

## ORIGINAL ARTICLE

**Surgical Management of Adnexal Masses in Pregnancy**NAZIA SAYED<sup>1</sup>, REEMA FATEH<sup>2</sup>, SHAH ABBAS<sup>3</sup><sup>1</sup>WMO Gynae and Obs, Zakir Khan Shaheed Category C Hospital, Matta Swat KPK<sup>2</sup>WMO Gynae and Obs, THQ Hospital Kabal District Swat KPK<sup>3</sup>FCPS, DALC, General and Laparoscopic Surgeon, Assistant Professor Surgery Department, Saidu Group of Teaching Hospital, Swat

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**ABSTRACT**

**Background and Aim:** The incidence of suspicious adnexal masses is on the rise during pregnancy due to advancement of ultrasonography in the modern era. The prevalence of adnexal masses varied from 6% to 25% in gestational age of <20 weeks during pregnancy. However, due to a paucity of large randomized studies, little is known regarding their treatment during pregnancy. The present study aimed to assess the surgical management of suspected adnexal masses during pregnancy.

**Material and Methods:** This retrospective study was carried out on 28 suspected adnexal masses pregnant women in the Department of Gynecology, Saidu Group of Teaching Hospital Swat during the period from March 2022 to August 2022. Patients with definite indications were assessed through surgical intervention, tumor markers, MRI (Magnetic Resonance Imaging), and as per International Ovarian Tumour Analysis (IOTA) ultrasound rules. Pregnant women who had a laparoscopy or laparotomy before 20 weeks of pregnancy to treat an adnexal mass were enrolled. SPSS version 28 was used for data analysis.

**Results:** The overall mean age was  $28.4 \pm 1.9$  years with an age range from 18 years to 35 years. The mean gestational age was  $16.4 \pm 1.7$  weeks. Of the total 28 suspected adnexal masses, the prevalence of benign and malignant cases were 22 (78.6%) and 6 (21.4%) respectively. Out of 28 cases, about 18 (64.3%) had laparoscopic surgery and 10 (35.7%) had laparotomy. The left upper quadrant entry technique was used in 17 (60.7%) cases. Due to extensive pelvic adhesion, 3 (10.7%) required conversion from laparoscopic to laparotomy surgery. The laparoscopic group lost considerably less blood ( $66.7 \pm 52.4$  vs  $148.9 \pm 178.0$  mL, P.051) and had hospitalization for short duration ( $2.6 \pm 0.9$  vs  $3.7 \pm 1.2$  days, P.005) than the laparotomy group. One woman miscarried shortly after undergoing surgery. Obstetric outcomes did not differ significantly between the laparoscopy and laparotomy groups.

**Conclusion:** The present study concluded that surgical treatment of adnexal masses appears to benefit both the mother and the fetus during pregnancy. Thorough clinical examination, individualized imaging, and prompt action assist in the identification and management of suspected adnexal masses during pregnancy.

**Keywords:** Surgical management, Adnexal masses, Pregnancy, Laparoscopy, Laparotomy

**INTRODUCTION**

The rate of suspicious adnexal masses is on the rise during pregnancy due to advancement of ultrasonography in the modern era [1]. The prevalence of adnexal masses in <20 weeks of gestational age during pregnancy ranges from 6% to 25% as reported in a randomized controlled trials [2, 3]. During pregnancy, mostly adnexal masses dissolved are functional ovarian cysts whereas chronic masses ranges from 0.7% to 1.7% [4, 5]. Though bleeding, ovarian cyst, or rupture resulting in abdominal discomfort are unusual during pregnancy, these issues may necessitate emergency intervention in some cases. Recurrent masses in certain women with indicated malignancy on ultrasound might lead to surgery in pregnancy second trimester to avoid cyst issues [6]. Adnexal masses are becoming more common as the usage and quality of ultrasonography in pregnancy improves. Providentially, numerous cases of adnexal masses are benign. However, in order to adequately advise these women, doctors must be knowledgeable with the many forms of adnexal masses that can be seen during pregnancy. Furthermore, problems such as ovarian torsion and, in rare cases, cancer might ensue [7]. This scenario is frequently a diagnostic source issues, which can lead to incorrect surgical therapy [8]. Aside from an emergency, conservative therapy is addressed; nevertheless, the advent of appendix torsion and other acute complications necessitates relatively hostile surgical methods [9].

