

Adnexal Masses in Pregnancy: Successful OutcomesSwathi K J¹, Nivya Premkumari S², Padmavathy P³, Tamilselvi D⁴, Sindhura Myneni⁵¹Assistant Professor, Department of Obstetrics and Gynaecology, Panimalar Medical College Hospital & Research Institute, Chennai-600123, Tamil Nadu, India.²Assistant Professor, Department of Obstetrics and Gynaecology, Panimalar Medical College Hospital & Research Institute, Chennai-600123, Tamil Nadu, India.³Professor, Department of Obstetrics and Gynaecology, Panimalar Medical College Hospital & Research Institute, Chennai-600123, Tamil Nadu, India.⁴Professor, Department of Obstetrics and Gynaecology, Panimalar Medical College Hospital & Research Institute, Chennai-600123, Tamil Nadu, India.⁵Assistant professor, Department of Obstetrics and Gynaecology, Panimalar Medical College Hospital & Research Institute, Chennai-600123, Tamil Nadu, India

Received: 25-08-2024 / Revised: 23-09-2024 / Accepted: 26-10-2024

Corresponding Author: Dr. Sindhura Myneni

Conflict of interest: Nil

Abstract:**Background:** Adnexal masses in pregnancy are rare and found incidentally. Advances in ultrasound technology enable us to detect adnexal masses in pregnancy. Incidence of adnexal masses in pregnancy is around 1%. Most of the adnexal masses in pregnancy are asymptomatic, functional and resolve spontaneously. The risk of malignancy of adnexal masses in pregnancy is low and advances in ultrasound help us to assess the risk. Management of adnexal cysts depends on size of the cysts.**Methods:** This is a retrospective observational study done at PMCH & RI for a period of 18 months. The data was collected through predesigned proforma by reviewing medical records and analysed.**Results:** All of them belonged to 20-35 years age group. All of them diagnosed during routine antenatal ultrasound and had regular follow-up. All of them were asymptomatic during pregnancy. All the 7 cases had caesarean section along with cystectomy and postoperative period was uneventful. Histopathological report showed 4 mucinous cystadenoma, 2 serous cystadenoma and 1 corpus luteal cyst. None of them had maternal and neonatal complications.**Conclusion:** Most of the adnexal masses arising in pregnancy are probably benign in origin and can be managed expectantly if they are asymptomatic. Ultrasound is preferred first line investigation for diagnosing adnexal masses during pregnancy. MRI can be done in suspicion of malignancy. If surgery is indicated, laparoscopy is safe and feasible and can be done in second trimester.**Keywords:** Adnexal masses, Ultrasound, Caesarean section, Torsion, Malignancy.This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.**Introduction**

Most of the adnexal masses during pregnancy are incidental findings which are revealed on routine ultrasonography. [1,2,3,4] The incidence and detection of adnexal masses have been increasing due to advances in ultrasonography in pregnancy. [5] Majority of these adnexal masses were discovered in early trimester of pregnancy.

Functional cysts usually regress spontaneously and most of them are asymptomatic. [6] Tumour markers in pregnancy are of low utility and validity. [2,4,7] Doppler ultrasonography can be also done for further characterization of lesion in relation to blood flow. [5] MRI is helpful in distinguishing between benign and malignant etiology. [8] Managing adnexal masses in pregnancy is controversial. Surgical intervention is indicated only

in cases of torsion, rupture, hemorrhage or suspecting malignancy. [5,6] Laparoscopy is currently common surgical approach in managing adnexal masses.

Methods

This is a retrospective observational case series conducted in Panimalar Medical College Hospital & Research Institute during a period of 18 months from January 2023 to June 2024. 7 antenatal women diagnosed with adnexal mass in routine ultrasound were included in the study. The data was collected by reviewing medical records and analyzed.

Results

All of them belonged to 20-35 years age group. All of them diagnosed during routine antenatal ultrasound. All of them had regular follow-up and was asymptomatic during pregnancy. All the 7 cases had caesarean section along with cystectomy and

postoperative period was uneventful. Histopathological report showed 4 mucinous cystadenoma, 2 serous cystadenoma and 1 corpus luteal cyst. None of them had maternal complications. Only one baby admitted in view of IUGR.

