"[MH:noexp] NOT "humans"[MH]) OR rat[tiab] OR rats[tiab] OR Dogs[tiab]) AND 2020[dp]	1
Q4 RESULTS	Total items identified by database searches	188
	Additional items located by handsearching	4
	Items rejected at update screening	1