International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Prajapati RR et al. Int J Reprod Contracept Obstet Gynecol. 2024 Jul;13(7):1735-1739
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20241768

Original Research Article

Diagnosis and management of adnexal masses

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Received: 28 April 2024
Revised: 04 June 2024
Accepted: 05 June 2024

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ABSTRACT

Background: Adnexal masses are a commonly encountered gynecological problem. Appropriate evaluation to discriminate between benign and malignant masses helps to guide gynecologists for proper evaluation and management. This study aimed to determine the prevalence of different histopathologic types of adnexal masses among women presenting to our hospital. We also aimed to describe known risk factors of epithelial ovarian cancer and compare the preoperative evaluation and histopathologic diagnosis of adnexal masses. Aims and objectives were to study the clinical nature of adnexal mass, to study different sites and pathology of adnexal masses, to study radio logical and histopathological nature of adnexal mass managed surgically, to determine clinical, radio logical, and histopathological co-relation of adnexal mass.
Methods: This was prospective, observational study of patients having 'adnexal masses', conducted from May 2023 to December 2023 at our tertiary care hospital. Clinical diagnosis was confirmed by ultrasonography and histopathology.
Results: Adnexal masses are more common in nulliparous and common associated risk factors are PID and genital TB. The commonest symptom on patients with adnexal masses was abdominal pain. In present study, most common histopathological diagnosis was ruptured ectopic pregnancy.
Conclusions: Adnexal masses are common gynecological problem mostly found in reproductive age group women and in them they were mostly non neoplastic and benign, whereas in peri and post-menopausal age group were malignant. Ectopic pregnancy is the most common presentation of adnexal masses in reproductive age group. Laparoscopic approach is most preferred approach for adnexal masses removal.

Keywords: Adnexal, Ectopic, Nulliparous

INTRODUCTION

The diagnosis of adnexal mass in women with pelvic symptoms or incidentally represents a routine in gynecological practice and often presents diagnostic and management dilemmas.[1] The adnexum (plural= adnexa) includes Fallopian tube and ovary and their mesenteries collectively. Adnexal masses refer to the ovarian masses or cysts, fallopian tube masses, broad ligament pathology and para tubal cysts.[2]

The prevalence of adnexal masses is 0.17% to 5.9% in asymptomatic and 7.1% to 12% in symptomatic patients. Adnexal masses may be benign or malignant and with gynecological or non-gynecological causes. Adnexal masses have significantly variable prevalence but very common among women of reproductive age.

Some patients of adnexal masses may be asymptomatic, some may have pain abdomen, lump abdomen, menstrual irregularities, infertility, weight loss etc. while some others may present with an acute abdomen which can be due to infection, hemorrhage, torsion, rupture of ovarian cyst or ruptured ectopic pregnancy.

Thorough history and physical examination are essential steps that can hint to the appropriate investigations such as reproductive hormone levels, serum cancer biomarkers and imaging.[3] Due to risk of malignancy, it requires

accurate and prompt diagnosis to lessen morbidity and mortality. A thorough abdominal and pelvic examination should be done during the initial encounter with the patient. In case of incidental finding of adnexal mass pelvic, transvaginal ultrasonography remains the modality of choice for evaluating suspicious characteristics.[4] Increased use of TVS screening for ovarian carcinoma may increase the chance for early diagnosis and decrease the mortality of the disease. Thus, imaging by ultrasonography helps to locate its origin (ovarian, uterine, bowel), the mass size, consistency and internal architecture. Ovarian cancer is the commonest cause of death from gynecologic malignancy and is fifth commonest cause of cancer deaths in women.

With the advancement of technology, the role of computerized tomography (CT), magnetic resonance imaging (MRI) and positron emission tomography (PET) in diagnosis and management of adnexal masses has increased vastly, but they may not be feasible in every patient in our set up. USG has been shown to be accurate for both detecting and characterizing adnexal mass as confirmed by histopathology.[5] Recognition of severity of problem, appropriate and timely evaluation and treatment with good outcome is the goal.

Aims and objectives

To study the clinical nature of adnexal mass. To study different sites and pathology of adnexal masses. To understand etiology of adnexal masses. To study radio logical and histopathological nature of adnexal mass managed surgically. To determine clinical, radio logical, and histopathological co-relation of adnexal mass.