Table 1: Showing demographic characteristics of cases

	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7
Age	24 Years	27 Years	33 Years	24 Years	32 Years	29 years	34 years
Parity	Primi	Gravida 2	Gravida 2	Gravida 2	Gravida 2	Primi	Primi
Complaints	No	No	No	No	No	No	No

Table 2: Showing Cyst related data

	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7
Gestational age at first Diagnosis	20 Weeks	28 Weeks	22 Weeks	7 Weeks	12 Weeks	10 weeks	11 weeks
Size	14x 18cm	20.5x12cm	8.1x8cm	5x4 cm	11.3x7.2 cm	5x 5 cm	12x10cm
Side	Right	Right	Left	Right	Right	Right	Left
Ca 125	10 U/L	15 U/L	20 U/L	18 U/L	25 U/L	12 U/L	10 U/L
Ovarian torsion or rupture	No	No	No	No	No	No	No
HPE	Serous Cystadenoma	Mucinous Cystadenoma	Mucinous Cystadenoma	Corpus Luteal Cyst	Mucinous Cystadenoma	Mucinous Cystadenoma	Serous cystadenoma

Table 3: Showing maternal and neonatal outcomes

	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7
Gestational age at delivery	38 Weeks	38 Weeks	38 Weeks	38 Weeks	38 Weeks	38 weeks	37 weeks
Type of delivery	LSCS with right salpingo ophorectomy and Left Tubectomy	LSCS With right salpingo ophorectomy With Left Tubectomy	LSCS With left salpingo ophorectomy With Right Tubectomy	LSCS With right salpingo ophorectomy With Left Tubectomy	LSCS With Right Ovarian Cystectomy With bilateral Sterilisation	LSCS with right ovarian cystectomy	LSCS with Left salpingo ophorectomy
Indication of LSCS	Failed Induction	Previous LSCS	Previous LSCS	Previous LSCS	Previous LSCS	Fetal distress	Cephalopelvic disproportion
Baby Weight	3.22 Kgs	2.010 Kgs	3.155 Kgs	3.25 Kgs	2.695 Kgs	2.980kgs	2.975kgs
NICU admission	No	Yes	No	No	No	No	No

Discussion

Due to advancing technology of ultrasound, detection rates of adnexal masses during pregnancy

have been increased. Majority of the cases regress spontaneously which are less than 5cm, but there is a risk of torsion, rupture, dystocia and malignancy.

[1] In our current case series, we analyzed 7 cases of adnexal masses which are diagnosed during pregnancy.

In our study all the women were below 35 years age which is in consistent with few other studies. [9,10] All the cases in our present study were unilateral which is in similarity with various studies. [11,12] Most common complication of adnexal masses during pregnancy is torsion which is more common in larger cysts in around 10-20% of cases. [13]

In literature, few studies reported a higher risk of torsion of adnexal cysts of 6-8cm in size. [14] While in our current study, none of the cases had torsion. Due to increase in uterine size and displacement of ovaries in first and second trimester are prone for sudden torsion.

Incidence of rupture is low which less than 1% is. [15] Labour dystocia is another concern leading to operative delivery. The other complications like infection, impaction of cysts in pelvis, malpresentations might occur. [16] Timing of surgery depends on the complications like torsion or rupture.

Incidental finding during caesarean section must be removed and sent for histopathological examination to exclude malignancy. Risk of malignancy during pregnancy is rare.

In our present study all the cases were benign in origin. Ca 125 values were normal in all the cases. Mucinous cystadenoma was common in our current study. However previous studies reported dermoid cyst is the most common diagnosis. [13]

Managing adnexal masses during pregnancy should be done according to the period of gestation and complications. Most of the cysts during pregnancy are corpus luteal cysts which resolves spontaneously. All the 7 cases had cesarean section along with cystectomy. None of them had intraoperative and postoperative complications. Indications for cesarean section were due to obstetric and fetal reasons and not related to adnexal masses. None of them had complications of rupture, torsion or infection.

