INTRODUCTION

Laparoscopy was first used for evaluation of acute abdominal pain in pregnancy in 1980 by gynaecologists. The most commonly reported laparoscopic procedure done during pregnancy is laparoscopic cholecystectomy. Other procedures have been performed for appendicitis, bowel obstruction, ovarian torsion, ovarian cysts and ectopic pregnancy. In a large series, Lachman et al. analyzed 518 pregnant patients undergoing surgeries and found that laparoscopic cholecystectomy was the commonest (45%), adnexal surgery (34%) and appendicectomy (15%).

Cholecystectomy is required in 1-6 out of every 10,000 pregnancies. Despite the effectiveness of non-operative care, pregnant patients with symptomatic gallstones have a high rate of recurrent symptoms. Appropriate management of gallbladder disease occurring during pregnancy is controversial. Over the past 5 years, more than 20 laparoscopic cholecystectomies done in the first, second and third trimester have been reported with excellent outcomes. Pregnancy has been considered by some authors to be an absolute contraindication to laparoscopic cholecystectomy, but no specific reasons have been identified.

Here we present a pregnant patient (2nd trimester) who safely underwent emergency laparoscopic cholecystectomy for acute empyema of gallbladder.

CASE REPORT

The patient was a 24-year-old pregnant female (2nd trimester) who presented with acute pain in the right hypochondrium, fever and vomiting of 3 days' duration. Diagnosis of empyema of gallbladder, and viable status of the foetus were established with ultrasonography. Routine blood investigations were also done. The need for surgery and risks involved were clearly explained to the patient and her husband. Emergency laparoscopic cholecystectomy was planned.

After standard pre-operative preparation and fitness approval, she was posted for surgery. A dose of antibiotic was given 2 hours prior to surgery. Patient was placed reverse trendelenburg position with a slight left lateral tilt. Pneumoperitoneum was created using the Hasson technique. A 10 mm optic port was placed 3 cms above the umbilicus; 10 mm right hand working port was placed along the left midclavicular line, parallel to the umbilicus; 5 mm left hand working port was placed along the right midclavicular line, parallel to and above the umbilicus. A 5 mm port was placed along the anterior axillary line just below the right subcostal margin for liver retraction. The port placement and technique was the same as that for non-pregnant patients. At laparoscopy, the gravid uterus was seen in the pelvis. Omental adhesions to the fundus of the gallbladder (Figure 1) were divided with Harmonic shears to expose the fundus. The gallbladder was then decompressed by introducing the 5 mm trocar with the obturator directly into the distended organ (Figure 2). A suction nozzle was introduced into the 5 mm trocar and the toxic fluid was sucked out without any spillage creating adequate working space. A toothed-grasper was applied to the fundus at the site of puncture and used to elevate the liver. This provided a clear view of
the Calot’s triangle, which was ‘frozen’. Dissection was started here by incising the peritoneum over the Calot’s triangle. Maryland dissector (without cautery) and Harmonic shears were used for all the dissection to avoid excess smoke in the peritoneal cavity. The cystic duct was identified; 2 medium-large clips were applied and duct divided between them. Posterior dissection was then performed; the cystic artery was identified, clipped and cut. The gallbladder was dissected off the liver bed by dividing the peritoneal attachments. A non-permeable bag was introduced into the peritoneal cavity through the reducer in the 10 mm trocar. The specimen was carefully placed in the bag without spillage and delivered out through the 10 mm port. Drainage tube was placed in the peritoneal cavity for 24 hours, as practiced in acute cases in the non-pregnant patients. The gravid uterus was not touched or handled at any point in the surgery.

Total operating time was 55 minutes. There was no blood loss. The patient was ambulated on the evening of surgery. She received nasal oxygen for 3 hours following surgery. Liquids were started on the first Postoperative Day (POD) and the Foley’s catheter was removed; soft diet was allowed on the second POD and she was discharged on the third POD. All analgesics were administered orally from the first POD.

The patient had no complications related to pregnancy, wound infection or intra-operative problems. There was no mortality of either the mother or the fetus. The patient tolerated general anaesthesia well and there were no related complications.

**DISCUSSION**

Traditional open cholecystectomy in pregnancy has been done during the second trimester (after completion of organogenesis) with little maternal morbidity and no fetal loss. The indications for surgery, regardless of gestational age, are: obstructive jaundice, acute cholecystitis not responding to medical management, peritonitis, biliary colic not responding to medical management or with significant weight loss and gallstone pancreatitis. Other less-aggressive options like percutaneous drainage of the empyema and cholecystostomy under local anaesthesia can also be performed, with an aim for temporary relief of symptoms. Lu *et al.* reported that a surgical option is favourable compared to medical line of management. Since minimal or no uterine manipulation is required during laparoscopic cholecystectomy, the risk of preterm labour should be minimal. Furthermore, insufflation pressures seem less of a risk to the fetus than manual retraction of the uterus, which may be necessary in conventional cholecystectomy. Laparoscopic procedures during pregnancy may provide advantages, particularly in upper abdominal disease in which visualization and accessibility are not compromised by the expanding uterus. Physiologic and anatomic changes introduce certain risks unique to the gravid patient, some associated with laparoscopy in pregnancy. These risks have been postulated to include poor visualisation due to gravid uterus, uterine injury during trocar or Veress needle placement, decreased uterine blood flow, technical difficulty of laparoscopic surgery or premature labour from the increased intra-abdominal pressure and increased fetal acidosis and other unknown effects due to CO₂ pneumoperitoneum.

The ideal patient position is lateral recumbent position due to various reasons as adopted in this patient. Nasogastric tube suction and strict airway management was done in this patient to prevent aspiration. Prophylactic antibiotics were administered, as pregnant women are mildly immunocompromised. Electrocautery was sparingly used and the resulting smoke immediately evacuated. Specimen was removed from the peritoneal cavity using an endoscopic bag to avoid spillage, contamination and postoperative peritonitis.

Laparoscopic surgery has the advantage of allowing reduced narcotic use and hence less fetal depression, better intraoperative visualization and exposure, less postoperative pain, early return of bowel function, early ambulation and shorter postoperative stays, more rapid maternal recovery, better cosmesis, fewer postoperative adhesions, and diminished postoperative maternal hypoventilation.

Laparoscopy is feasible in an emergency setting, even for pregnant patients. Even though laparoscopic procedures performed for acute diseases in pregnancy is not done often and our initial experience is only limited, it could be safe and efficient, given the benefits of minimal access surgery. Ultimately, it is the experience of the surgeon and anaesthetist that matter.

**REFERENCES**


