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## Research Article

# The outcome of laparoscopic management of adnexal pathology complicating pregnancies

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## ABSTRACT

**Background:** Adnexal pathology found during pregnancy is relatively common and the reported incidences are population and investigation dependent. The most frequent types of adnexal masses are corpus luteum cysts, endometriomas, benign cystadenomas and mature cystic teratomas. The objective was to study the feasibility of laparoscopic management of adnexal pathology in pregnancy, maternal complications and fatal outcome. We have reported 25 cases of adnexal pathology complicating pregnancy, managed successfully laparoscopically with no maternal and fetal complications.

**Methods:** The study is based on the outcome of laparoscopic management of adnexal pathology in 25 pregnant women over period of eight years. Laparoscopy was done using three port technique, 10 mm umbilical or supra umbilical port for optics and two lateral ports for instrumentation. Cystectomy was the most common procedure.

**Results:** There was no intra or post-operative complication observed in the study. Successful obstetric outcome in all the patients with no complications was observed.

**Conclusions:** Laparoscopy is preferred for exploration and treatment of adnexal masses especially between 14 to 25 weeks of gestation.

**Keywords:** Adnexal pathology, Pregnancy, Laparoscopy, Heterotopic pregnancy

## INTRODUCTION

Adnexal pathology found during pregnancy is relatively common and the reported incidences are population and investigation dependent.<sup>1</sup> The most frequent types of adnexal masses are corpus luteum cysts, endometriomas, benign cystadenomas and mature cystic teratomas.<sup>2</sup> Heterotopic pregnancy is on the rise with increased use of IVF in management of infertility.<sup>3</sup> Most ovarian masses are asymptomatic in pregnant women. Some cause pressure or chronic pain and acute abdominal pain due to torsion, rupture or haemorrhage. Complications of any ovarian mass are torsion and haemorrhage. If torsion is suspected, laparoscopy or laparotomy is warranted.<sup>4</sup> A

cystic benign appearing mass that is less than 5 cm needs no intervention, tumours between 5 cm to 10 cm careful sonographical evaluation is needed, and for cysts more than 10 cm surgical removal is reasonable due to risk of malignancy, torsion or labour obstruction.

Use of laparoscopy in pregnancy is reported as early as 1980.<sup>1</sup> The most common surgeries performed during pregnancy are cholecystectomy, appendectomy and removal of adnexal mass.<sup>2</sup> The objective of this study was to study the feasibility of laparoscopic management of adnexal pathology in pregnancy, maternal complications and fatal outcome. 25 cases of adnexal pathology complicating pregnancy, managed successfully

laparoscopically with no maternal and fetal complications were reported.

## METHODS

Twenty five laparoscopic surgeries were performed from the year 2008-2015, for adnexal pathology with pregnancy. The common presentation was incidental finding of a tumour in early pregnancy scan. Few patients presented with pain abdomen and one patient with heterotopic pregnancy with internal bleeding and shock.

Laparoscopy was done using three port technique, 10 mm umbilical or supra umbilical port for optics and two lateral ports for instrumentation. Pneumoperitoneum was created using verres needle, through umbilicus or palmer's point as the situation demanded. After introduction of optic port through the umbilicus or supra-umbilically, with safety trochar, taking care not to injure gravid uterus, lateral ports were introduced under vision.

Cystectomy was the most common procedure. The two cases of heterotopic pregnancy were managed with salpingectomy. There were four cases of torsion ovary-three were hyper stimulated ovaries managed by detorsion and aspiration and one with gangrenous changes underwent salphingo-oophorectomy.

Cystectomy was established using hydro dissection, sharp dissection with scissors and graspers with traction and counter traction. Bipolar energy was used wherever cautery is necessary. Utmost care was taken not to touch the gravid uterus.

## RESULTS

The mean age of patients in the study group was 24 years (19-32). Table 1 shows the gestational age at which the procedure was performed. Two patients below eight weeks of gestation one had ruptured heterotopic pregnancy and other had torsion of hyper stimulated ovary with twin gestation.

**Table 1: Gestational age wise distribution of cases.**

Gestational age	Number of cases
>8 weeks	2
8-11 weeks 6 days	7
12-15 weeks 6 days	13
16-24 weeks	3
Total	25

The most common diagnosis was functional cyst, four cases of corpus luteal cysts were seen. Cystadenomas and dermoids were common in second trimester (Table 2). Cystectomy was the most common procedure.

**Table 2: Pathological classification of adnexal pathology.**

Type of adnexal pathology	Number of cases
Corpus luteal cyst	4
Dermoid	3
Functional cyst	6
Serous cystadenoma	5
Para ovarian cyst	4
Endometrioma	2
Heterotopic pregnancy	2
Total	25

There was no intra or post-operative complication observed in the study. All the pregnancies were followed to term or delivery. Two pregnancies were twins delivered at 34 and 36 weeks respectively. There were two cases of late preterm deliveries in the study. All the fetii were normal at delivery with no remarkable anomalies.

## DISCUSSION

With routine use of ultrasound in early pregnancy, asymptomatic, incidental adnexal tumours have been detected in 1:80 cases.<sup>1</sup> With advent of newer equipments and improved understanding of feto-maternal physiology and better monitoring intra-operatively, laparoscopy is more commonly used during pregnancy.<sup>2</sup> Around 50% of cases in present study were in the gestational age group of 12-16 weeks. Need for postoperative analgesics are reduced after laparoscopy in comparison with laparotomy.<sup>4</sup> The risk of paralytic ileus, the incidence of thromboembolic complications, rate of infection are less with laparoscopy. There were no significant major or minor complications in this study.

Preferable time for intervention will be around 14 weeks of gestation as organogenesis is complete and some tumours may resolve spontaneously.<sup>5</sup> Technically it is difficult to do laparoscopy beyond 24 weeks of pregnancy and also risk of preterm labour increases.<sup>6</sup> Due care should be taken while creating pneuoperitoneum to avoid uterine perforation. As the pregnancy advances supra umbilical or palmer's point can be used. 10 mm safety tip trochar for primary port was used to further minimise the chances of uterine injury.

Carbon dioxide is the gas of choice, due to rapid absorption, high solubility and rapid clearance from the body in the alveoli and non-explosive nature when energy source is used.<sup>7</sup> The risk of hypercarbia and respiratory acidosis can be minimised by keeping the intra abdominal pressure low and shortening of operative time.<sup>8</sup> All the procedures were accomplished with an intrauterine pressure of 10 mm of hg.

Regarding the fetal outcome, concern is the effect of increased intra-abdominal pressure on fetal vascularity.

There are no data showing detrimental effects to human fetuses from CO<sub>2</sub> pneumoperitoneum.<sup>9</sup> Additional potential danger is the risk of fetal exposure to intra-abdominal smoke, generated by electrosurgery. A recent study failed to detect increased levels of carboxy hemoglobin in woman who underwent prolonged laparoscopic procedures when smoke was evacuated simultaneously.<sup>10</sup> No fetal complications were found in the study.

## CONCLUSION

Laparoscopy is a safe option in management of adnexal pathology in pregnancy. It is better to time the elective procedure around 14 weeks in order to allow spontaneous resolution of functional/corpus luteal cysts and also avoid the period of organogenesis. A trained and experienced laparoscopic surgeon can perform laparoscopic procedure in the time duration similar to laparotomy. No specific adverse fetal events are reported in the literature attributing it to laparoscopy. However these observations need to be supported by prospective randomized controlled studies.

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