



Original article

A safe and inexpensive technique of retrieval of gallbladder specimen after laparoscopy

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ARTICLE INFO

Article history,

Received 12 November 2013

Accepted 24 November 2013

Available online 30 November 2013

Keywords,

Laparoscopic cholecystectomy

Endobag

Gall bladder specimen retrieval

ABSTRACT

Laparoscopic cholecystectomy is associated with greater chances of intra abdominal stone spillage and implantation and port site contamination when gallbladder specimen is retrieved without endobag. Economical sterile surgical gloves can be used instead of expensive commercial endobags to retrieve the gallbladder specimen and also intra abdominal spilled stones safely without complications. Evaluate the safety and cost effectiveness of sterile surgical glove endobag technique for retrieval of gallbladder specimen after laparoscopic cholecystectomy. Four hundred patients with the diagnosis of symptomatic uncomplicated cholelithiasis, who underwent laparoscopic cholecystectomy with four port technique, were included in the study. In all these patients sterile surgical hand glove endobag (size 6½, 7) was inserted through 10mm umbilical port and gall bladder specimen was retrieved along with any spilled gallstone. Tense and distended gallbladders with packed stones were decompressed prior to retrieval without enlargement of the facial opening. The whole procedure was done under direct vision. Patients less than 15 years age, known cirrhotic and carcinoma gallbladder were excluded from this study. The whole process is observed for its safety and cost effectiveness. Gall bladder specimen in all four hundred cases, (276 (69%) female and 124 (31%) were male) retrieved through the 10mm umbilical port in surgical glove endobag. In 36 (9%) cases gallbladder was acutely inflamed and

oedematous, which were opened and decompressed at the umbilical port site inside the endobag before retrieval. In 20 (5%) patients wound infection observed at the umbilical port site. In 01 (0.25%) patient spilled gall stones were recovered after two years from supra umbilical port presented as a chronic discharging sinus. Surgical glove endobag technique is simple, safe and economical with fewer complications.

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1. Introduction

Laparoscopic cholecystectomy is the gold standard method for management of symptomatic gall stone disease since last 15-20 years.

Laparoscopic cholecystectomy may be performed by single, two, three or four port (3, 5 and 10mm size) technique depending on the surgeon's choice. Endoscopes and long handles instruments are introduced into the body through an insertion port, or trocar. At the end of the procedure, proper positioning of instruments (rail roading) and orientation is required for retrieval of gallbladder specimen 1,2,3. Intra peritoneal spillage and later implantation of gallstone during dissection from liver bed and its retrieval without endobag is a documented complication 4,5,6. In order to prevent above complications, gallbladder specimen is retrieved in an endobag (specimen pouch) usually through umbilical port. Distended gallbladder packed of stones always creates a problem during its retrieval from the abdomen. Gallbladder removal in these cases required a needle decompression, stone fragmentation and stone removal from the gallbladder near the port site or enlargement of the one of the fascial incision to facilitate gallbladder retrieval, which causes more postoperative port site pain 7.

We evaluate safety and cost effectiveness of technique of using sterile surgical glove endobag to retrieve gallbladder along with any anticipated complications.

2. Materials and methods

Four hundred patients with symptomatic uncomplicated cholelithiasis admitted in the Department of Surgery, Liaquat University Hospital, Jamshoro, were included in the study. Children, cirrhotic patients having cholelithiasis and gall bladder carcinoma were excluded from this study. Patients after baseline investigations and anesthesia fitness underwent the conventional laparoscopic cholecystectomy with four port technique. In all these patients gall bladder is retrieved through umbilical port through a sterile surgical hand glove (size 6½, 7 inches) endobag. A tense and distended gall bladder with full of stones were decompressed prior to removal inside endobag without enlargement of the facial opening. The whole procedure was done under direct vision. The results of this locally adopted technique are reported.

2.1. Technique

Common powder free disposable surgical gloves of excellent quality used in general surgical procedures were used as endobag during our study. The main raw material used is imported natural latex, with low protein content, smooth texture, none irritating having tremendous technical strength and elasticity. They are sterilized by Gama Ray technique and are available in biege color and in variable sizes.

A sterile surgical glove size 6 ½ or 7, tied at the level of roots of fingers with silk 0, to create an endobag (Fig.1). At the completion of the laparoscopic cholecystectomy an endobag is inserted inside the peritoneal cavity through 10mm umbilical port using grasper under direct vision (Fig.2). Endobag was kept on the superior surface of the liver or on the omentum in acute cases. Gall stones which are spilled inside peritoneum due to perforation of the gallbladder also kept inside the endobag. The endobag mouth is opened and gallbladder specimen is pushed inside and its mouth is closed with grasper from mid clavicular port. Later gallbladder specimen is engaged inside the umbilical port under direct vision by rail road technique (Fig.3). The grasper of mid clavicular port and telescope at umbilical port were kept in straight line to achieve the alignment.



Fig. 1. Sterile Surgical glove endobag.



Fig. 2. Sterile Surgical glove endobag inside the abdomen.



Fig. 3. Rail Roding retrieval of Sterile Surgical glove endobag under direct vision.



Fig. 4. Distended and Tense gallbladder is delivered via umbilical port from Sterile Surgical glove endobag for aspiration.