Surgical intervention may endanger the woman and her fetus, whereas monitoring without intrusion may result in undesirable consequences such as ovarian torsion or tumor growth [10]. Laparotomy has traditionally been performed to eradicate adnexal masses during pregnancy. Yet, mounting data indicates that adnexal masses treatment with laparoscopy during pregnancy is both safe and successful [11-13]. In pregnancy, several laparoscopic entrance procedures such as open Hassan, left upper quadrant (LUQ) entry, and Palmer's point have been employed. We examine the surgical therapy of adnexal masses in pregnant women and analyze their surgical and obstetric outcomes.

**METHODOLOGY**

This retrospective study was carried out on 28 suspected adnexal masses pregnant women in the Department of Gynecology, Saidu Group of Teaching Hospital Swat during the period from March 2022 to August 2022. Patients with definite indications were assessed through surgical intervention, tumor markers, MRI (Magnetic Resonance Imaging), and as per International Ovarian Tumour Analysis (IOTA) ultrasound rules. Pregnant women who had a laparoscopy or laparotomy before 20 weeks of pregnancy to treat an adnexal mass were enrolled. Post-surgery clinical details were recorded. Demographic information, ultrasonography results, surgical indications, operating method, and complications were all documented. Each woman's therapy was personalized and decided by gestational age, clinical symptoms, ultrasound results, and the woman's preference. Pregnant women with cyst diameter 10 cm underwent both laparotomy and laparoscopy. A sub umbilical midline skin incision was created for laparotomy dependent on prior scarring, mass size, or the surgeon's discretion. To summarize, a nasogastric tube was placed after general anesthesia was provided to decompress the stomach. The Veress needle was then introduced through a minor skin incision at anterior axillary line (ninth or tenth intercostal gap). Quantitative results were reported as proportions, mean, and standard deviation. The findings of women who had laparoscopy ("Laparoscopy" group) were compared to those of women who had laparotomy ("Laparotomy" group) using the t test for normally distributed continuous variables. The level of statistical significance was fixed at 5%.

**RESULTS**

The overall mean age was  $28.4 \pm 1.9$  years with an age range from 18 years to 35 years. The mean gestational age was  $16.4 \pm 1.7$  weeks. Of the total 28 suspected adnexal masses, the prevalence of benign and malignant cases were 22 (78.6%) and 6 (21.4%) respectively. Out of 28 cases, about 18 (64.3%) had laparoscopic surgery and 10 (35.7%) had laparotomy. The left upper quadrant entry technique was used in 17 (60.7%) cases. Due to extensive

pelvic adhesion, 3 (10.7%) required conversion from laparoscopic to laparotomy surgery. The laparoscopic group lost considerably less blood (66.7 ±52.4 vs 148.9 ±178.0 mL, P.051) and had hospitalization for short duration (2.6 ±0.9 vs 3.7 ±1.2 days, P.005) than the laparotomy group. One woman miscarried shortly after undergoing surgery. Obstetric outcomes were not substantially different between the laparoscopy and laparotomy groups. Figure-1 depicts the prevalence of benign and malignant cases. Table-1 represents the patient's details and clinical outcomes. Figure-2 illustrates the distribution of benign cases where Figure-3 demonstrates the malignant cases. Various obstetric outcomes has been compared in both laparoscopic and laparotomy patients as shown in Table-II.