No neonatal complications were noted in our study due to adnexal masses except one baby admitted in NICU in view of IUGR which is in comparison with other studies. [10] The cause of IUGR is not related to adnexal mass.

Conclusion

Most of the adnexal masses arising in pregnancy are probably benign in origin and can be managed expectantly if they are asymptomatic. Ultrasound is preferred first line investigation for diagnosing adnexal masses during pregnancy.

MRI can be done in suspicion of malignancy. If surgery is indicated, laparoscopy is safe and feasible and can be done in second trimester.

References

1. Yacobozzi M, Nguyen D, Rakita D. Adnexal masses in pregnancy. In *Seminars in Ultrasound, CT and MRI 2012 Feb 1* (Vol. 33, No. 1, pp. 55-64). WB Saunders.
2. Leiserowitz GS. Managing ovarian masses during pregnancy. *Obstetrical & gynecological survey*. 2006 Jul 1; 61(7):463-70.
3. Glanc P, Salem S, Farine D. Adnexal masses in the pregnant patient: a diagnostic and management challenge. *Ultrasound Quarterly*. 2008 Dec 1; 24(4):225-40.
4. ROBERT L GIUNTOLI II, Vang RS, Bristow RE. Evaluation and management of adnexal masses during pregnancy. *Clinical obstetrics and gynecology*. 2006 Sep 1; 49(3):492-505.
5. Hoover K, Jenkins TR. Evaluation and management of adnexal mass in pregnancy. *American journal of obstetrics and gynecology*. 2011 Aug 1; 205(2):97-102.
6. Aggarwal P, Kehoe S. Ovarian tumours in pregnancy: a literature review. *European Journal of Obstetrics & Gynecology and Reproductive Biology*. 2011 Apr 1; 155(2):119-24.
7. Sarandakou A, Protonotariou E, Rizos D. Tumor markers in biological fluids associated with pregnancy. *Critical reviews in clinical laboratory sciences*. 2007 Jan 1; 44(2):151-78.
8. Graham L. ACOG releases guidelines on management of adnexal masses. *American family physician*. 2008 May 1; 77(9):1320-3.
9. Sayin NC, Inal HA, Varol FG. Pregnancies complicated by adnexal masses: a case series. *Archives of gynecology and obstetrics*. 2008 Dec; 278:573-7.
10. Bahadur A, Sri MS, Mundhra R, Chawla L, Ajmani M, Afreen T, Kumari P, Sharma S. Pregnancy with adnexal masses: an institutional experience and review of the literature. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*. 2021 Mar 1; 10(3):1149.
11. Fatema N. Muna Mubarak Al badi, and Zarrin Tasnim Moon, "Management and Outcomes of Ovarian Masses Measuring ≥ 5 cm in Pregnancy—a Series of Six Cases," *MOJ Clin. Med. Case Reports*. 2016; 5(3):1-6.
12. Ulker V, Gedikbasi A, Numanoglu C, Saygi S, Aslan H, Gulkilik A. Incidental adnexal masses at cesarean section and review of the literature. *Journal of Obstetrics and Gynaecology Research*. 2010 Jun; 36(3):502-5.
13. Tsafirir Z, Hasson J, Levin I, Solomon E, and Lessing JB, Azem F. Adnexal torsion: cystectomy and ovarian fixation are equally important in preventing recurrence. *European Journal of*

- Obstetrics & Gynecology and Reproductive Biology. 2012 Jun 1; 162(2):203-5.
14. Yen CF, Lin SL, Murk W, Wang CJ, Lee CL, Soong YK, Arici A. Risk analysis of torsion and malignancy for adnexal masses during pregnancy. *Fertility and sterility*. 2009 May 1; 91(5):1895-902.
 15. Cavaco-Gomes J, Jorge Moreira C, Rocha A, Mota R, Paiva V, Costa A. Investigation and management of adnexal masses in pregnancy. *Scientifica*. 2016; 2016(1):3012802.
 16. Dahiya LP. Ovarian mass in pregnancy: a case report. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*. 2015 Jun 1; 4(3):915-8.