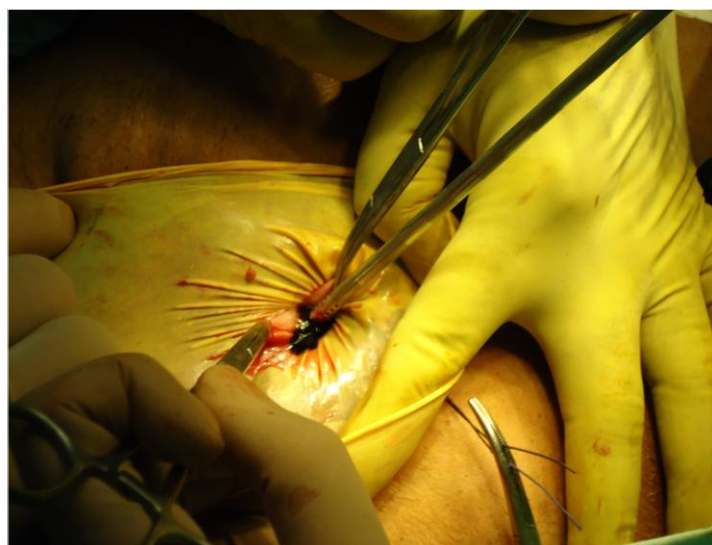


Fig. 5. Retrieval of stone at umbilical port from sterile surgical glove endobag.

By holding the endobag with gallbladder further accommodated inside the umbilical port and telescope slowly withdrawn and gas was evacuated (Fig. 4). Same procedure was performed for oedematous, inflamed gallbladder and gallbladder with full of stones.

3. Results

Dissected gall bladder in all four hundred cases (276 (69%) females and 124 (31%) male), were retrieved safely through the 10mm umbilical port in surgical glove endobag. In 36 (9%) cases gallbladder was acutely inflamed, which were opened safely at the umbilical port site inside the endobag and decompressed before retrieval. Perforation of gallbladder during dissection with spilling of stones with safe retrieval into endobag is observed in 20 (5%) patients. No complications were observed during this technique; however only 20 (5%) patients had umbilical port site wound contamination. Handling of the surgical glove endobag was easy and simple

during its insertion and retrieval. Perforation or leaking of the endobag is neither observed in our study, nor slipping of the gallbladder specimen or stones from the endobag. (See Table – 1).

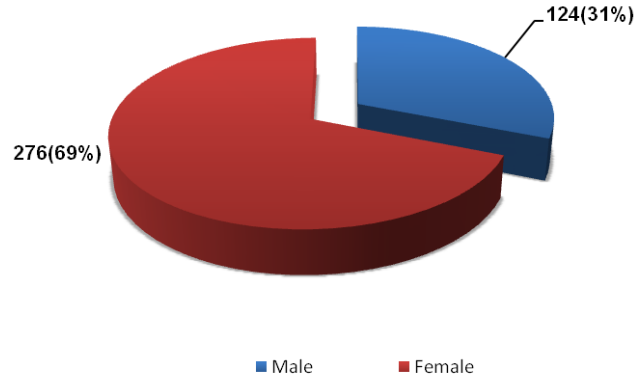


Chart. 1. Gender distribution of the patients (n = 400).

Table 1

Complications (Surgical Glove Endobag Technique) (n = 400).

S. No	Complications	Number of Patients	Percentage %
1	Endobag difficult Insertion	00	00
2.	Intra abdominal difficult handling	00	00
3.	Difficult spilled stones retrieval	00	00
4.	Difficult acutely inflamed gallbladder specimen retrieval	00	00
5.	Leakage and perforation of endobag	00	00
6.	Umbilical port site contamination	20	5
	TOTAL	20	5

4. Discussion

Laparoscopic cholecystectomy is have an edge over open cholecystectomy due to short hospital stay, early recovery, less postoperative pain, good results and early return to work. A spilled or implanted gallstone and spillage of infected bile in the peritoneal cavity is a common event during laparoscopic cholecystectomy without using endobag. Infected bile and gall stone implantation in the subcutaneous tissues of the abdominal wall causing discharging sinus or abscess at the port site of retrieval is a rare entity 8,9,10. In our study we retrieve the gallbladder specimen safely through 10mm umbilical port using surgical glove endobag. Gallbladder perforation and stone spillage are seen in 20 (5%) patients who were safely retrieved in endobag and is the most frequent laparoscopic complication seen in our study which comes across during gallbladder dissection. However, a reported incidence of gallstone spillage varies from 6 to 30 per cent 1,11,12. Ali SA et al 4 and Helme et al 13 stated that best way to avoid complication of spilled gallstones and umbilical port site contamination is to use endobag. V. Golash in his series of 772 patients of conventional laparoscopies, retrieved the gallbladder specimen through the umbilical port without using endobag, hence reported a high incidence of port site contamination & gall stone spillage 14. We have not observed perforation or leakage of the surgical glove endobag during its use for retrieval of gallbladder specimen or slipping out of gallbladder specimen from the endobag during its retrieval. Fortunately only 5% of our patients develop umbilical ports sepsis in patients with acutely inflamed gallbladder specimen despite of using endobag, possibly due to contamination of the outer surface of surgical glove endobag.

Endobag facilitates collection of operative specimen, spilled stones and minimizes the chances of contamination of the abdominal cavity 15,16,17. Original disposable endobags prices range from 14-15 US \$

(endosac (Zenith medical) US \$ 14, port site (Dexdelac) US \$ 14) 18, as majority of our patients belongs to low socio economic status we cannot afford such a high cost. A single pair of disposable sterilized surgical glove cost is much cheaper than commercially available endobag and its cost is about 1/6 of a US \$. So it is economical for our poor patients.

5. Conclusion

We conclude that the surgical glove endobag is simple, economical and safe technique for retrieval of gallbladder specimen and spilled stones with fewer chances of complications. We strongly suggest use of economical surgical glove for the patients of 3rd world countries.

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