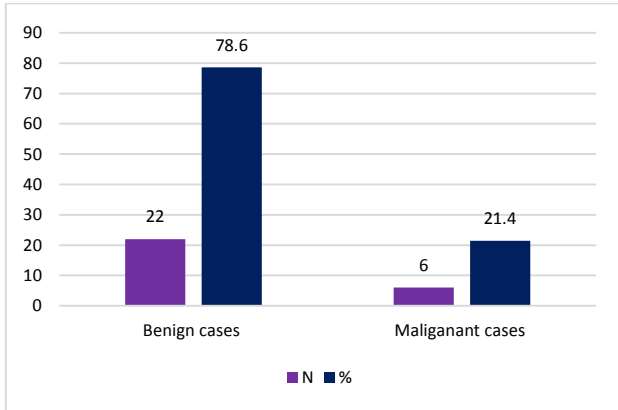


Figure-1: Prevalence of benign and malignant cases

Table-1: patients details and clinical outcomes

Parameters	Laparoscopy N=18	Laparotomy N=10	P-value
Age (yrs.)	30.2± 1.4	26.6±2.4	0.862
Parity	0.3 ± 0.4	0.3±0.5	0.726
Gestational age (weeks)	15.8±1.9	17±1.5	0.681
Cyst diameter (mean cm)	6.8±1.2	9.3±1.8	0.653
Emergency surgery N (%)	0 (0)	3 (30)	0.236
<b>Outcomes</b>			
Operative time (minutes)	90.8±46.8	69.3±28.6	0.067
Blood loss (mL)	66.7 ±52.4	148.9 ±178.0	0.051
Hospital stay (days)	2.6±0.9	3.7 ±1.2	0.05

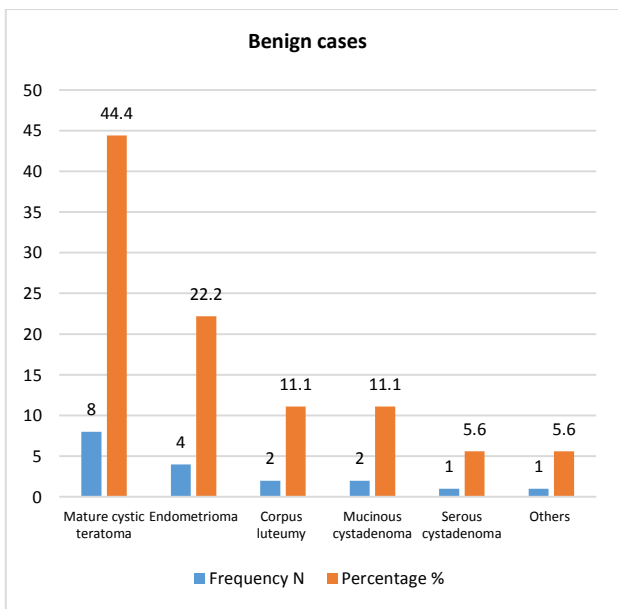


Figure-2: distribution of benign cases

Malignant cases

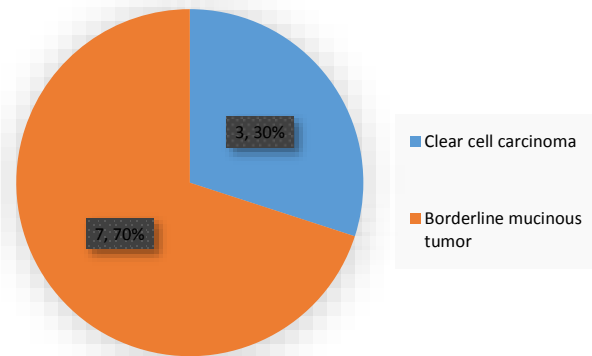


Figure-3: distribution the malignant cases.

