Robotic cholecystectomy in persons with super obesity: A retrospective case series and technical application

Bunry Pin *Corvallis OR*, Don Yarbrough *Corvallis OR*, Erika La Vella *Corvallis OR*
Good Samaritan Regional Medical Center

BACKGROUND

- It is estimated within the last couple decades, the prevalence of super obesity (body mass index [BMI] ≥ 50 kg/m2) has quintupled.[1]
- Excessive BMI is associated with increased perioperative complications in laparoscopic cholecystectomy, especially in persons with super obesity (BMI ≥ 50 kg/m2).[2]
- Complications range from increased surgery time, intraoperative bleeding, conversion to open and post-operative surgical site infection.[2]
- Despite the technical advantages of robotic surgery on persons with super obesity, there is a paucity of literature regarding robotic cholecystectomy for this particular population.

OBJECTIVES

- Present a case series of persons with super obesity who successfully underwent a robotic cholecystectomy.
- Identify key perioperative data regarding the demographics, safety, and duration of the surgery.
- Provide our lessons learned regarding surgical technique in this challenging population.

METHODS

- This is a retrospective case series investigating perioperative clinical data on all consecutive patients with a BMI of ≥ 50 kg/m^2 who underwent a robot assisted laparoscopic cholecystectomy (RLC) using da Vinci SI and Xi robotic surgery system
- All surgeries were done at Good Samaritan Regional Medical Center in Corvallis, Oregon from September 2019 to November 2020.
- Data were collected through electronic medical records.

RESULTS

Table 1. Patient demographics

	Study patients, N=11
Average Age (SD)	35 (9)
Range	23-53
Sex, % (N)	
Male	27% (3)
Female	73% (8)
Average BMI (SD)	60.1 (7.9)
Range	52-82
Average Weight, lbs (SD)	386.4 (85.9)
Range	300-552
Declined a cholecystectomy by at least one surgeon prior to definitive surgery, % (N)	100% (10)

Table 2. Intraoperative and Post-operative Data

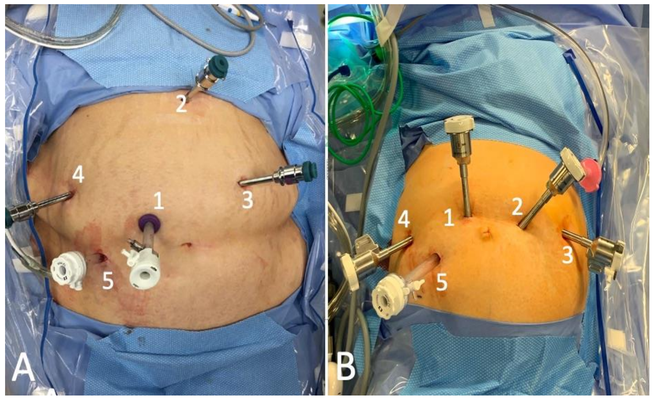
	Study patients, N=11
Average Surgical Time, min (SD)	71.7 (14.6)
Range	50-99
Intraoperative Complications, % (N)	0% (0)
Average Intraoperative Blood Loss, mL (SD)	38.1 (41.6)
Range	10-150
Utilized ICG fluorescent cholangiography, % (N)	64% (7)
Pathology confirmed acute cholecystitis , % (N)	36% (4)
Pathology confirmed chronic cholecystitis, % (N)	36% (7)
Postoperative Disposition, % (N)	
Outpatient	82% (9)
Inpatient	18% (2)
Postoperative Complications, % (N)	9% (1)[a]

[a] The observed postoperative complication was a hospital admission for nausea

CONCLUSIONS

- Despite a mean BMI of 60 kg/m^2 within our case series, robotic cholecystectomy appears to be a safe and effective method for performing cholecystectomy in this population.

SURGICAL TECHNIQUE



A. Intraoperative Port Placement – Before Docking da Vinci Si Robot
12 mm camera trocar is placed supraumbilical towards the patient right of midline to avoid the falciform ligament.
8 mm trocar is placed in the subxiphoid position with a double fenestrated instrument to facilitate retraction of the gallbladder fundus and liver cephalad.
8 mm trocar in the left upper quadrant 1 hands breath above and lateral to the midline trocar for hook electrocautery and HemoClip appliers.
8 mm trocar in the right upper quadrant for the forceps to facilitate counter tension and dissection.
12 mm assist trocar in the right mid-abdomen inferior to the camera for suction, posterior retraction of the fatty peritoneum overlying the duodenum and cystic plate, and specimen removal.

B. Intraoperative Port Placement – Before Docking da Vinci Xi Robot
8 mm trocar is placed supraumbilical just to the patient's right for the Xi camera.
8 mm trocar one handsbreadth to the left of the camera for hook electrocautery and HemoClip appliers.
8 mm trocar one handsbreadth lateral to the energy arm for tip-up double fenestrated grasper to facilitate retraction of the gallbladder fundus and liver cephalad
8 mm trocar in the right upper quadrant for the forceps to facilitate counter tension and dissection.
12 mm assist trocar in the right mid-abdomen inferior to the camera for suction, posterior retraction of the fatty peritoneum overlying the duodenum and cystic plate, and specimen removal.

REFERENCES

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SHS IRB Number: IRB21-014