METHODS

It was a prospective, observational study that took place in tertiary care hospital, Ahmedabad. Sample size was 70 patients. Study period was from May 2023 to December 2023.

Inclusion criteria

Patients with age group of 16-65 years visiting our hospital. Patients with both benign and malignant masses are included. Both OPD and IPD patients were included.

Exclusion criteria

Patients who were pregnant and who were not willing to give consent.

Ethical approval was not required.

RESULTS

A total number of 70 patients were enrolled in study. Maximum number of patients were below 45 years of age and most of them were of nulliparous age group.

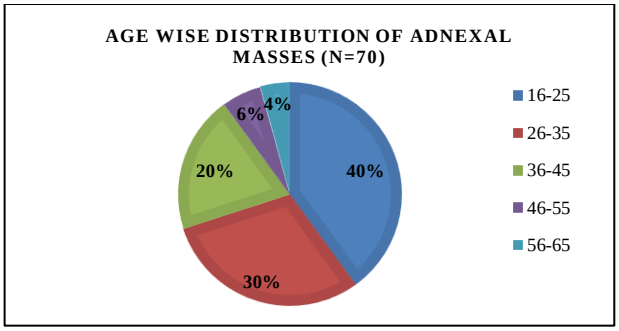

Figure 1: Age wise distribution of adnexal masses (n=70).

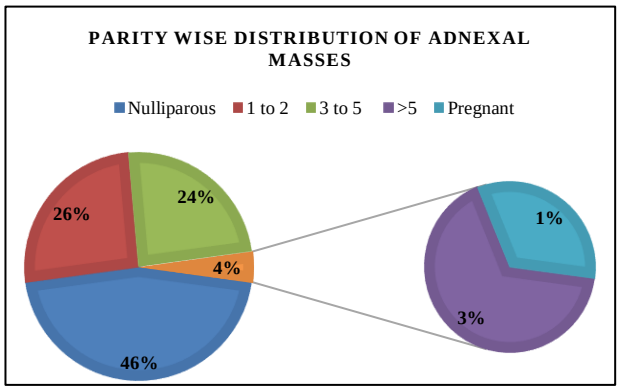

Figure 2: Parity wise distribution of adnexal masses.

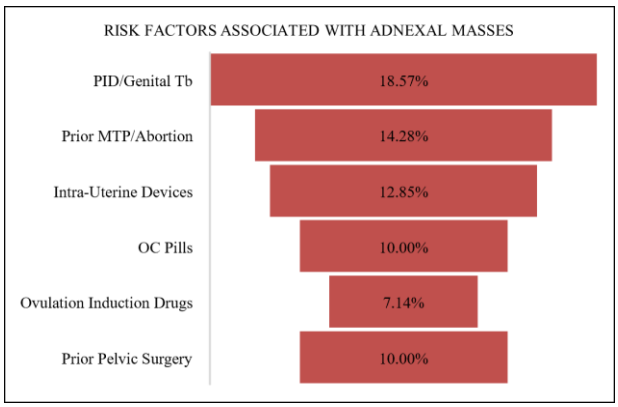

Figure 3: Risk factors associated with adnexal masses.

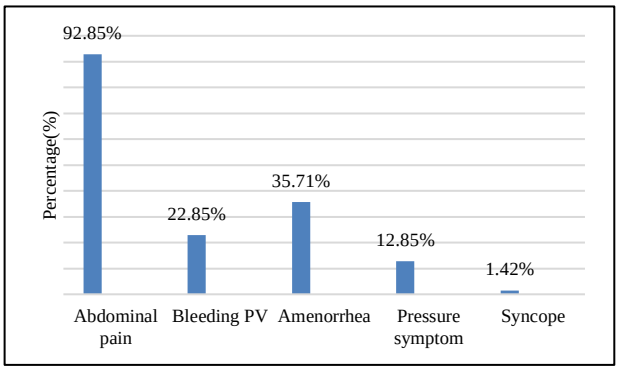

Figure 4: Symptoms in case of adnexal masses.

Among risk factors associated with adnexal masses, pelvic inflammatory disease and genital TB were found to be more common among patients with adnexal masses.