Table-2: various obstetric outcomes has been compared in both laparoscopic and laparotomy patients

Parameters	Laparoscopy N=18	Laparotomy N=10	P-value
Gestational age at delivery (wks.)	38.2± 1.6	38.3±1.2	0.892
Birth weight (g)	3168.2±336.8	3156±442.2	0.876
APGAR score 1 minute	9.3±1.7	7.8±1.7	0.030
APGAR score 5 minutes	9.9±0.7	9.3±0.6	0.246
Premature cases N (%)	2 (11.1)	1 (10)	0.95
C/Section N (%)	7 (38.9)	3 (30)	1.00
Threatened miscarriage N (%)	2 (11.1)	0 (0)	0.473
Pregnancy loss N (%)	0 (0.0)	1 (10)	0.439

## DISCUSSION

The present study focused on the surgical management of adnexal masses during pregnancy and found that surgical treatment of adnexal masses during pregnancy appears to benefit both the mother and the fetus. Thorough clinical examination, tailored imaging, and timely intervention help to identify and manage suspected adnexal masses during pregnancy. The frequency of benign and malignant cases among the 28 suspected adnexal masses was 78.6% and 21.4%, respectively. In 28 instances, about 64.3% had laparoscopic surgery and 35.7% had laparotomy. In 60.7% of instances, the left upper quadrant entrance approach was employed. 10.7% of patients required conversion from laparoscopic to laparotomy surgery due to severe pelvic adhesion. The laparoscopic group lost much less blood (66.7 52.4 vs 148.9 178.0 mL, P.005) and was hospitalized for significantly shorter time (2.6 0.9 vs 3.7 1.2 days, P.005) than the laparotomy group. One woman miscarried soon after having surgery. Obstetric outcomes were not substantially different in both groups.

According to a prior study, the adnexal masses surgical care in pregnancy seems to be innocuous with equivalent surgical and obstetric results between both groups' women [14]. Though other investigations reported that removing an adnexal tumor during the first trimester of pregnancy is safe [15, 16]. It is normally shunned to enable for impulsive tenacity and to limit the chance of spontaneous miscarriage. Deferring surgery till the second trimester on the other hand, provides a technical hurdle, particularly if laparoscopic surgery is used. Inadvertent damage to the uterus by the trocar might result in amniotic fluid leaking, bleeding, or miscarriage [17]. Additionally, sufficient visibility might be challenge due to the restricted space between adnexal mass and the laparoscope [18].

One of the major complaints with an adnexal tumor is the possibility of cancer. The incidence rate of ovarian cancer varies from one in 5000 to 1 in 47 000 live births in most studies published, with 2% to 6% of recurrent adnexal tumors being malignant [19]. The prevalence of malignancy in the current research was 8.6% of persistent masses, which is close to previously reported rates. Dursun et al [20] stated a 13% malignancy rate their study on 60 adnexal masses removed in 12 years during pregnancies double the formerly stated rate.

With the widespread use of ultrasonography for prenatal monitoring, the prevalence of adnexal masses in pregnancy has skyrocketed. The adnexal masses cases are mostly detected by chance during regular prenatal ultrasonography for obstetric purposes [21]. These make up 30% of pregnant masses and usually disappear on their own during pregnancy (first or early second trimester) [22]. For patients with significant stomach discomfort and a strong suspicion of ovarian torsion, surgery on emergency basis should be done [23]. For individuals with no symptoms, it is believed that observation is sufficient because most adnexal masses are functioning ovarian cysts that will disappear naturally [24]. Given the increased risk of preterm birth during this gestational age window, a preventive course of prenatal corticosteroids may be recommended for fetal lung maturity when the procedure is performed between 24 and 34 weeks' gestation [25].

## CONCLUSION

The present study concluded that surgical treatment of adnexal masses appears to benefit both the mother and the fetus during pregnancy. Finding an adnexal mass during pregnancy is not a typical occurrence, despite the growing use of ultrasonography for prenatal surveillance. Thorough clinical examination, individualized imaging, and prompt action assist in the identification and management of suspected adnexal masses during pregnancy.

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