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Ovarian cysts and cancer in pregnancy

Asima Mukhopadhyay, MD, MRCOG, PhD, Consultant Gynaecological Oncology [a, b, *],
Aditi Shinde, MS, DNB, Clinical Fellow in the Department of Gynaecological Oncology [a],
Raj Naik, MD, FRCOG, Consultant Gynaecological Oncology [c]

[a] Tata Medical Center, 14 Main Arterial Road, Rajarhat, Kolkata 700156, India
[b] Newcastle University, New Castle, UK
[c] Northern Gynaecological Oncology Centre, Gateshead, UK

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Adnexal masses are diagnosed in 5% pregnancies and pose diagnostic and management challenges. Ultrasound and magnetic resonance imaging (MRI) are the mainstay as an evaluation procedure; surgery is warranted for persistent masses with a diameter of >5 cm and sonographic signs of possible malignancy. Optimal timing for a planned surgery is the second trimester and does not adversely affect neonatal outcome. Laparoscopy is safe in pregnancy. Management for ovarian cancer during pregnancy should be individualised and formulated by a multidisciplinary team in a specialised centre while also considering the patients' wishes to preserve pregnancy. The following options can be considered: (i) induced abortion followed by standard management of ovarian cancer, (ii) pregnancy-preserving surgery followed by chemotherapy, planned delivery and secondary surgical completion or (iii) neoadjuvant chemotherapy followed by surgery during the postpartum period. Standard chemotherapy administered in non-pregnant population can only be used during the first trimester of pregnancy.

* Corresponding author. Tata Medical Center, Kolkata, India. Tel.: +91 7044088132, +44 7951040818.
E-mail address: asima7@yahoo.co.in (A. Mukhopadhyay).

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Introduction

Ovarian masses in pregnancy, which can range from innocuous corpus luteal cysts to malignant ovarian tumours, pose a challenge from both a diagnostic and management point of view. The incidence of adnexal masses in pregnancy has been variably reported as 0.15–5.7%; clinically significant masses range from one in 25 to one in 8000 pregnancies [1–5]. A higher trend in reporting is possibly explained by the increasing use of ultrasound (USS) as a routine antenatal evaluation and postponing childbearing to an older age.

Malignant adnexal masses during pregnancy range between 0.8% and 13% [5–12]. The reported incidence of ovarian cancer (OC) in pregnancy varies from 1 in 15,000 to 1 in 32,000 and it is amongst the top five cancers diagnosed during pregnancy [13–17]. With the increasing maternal age, it is expected that more women will be diagnosed with OC in pregnancy in the future, therefore management guidelines should be formulated with a regular update and review of recent literature [15,16].

Several articles have addressed the issues pertaining to the diagnosis of an adnexal mass, management algorithms specific to each trimester, use of laparoscopy and laparotomy during pregnancy while also considering the foetus. In this study, we intend to focus on the complexities of managing OC in pregnancy, especially when the role of primary cytoreduction to no macroscopic residual disease or extensive staging procedures is gaining momentum and increasingly debated within the gynaecological oncologist community.

Ovarian cysts in pregnancy

Dermoid cyst, cystadenoma, functional corpus luteal cysts and endometrioma are the most common causes for benign ovarian cysts in pregnancy [5–8]. In addition, ovarian hyper-stimulation and polycystic ovaries should be kept in mind, especially with a history of infertility (Tables 1–3).

Most adnexal masses are diagnosed incidentally in the first trimester during the routine dating scan, unless investigated earlier for infertility: 65–80% are asymptomatic, and almost three-fourth resolve spontaneously, with those persisting beyond 16–20 weeks indicating definitive pathology. Mature cystic teratoma and borderline ovarian tumour (BOT) are the most common histopathological diagnosis amongst persistent masses [18–22].

Table 1
Incidence of ovarian cysts and ovarian cancer in pregnancy.

Author	*n*	Incidence of Ovarian cysts (%)	Incidence of malignancy including tumours of low malignant potential (%)
Sherard [5]	60	0.15	13
Balci [6]	36		5.8
Türkçüoğlu [7]	35	0.3	8.5
Bromley [8]	131		0.8
Schmeler [9]	63	0.05	7.9
Cohen-Herriou [10]	71	0.35	4.2
Leiserowitz [11]	9375	0.19	2.15
Chittacharoen [12]	118	0.10	2.9

Table 2
Ovarian cysts in pregnancy.

Author	Gestation age at diagnosis	Gestation age at surgery	Commonest histopathology
Sherard [5]	12	20	Mature cystic teratoma (50%)
Balci [6]	17 (5–36)	24 (6–41)	Functional ovarian cyst (41.1%)
Türkçüoğlu [7]			Dermoid cyst (40%)
Bromley [8]	12	2nd trimester	Dermoid cyst (30%)
Schmeler [9]	12		Dermoid cyst (42%)
Cohen-Herriou [10]			Functional ovarian cyst (74.39%)
Hoover [17]	First trimester	12–27 weeks	Dermoid (25%)