Laparoscopic Cholecystectomy in Pregnancy

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Pregnancy is a known to predispose the formation of cholesterol gallstones. It has been reported in 3.3%-12.2% of pregnant women [1,2]. This attributed to the increase in progesterone secretion which remains high during the second and third trimester leading to smooth muscle relaxation, gallbladder dilatation and stasis [3]. In most pregnant patients (60-69%) the gall stones remain asymptomatic and are diagnosed during antenatal checkups [3,4]. Gallstones, biliary sludge, and cholecystitis cause the most gallbladder related pain. Sludge is considered a precursor to the formation of gallstones, which are formed from crystallization of cholesterol, calcium, and bile salts. Symptomatic gallbladder disease is the most common reason for non-gynecological operations during pregnancy once hyper emesis gravidum is ruled out. Of the 12% of gallstones present in all pregnancies a third of them become symptomatic during pregnancy and they are conventionally managed with medical measures [3,5]. Of these medically treated patients, more than one-third of the symptomatic patients fail conservative medical management and require cholecystectomy [5,6]. The follow up studies have demonstrated the risk of symptoms recurrence after successful medical treatment for acute biliary diseases was 92% in the first trimester, 64% in the second trimester, and 44% in the last one [7]. In a review by Ghumman et al, the most common cause of biliary surgery during pregnancy were repeated biliary colic in 70% of cases, followed by acute cholecystitis in 20%, choledocholithiasis in 7% and acute biliary pancreatitis in the remaining 3% of cases [8]. Hence, need for a surgical or endoscopic management definitely arises once the medical measures fail or if the symptoms recur significantly.

Timing of Surgery and its Impact on Pregnancy

During the first trimester, as it is the phase of organogenesis, fetal malformation is the major concern associated with anesthesia and abdominal surgery. There is more risk for abortion as well during this phase and hence percutaneous techniques or carefully monitored endoscopic procedures are only undertaken during the period [9]. The second trimester is the safest time to perform the procedure as the incidence of spontaneous abortion and premature delivery is lower during the second trimester [10,11]. However there is an increased risk of pre-term labor in the third trimester due to premature contractions of uterus particularly with open surgical procedures [12]. Hence, second trimester or early third trimester is generally considered suitable for cholecystectomy, if clinical situation demands. The laparoscopic approach is now generally for such interventions due to the refinement in techniques and improvement of the monitoring [13]. Pregnancy should no longer be considered a contraindication to laparoscopic surgery.

Laparoscopy and Pregnancy

In the last 2 decades, technical refinements in laparoscopy have led to improved safety levels during its application during pregnancy. Apart from the advantages like less postoperative pain and early ambulation, there is lesser uterine manipulation in laparoscopy, adequate exposure of surgical field and lesser adverse obstetric events [13,14]. However there are concerns about iatrogenic insult to the gravid uterus, preterm delivery, foetal loss, abortion and maternal hemodynamic changes leading to decreased uterine blood flow and fetal asphyxia due to increased intra-abdominal pressures [14]. Maternal and fetal acidosis due to systemic carbon dioxide absorption and resultant hemodynamic disturbances are also concerns during laparoscopy. Strict peroperative fetal monitoring, intraoperative maternal oxycapnography, uterine protection with a lead shield, open-access pneumoperitoneum, working pressures between 8 and 12 mm Hg and pneumatic compression of the lower extremities are recommended [15,16]. The Society of American Gastrointestinal and endoscopic surgeons (SAGES) recommends monitoring and maintenance of ETCO2 at 28-32 mmHg [16]. The role of prophylactic tocolysis is not certain as it cannot prevent pre-term labour and may have adverse events [16]. Supine decubitus results in aortocaval compression and should be avoided. Left lateral decubitus is ideal with left lateral tilt (20-30°). Both Verre’s needle and the open Hasson’s technique can be used for establishing pneumoperitoneum [14]. Rajmohan et al. [17], have published a management protocol for use of laparoscopy in pregnancy and discussed about the choice of anesthetic drugs.

CONCLUSION

Surgery for gall stones in pregnancy may be required in a third of symptomatic patients. Laparoscopic cholecystectomy in second trimester or early third trimester can be undertaken. Strict perioperative fetal and maternal monitoring, low intrabdominal pressure, and careful surgical technique in a specialized center are recommended for optimum results.

REFERENCES


