

Characterization of studies with less than 10 patients that included the use of robotic-assisted surgery

Author (Year)	Type of Study	Level of Evidence	Population	Cohort size	Control group	Mean age (% female)	Inclusion Criteria	Exclusion Criteria	Mean Follow-Up	Outcomes Measured	Results	Comments
Chang et al., 2020	Retrospective	IV	Sympathetic Nerve Reconstruction (SNR) Chang Gung University, Taoyuan	7	N/A	Median: 41 years (29% F)	Post-operative compensatory sweating necessitating SNR	No history of non-surgical sympathectomy	F/u every 6 months postoperatively by phone	mortality, operating time, LOS, graft type, symptom improvement	Operative mortality (none) Median operating time: 10.5h LOS Median: 4 days Symptom improvement of 70%	Short f/u period - could only assess symptom improvement in one patient
Asaad et al., 2021	retrospective case series	IV	Patients who underwent robotic flap harvest following robotic extirpative surgery Houston, TX	7	Open rectus abdominis muscle harvest (n=95)	66	Patients who underwent open or robotic flap harvest following robotic extirpative surgery	N/A	16 ± 24 months (median, 8 months)	Outcomes/complications	No significant differences in complications and hernia recurrences between the robotic and open techniques	Small sample size, short f/u time, difference in surgical indications and defect types
Sieffert et al., 2017	retrospective		Patients with locally advanced low rectal cancer and underwent extralevator excision with gracilis flap reconstruction Dayton, OH	6	N/A	63	Patients with locally advanced low rectal cancers not amenable to sphincter preservation	N/A	N/A	Demographic Operative data Outcomes/complications	No intraoperative perforation or positive circumferential resection margin. Complications include locoregional recurrence, flap venous congestion, perineal abscess that went on to complete healing.	Small sample size, short f/u time
Haverland et al., 2021	case series	IV	Robotic-assisted rectus abdominis harvest for pelvic floor reconstruction Arizona, USA	6	N/A	69.2 (66.6%)	Vesicovaginal fistula, pelvic organ prolapse, exenteration, vaginectomy, partial vulvectomy, and abdominoperineal resection.	Not reported	9.2 mo.	Bowel obstructions, infections, emergency room visits, and readmission.	1 patient: occasional abdominal pain 1 patient: intermittent bowel obstruction 1 patient: pelvic abscess, requiring readmission.	
Selber, 2010	Case series	IV	Patients with SCC Houston, TX	5	N/A	70.8	Patients with SCC	N/A	N/A	Outcomes/Complications	No intraoperative complications Successful reconstruction	Small sample size precluded finding sig. difference in operative times/hospital stay
Singh et al., 2015	case series	IV	Robotic extralevator abdominoperineal excision with robotic rectus abdominis flap harvest for distal rectal adenocarcinoma Chicago, USA	3	N/A	50.3 (33%)	Not reported	Not reported	Not reported Longest: 16 mo.	Hernia or bulge formation Infection	1 patient: parastomal hernia 1 patient: abdominal weakness	Average operative time: 522 min.
Vigneswaran et al., 2021	Case Series		Paraesophageal hernias Chicago, USA	2	N/A	70.5 (50%)	Paraesophageal hernia	N/A	5 m	Technique, Outcomes/complications	No signs of recurrence at 5 m f/u No adverse effects of harvesting posterior rectus sheath	Short f/u; no abdominal CT scans for better post-op clinical evaluation and to evaluate role of mesh
Patel et al., 2012	case report	IV	Rectus abdominis harvest for lower extremity defect Ohio, USA	1	N/A	30 (100%)	N/A	N/A	6 mo.	Not reported	No hernia or bulge No infections noted	Short followup and only 1 patient limits the validity of this study Setup time: 20 min.
Gundlapalli et al., 2018	case report	IV	Robotic harvest of deep inferior epigastric perforator flap South Carolina, USA	1	N/A	51 (100%)	N/A	N/A	9 mo.	Not reported	No flap or donor-site complications No hernia or bulge	Robotic pedicle dissection: 40 min. Traditional DIEP cost: \$14,800 Robotic DIEP cost: \$16,300
Özkan et al., 2019	case report	IV	Robotic harvest of omental flap for extremity coverage Istanbul, Turkey	1	N/A	58 (0%)	N/A	N/A	12 mo.	Not reported	No flap or donor-site complications No infection	Total operative time: 2.5 hrs
Day et al., 2021	case report	IV	Robotic harvest of a pedicled omentum flap for chest wall defect Minnesota, USA	1	N/A	68 (100%)	N/A	N/A	2 mo.	Disease recurrence Flap or donor-site complications	No intra- or postoperative complications Patient died 3 months postop due to metastatic disease	

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Facca & Liverneaux, 2010	Case Report	IV	Man with hypothenar hammar syndrome Strasbourg, France	1	N/A	39	Hypothenar hammar syndrome	N/A	6 months	Postoperative after-effects Improvement in paresthesias, vasomotor disorders, and cold-related pain episodes	No postoperative after-effects reported Vasomotor disorders disappeared immediately after surgery Progressive regression of paresthesis in L ulnar nerve after 2m Some infrequent persistent cold-related pain episodes at 6m postoperatively	
Naito et al., 2020	Case Report	IV	Patient with brachial plexus injury Tokyo, Japan	1	N/A	57	Patient with brachial plexus injury, need for intercostal n. harvest	N/A	N/A	Outcomes/complications	No respiratory complications, no pain at nerve-harvesting site; patient could ambulate freely POD 1; good patient satisfaction	Specialized technique, small sample size
Yilmaz et al., 2020	Case Report	IV	Patient with need for penile replantation Ankara, Turkey	1	N/A	35	Patient with need for penile replantation	N/A	6 weeks	Outcomes/complications	Patient could form an erection, no stricture or fistula on voiding cystourethrogram No hematoma or glans necrosis, some necrotic penile skin was debrided and recon. with a fasciocutaneous flap	Small sample size
Teven et al., 2021	Case Report	IV	Patient with lower extremity lymphedema Pheonix, Arizona	1	N/A	52	Patient with need for omentum lymphatic transplant	N/A	10 weeks	Outcomes/complications, operative time	Robotic harvest: 80 mins 100mL blood loss Patient discharged 24 h after surgery with full ambulation At 10 wk, incisions healed, sig. improvement in lymphedema symptoms	Small sample size, short f/u time
Chang et al., 2021	Case Report	IV	Patient with palmar hyperhidrosis Taoyuan, Taiwan	1	N/A	59	Patient with need for sympathetic trunk reversal reconstruction with sural n. graft	N/A	42 months	Outcomes/complications	At 24, 33, and 42 m postoperatively, symptoms improved by 70% No intra or post-operative complications, pt discharged POD 4	Robot use requires healthy n. stump, reliable technique in order to be safe