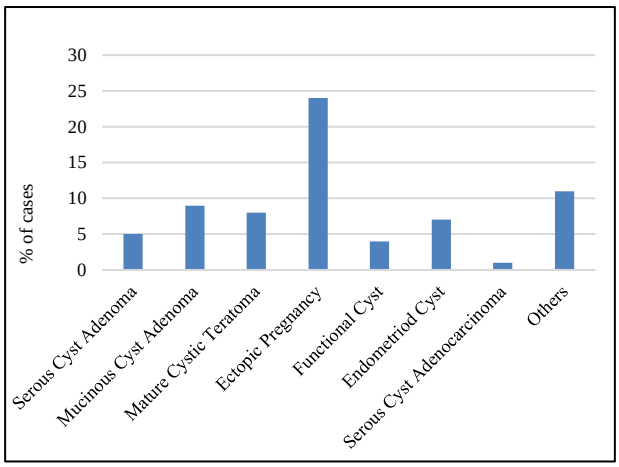

Figure 5: Histopathological diagnosis of adnexal masses (n=70).

Table 1: Diagnosis in case of adnexal masses.

Diagnosis		N (%)
Tumour markers (Total cases-39)	CA 125	9 (23.07)
	CEA	8 (20.51)
	β HCG	25 (96.51)
Radiological investigations	USG	70 (100)
	CT	03 (4.28)
	MRI	04 (5.71)
	PET	00
USG site of adnexal masses	Left ovary	17 (24.28)
	Right ovary	21 (30)
	Bilateral ovaries	01 (1.42)
	Left fallopian tube	16 (22.85)
	Right fallopian tube	13 (18.57)
	Para ovarian	02 (2.85)
	Other	00

Table 2: Surgical approach for management of adnexal masses.

Surgical approach management		N (%)
Surgical approach	Laparotomy	47 (67.14)
	Laparoscopy	23 (32.85)
	Laparoscopy f/b laparotomy	01 (1.42)
Types of surgeries in management of adnexal masses	Cystectomy	28 (40)
	Oophorectomy	2 (2.85)
	Salpingectomy	23 (32.85)
	U/L salpingo-oophorectomy	11(15.71)
	Hysterectomy+ BSO	4 (5.71)
	Others	2 (2.85)

Most common presenting symptom in patient of adnexal masses was abdominal pain, as shown in Figure 4.

In present study, most common histopathological diagnosis was ruptured ectopic pregnancy and chronic ectopic pregnancy (Figure 5).

DISCUSSION

In present study, majority of cases (90%) were below 45 years. Only 10% patients were above 45 years, indicating a higher incidence of masses in the premenopausal patients compared to post-menopausal patients. The study by Shukri et al and Champawat et al also reported high incidence of adnexal mass below 45 years of age- 86% and 92% respectively.[6-8]

The present study shows that incidence of adnexal masses was highest in nulliparous group (45.71%), out of them 8.57% women were unmarried. Shukri et al study also observed high incidence in nulliparous but out of them 33% women were unmarried.[6]

In present study, pelvic inflammatory disease and genital tuberculosis were important risk factors for adnexal masses associated with 18.57% cases which is similar to study by Ueda et al In PID, bacterial spread to the ovary occurs secondary to salpingitis and may result in tubo-ovarian abscess.[9] Other most important risk factor for adnexal masses was prior MTP/abortion associated with 14.28% cases in present study, oral contraceptive pills, (10%), prior pelvic surgery (10%), intra-uterine devices (12.85%), and ovulation induction drugs (7.14%) were also associated with adnexal mass. More than one risk factor may be present in one patient. In 19 cases (27.14%), no risk factor was present.

In present study, most common presenting symptom in patients of adnexal mass was abdominal pain (92.85%) which was similar to other studies conducted by Shukri et al, Bhagde, Radhamani et al and Das et al where they found it to be in 98%, 92%, 82% and 72.41% of cases respectively.[6-10] Champawat et al reported that 46.6% women presented with abdominal distension and pain. Abdominal pain in adnexal mass may be due to associated infection, torsion, malignant changes, adhesions, or mass size. Other chief complaints are bleeding per vaginum (22.85%), amenorrhea (35.71%), pressure symptom (12.85%), syncope (1.42%). More than one symptom may be present in many patients.

In present study, cancer antigen-125 (CA-125) was elevated in 23.07% cases mostly related to cases of endometriosis. Other benign conditions leading to raised CA-125 levels are pelvic inflammatory disease, uterine fibroid, liver cirrhosis and diverticulitis. The serum CA-125 level is elevated most consistently in advanced epithelial ovarian cancer and its value has been demonstrated as a marker for pt prognosis, disease progression and response to chemotherapy.

