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Risk of Infections in Laparoscopic Cholecystectomy in Pregnant Patients

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Abstract

Laparoscopic cholecystectomy has developed as an excellent operational method for the patients with characteristic cholelithiasis and regarding complication. The current study was conducted for determining the diagnostic and surgical outcomes in the patients with gallstones treated with laparoscopic cholecystectomy techniques. The total 30 pregnant patients were suspected acutely symptomatic cholelithiasis or its complications were treated using laparoscopic approach at the at the Department of Surgery of Liaquat University of Medical & Health Sciences, Jamshoro, Sindh, Pakistan after approval from the institutional ethical committee. Inducing the usual anesthesia, veress needle method was used for establishing a pneumoperitoneum. The needle was injected in the right upper abdominal quadrant ahead of the uterine fundus along with 5 mm trocar and a 5 mm laparoscope was passed through this channel. Two trocars of 10 mm size were introduced for direct vision in the Trendelenburg reverse position. The gallbladder dissection was performed using scissors which were associated with electrocautery for instantaneous hemostasis. The exploration of common bile duct was performed through the cystic duct. In one year followed up, 5 patients underwent instantaneous of common bile duct exploration and choledocholithotomy. During all three trimesters in different patients, all operations were performed. There were 14 multiparous females and 6 of them had reported abdominal operation previously including 2 ovarian cystectomy and 4 cesarean sections. All patients were well tolerated the surgical operations with zero labor precipitation or death of fetus. It is confidence that with adequate trainings and choledochoscope, laparoscopy is good alternate to retrograde cholangiopancreatography.

Key Words: Laparoscopic cholecystectomy, laparoscopic surgery

Introduction:

Over the past few years, several non-resective techniques have been described for the treatment of cholelithiasis. In spite of effectively destroying or removing gallstones with few of such techniques, everyone is imperfect by the constant existence of a diseasing gallbladder. In 1987, the first gallbladder was removed following laparoscopic guidelines by a French surgical expert Phillipe Mouret. Since at that time, there has been a detonation of interests in this surgical procedure reported with thousands of medical practitioners being qualified at several hands-on trainings and a lot of reports confirming to the operational safety being published in the large series (1).

Laparoscopic cholecystectomy has developed as an excellent operational method for the patients with characteristic cholelithiasis and regarding complication. Meanwhile, applications of this method in the pregnant patients with symptomatic acute biliary tract infections have gained extensive clinical acceptances. Moreover, the overall facts and figures confirmed that the laparoscopic operations have been functional during pregnancy for the treatment of other intra-abdominal complications. These attitudes also kept another fear of injury of fetal and miscarriage precipitations (2).

Since1882, the cholecystectomy after its clarification has been the preferred laparotomy treatment for most of the patients with gallstone sickness. The risks of major complications and even mortalities consequential from such operation are less in number which made cholecystectomy as the gold standard technique for the patients with cholelithiasis. In the United States of America, approximately 20 million people have gallstones which is about 15% of the overall population. Ultrasonic studies in Europe exhibited the prevalence of 9% to 21% and the incidences of 0.63 per 100 persons per year (3). In Pakistan, the incidence of cholecystectomy surgery was reported about 4.2% and 14.2% in males and females per year respectively (4).

Regardless of increasing the surgical expertise, the presently existing literature recommends a wide series of conversion about from laparoscopic cholecystectomy to open cholecystectomy. Laparoscopic cholecystectomy is significant as the perfect resort for safe surgical practices in critical cases. Upsurge number of perioperative and pre-operative risk factors prerequisite to be recognized. The current study was conducted for determining the diagnostic and surgical

outcomes in the patients with gallstones treated with laparoscopic cholecystectomy techniques.

Material and Methods:

The total 30 pregnant patients were suspected acutely symptomatic cholelithiasis or its complications were treated using laparoscopic approach at the at the Department of Surgery of Liaquat University of Medical & Health Sciences, Jamshoro, Sindh, Pakistan. The approval of the research was taken from the ethical committee of the institution. Every patient was informed about standard protocols of such advanced approach and limited involvements. The information of all patients was recorded regarding gestational age, symptoms, previous operations, surgical complications, parity, procedural duration and pregnancy outcomes.

First of all, an inscribed consent was signed and then in every patient an endotracheal tube was placed to induce the usual anesthesia. The veress needle method was used to all patients for establishing a pneumoperitoneum. In the upper right quadrant of abdomen, the needle was injected ahead of the uterine fundus. In the same site, 5.5 mm trocar was inserted where the needle was inserted and a 5.5 mm laparoscope was introduced through this channel. The 2 trocars of 10 mm size were introduced Under direct vision, one in the supra and the other one in the epigastrium infraumbilically depends upon the body habits and the pregnancy age of the patients.

