CASE REPORT

Laparoscopic Appendectomy Is Safe Procedure in the Pregnant Patients in Second Trimester

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Optimal approach to appendicitis in pregnancy remains controversial issue. There is also some concern that laparoscopy during pregnancy may cause fetal injury and alter fetal perfusion. Supporters of laparoscopy claim that minimally invasive approach even in pregnant state possesses several advantages, including fewer wound complications and less postoperative pain, producing faster return to normal activities and early hospital discharge, with no increased fetal risk. We present our series of pregnant patients who underwent laparoscopic appendectomy that shows that in the hands of an experienced surgeon, this method is a safe option in pregnant patients in the second trimester. Key words: laparoscopic appendectomy, pregnant patients.

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1. INTRODUCTION
During pregnancy, most common non-obstetrical emergencies that require surgery are appendicitis, cholecystitis and intestinal obstruction (1). Optimal approach to appendicitis in pregnancy remains controversial issue. There is some concern that laparoscopy during pregnancy may cause fetal injury and alter fetal perfusion. And the reduced working space makes heavy the surgery as well. Location of increased uterus requires different positions of working instruments, in order to perform appendectomy adequately.

Supporters of laparoscopy claim that minimally invasive approach even in pregnant state possesses several advantages, including fewer wound complications and less postoperative pain, producing faster return to normal activities and early hospital discharge, with no increased fetal risk (2). Here we present our small series of pregnant patients who underwent laparoscopic intervention for appendicitis during pregnancy.

2. CASE REPORTS
In last 40 months, 5 laparoscopic appendectomies were performed in our institution, in pregnant patients during second trimester. In one case conversion to open procedure was done because of bleeding from mesoappendix.

After clinical examination and blood workout, ultrasound was used as a diagnostic tool (3) (Figure 1) and revealed fetus in uterus. Pneumoperitoneum was created using Hasson technique, through standard umbilical incision. Working ports were placed in right lateral infraumbilical and supraumbilical position (Figure 2 and 3). Average operative time was 52 minutes. Appendectomy was performed using endoloops. No drainage was used. Four patients had phlegmonose appendix removed and one was normal. We remove appendix in such cases even if it is normal. Postoperative period in all five patients was uneventful, and average hospital stay was 4,5 days. No fetal mortality was observed and no pre-term deliveries occurred.

3. DISCUSSION
Laparoscopic surgery during pregnancy for non-obstetric related conditions is accepted as having minimal...
of the mother. But having less space to work makes it harder for surgeons to perform the surgery. Location of increased uterus requires different positions of surgical instruments, in order to perform appendectomy adequately. In figure 2 there is a position of our working ports which we suggest as a standard position in the second trimester.

Laparoscopic appendectomy is standard option in our institution, and we’ve wanted to test laparoscopic approach as a first choice in pregnant patients. In our limited experience we’ve observed all the advantages of laparoscopic approach. Intraoperative complication, bleeding from mesoappendix which was the cause of conversion, was observed in other studies (5, 6). Patients had an uneventful recovery. The length of postoperative hospital stay was 4.5 days, and similar results were observed in other studies (7, 8). The length of postoperative hospital stay is slightly prolonged after LA in pregnant patients.

There is a concern that laparoscopy during pregnancy may cause fetal injury and alter fetal perfusion. The rate of fetal loss following LA in pregnancy approaches 6% and is significantly higher than that following open appendectomy (9). But the close maternal and fetal monitoring is essential during and after the operation. Fetal monitoring in our study was not done because of the lack of adequate equipment, but it will be obtained very soon.

LA is a safe and feasible procedure for the treatment of acute appendicitis in all trimesters of pregnancy (5). But it is a technically demanding procedure because of increased uterus and reduced space in abdomen and we suggest this procedure only to the second trimester. Open appendectomy would appear to be the safer option for pregnant women for later trimesters.

This case report shows that in the hands of an experienced surgeon, laparoscopic appendectomy is a safe option in pregnant patients in the second trimester.

REFERENCES