Another trocar injected just in the patients with the common bile ducts inspections requirements. In the Trendelenburg reverse position with an incline to the left side, a pressure on intra-abdomen cavity was sustained at 14 mmHg. Each patient endured consecutive lower extremities pneumatic firmness, a doppler transvaginal fetal cardio monitor was observed when suitable for the gestational age. The dissection of gallbladder was made with electrocautery associated scissors for immediate hemostasis maintenance. The cystic artery and duct stump had managed by means of the clip system of the laparoscopy (5). The common bile duct examination was made via the cystic duct while intraoperative cholangiography was not carried out.

Results:

Out of 30 patients undergone laparoscopic cholecystectomy, 5 were also endured instantaneous exploration of choledocholithotomy and transcystic bile duct by means of

choledochoscope and segura basket. 7 patients were operated during the third trimester, 6 in the first trimester and 12 in the second trimester of pregnancy. 14 females were multiparous and 6 of them reported abdominal operation previously including 2 ovarian cystectomy and 4 cesarean sections. The average time duration of every surgical procedure was 60 minutes within the ranges of 45-120 minutes. The longest surgical time duration was 120 minutes in the patients underwent the exploration of bile duct.

The 20 out of 30 patients exhibited with insistent vomiting, nausea and abdominal pain in upper right quadrant. The documentation of gallstones was made with the help of ultrasonography and every patient was sustained for many days by intravenous fluids and without any oral liquids. All 20 patients became highly symptomatic after eating food which impelled surgical intercession. Six patients reported biliary pancreatitis and another four had acute cholecystitis. These earlier six patients underwent effective choledochoscopy, extraction of stone and transcystic exploration of common bile duct.

All patients were well tolerated the surgical operations with zero labor precipitation or death of fetus. The 10 out of 30 patients become asymptomatic after laparoscopic cholecystectomy. All patients except two females who remained pregnant at 16 and 32 gestational weeks have delivered healthy babies with zero developmental abnormalities evidences up to the present time. Nineteen patients were discharged on postoperative 1st day, three on 2nd day, three on 3rd day, and one on 4th day. The patients with biliary pancreatitis or acute cholecystitis were extended their stays in hospital.

Discussion:

In the English literatures, the first reports of effective laparoscopic cholecystectomy in the pregnant women seemed as inaccessible case reports in 1991 (6). Based on the previous literatures and reports which demonstrate the laparoscopic safety, it is decided to utilize the laparoscopic method for all patients during pregnancy who prerequisite an emergency or urgent cholecystectomy (7). In the current study, the majority of the patients who were described with symptomatic cholelithiasis were nonoperatively administrated with modifying their nourishments and managed of minimum pain medications doses. Only such patients who had constant abdominal pain and incapable to ingest and insistent vomiting or nausea as well as those who had biliary pancreatitis or acute cholecystitis were considered to be applicants for surgical management.

According to a previous study which concluded that laparoscopic cholecystectomy as contraindicated for the pregnant patients due to fetal mortalities postoperatively in seven patients who underwent same operation (8). However, one causative factor might have been the average time of operation which is about twice given that our operations. When our 30 patients are compared with the formerly published sequences, the deaths of fetuses are less in rates connected with the open procedures.

The uterus of pregnant patients spreads the umbilicus at about 20th gestational week and from that point of displacements of the abdominal viscera commandingly in the abdomen restrictions the spaces offered for both laparoscopic manipulations and trocar placements (9). If a trocar of 5 mm size is introduced firstly into the upper abdominal quadrants, the two more trocars can be inserted safely and properly positioned under straight vision. The procedure should be restricted to only three trocars due to the reduced intra-abdominal spaces accessible to perform a cholecystectomy (10).

In the current studies, a fourth trocar was introduced in the patients with requirement of exploration of common bile duct. On the basis of random literatures and their outcomes, it is believed that laparoscopic cholecystectomy must also be the technique of interest under comparable conditions in pregnant patients. We have made this practice within all trimesters with zero regarding fetus demises and zero congenital aberrations except those patients who have not given birth up till now. Only six patients had pancreatitis later to choledocholithiasis experienced effective laparoscopic exploration of common bile duct and elimination of stones.

It is our confidence that with the adequate trainings and new perfect choledochoscope, it is a healthier alternate to both preoperative and postoperative retrograde cholangiopancreatography associated with endoscopy along with consequent exposures of the irradiation to fetus. The only utter indications would be the unqualified lack of spaces for manipulating the apparatuses, uncertain anatomy during procedure and lack of satisfactory training and experienced surgeons.

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Roles and Contribution of Authors:

- Dr. Jabeen Atta collected the data, references and did the initial writeup
- Dr. Zubair Ahmad Yousfani as a corresponding author helped in collection of data, and also helped in introduction writing
- Dr. Khenpal Das critically review the article and made the useful changes
- Dr. Ghullamullah Rind collected the references, and helped in discussion and conclusion writing
- Dr. Amir Iqbal Memon review the article finally

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