Carcino-embryonic antigen (CEA) was elevated in Mucinous cyst adenoma and ovarian cyst adenocarcinoma. Benign conditions leading to raised CEA levels are ulcerative colitis, cirrhosis, pancreatitis, Crohn's disease, COPD and hypothyroidism. Alpha feto-protein (AFP) was not elevated in any case. Benign conditions leading to raised AFP levels are cirrhosis, viral hepatitis and ataxia telangiectasia. Beta human chorionic gonadotropin (B-HCG) was elevated in 96.51% cases, mostly related to cases of ectopic pregnancy. Other benign conditions leading to raised B-HCG levels are hydatidiform mole and teratomas.

All the cases of adnexal masses were examined ultrasonographically, both transabdominal and transvaginal. CT was done in 3 cases in which findings of USG were confirmed and MRI was done in 4 cases. PET have higher reliability in differentiating benign and malignant lesions, but were not done in any of the cases in present study.

In present study, most common site of origin of adnexal masses were ovaries (55%). Common causes of ovarian masses are mucinous cyst adenoma, serous cyst adenoma and cystic teratomas. In present study, among the non-ovarian origin adnexal masses, 41.42% cases were of fallopian tube origin. This finding was comparable to finding of Radhamani et al, Bhagde et al.[10,11] Common causes of tubal pathologies leading to adnexal mass are tubal ectopic pregnancy and hydrosalpinx (PID).

In present study, laparotomy was considered in 47 (67.14%) cases of adnexal mass. Laparoscopic approach was considered in 23 (32.85%) cases of adnexal masses, out of which in 1 case, laparotomy was followed. Out of 23 (32.85%) cases managed laparoscopically, 12 (17.14%) were ovarian cyst, 8 (11.42%) were ectopic, 2 (2.85%) were for other reasons. Similar findings are observed in Champawat et al.[8]

In present study, cystectomy was done in 40% cases, oophorectomy in 2.85% cases, salpingectomy in 32.85% cases, unilateral salpingo-oophorectomy in 15.71% cases, and hysterectomy with bilateral salpingo-oophorectomy in 5.71% cases.

In present study, common adnexal masses on histopathological diagnosis were rupture ectopic pregnancy (22.85%), chronic ectopic pregnancy (12.85%), mucinous cyst adenoma (12.85%), mature cystic teratoma (11.42%) and serous cyst adenoma (7.14%). Mucinous cystadenomas have thicker and more numerous septations and frequently contain fine gravity dependent echoes produced by the thick contents. Mature cystic teratomas of the ovary or dermoid cysts, were the most common benign germ cell tumour and the most common ovarian neoplasm. Dermoid cysts constitute 5% to 25% of all ovarian neoplasms. Benign serous tumors are common, accounting for about 50% to 70% of all ovarian tumors. Benign serous cystadenoma appears as sharply marginated, anechoic masses that may be large and were usually unilocular. In the study by Shukri, common adnexal masses were benign and mature cystic teratoma (20% and 6%), corpus luteal cyst (16%), endometrial cyst (14%), serous cyst adenoma (12%) and mucinous cyst adenoma (12%).[6,7]

There are few limitations. We did not review articles published in languages other than English because of a lack of resources for translation. It is possible that this led to the failure to include some relevant articles. Few studies addressed the potential impact of observer variability on the precision of test characteristics. There was considerable heterogeneity in design and patient populations among studies, and our use of a random-effects model to perform meta-analyses for some questions may have led to inaccurate estimates.

CONCLUSION

An adnexal mass (mass of the ovary, fallopian tube, or surrounding connective tissues) is a common gynecologic problem. Acute surgical emergencies of gynecological origin occur in women of reproductive age group and sometimes in adolescents. Adnexal mass in the reproductive age group were mostly non neoplastic and benign, whereas in peri and postmenopausal age group were malignant.

Ectopic pregnancy is the most common presentation of adnexal mass in reproductive age group. Majority of adnexal masses were of ovarian origin. The differentiation between benign and malignant ovarian tumor is, however, a clinical challenge. Imaging plays an important role in the identification and characterization of adnexal masses and can help the clinician in determining the further course of management. However, no single diagnostic aid can be used to determine the pathological adnexal masses. Hence a multidisciplinary diagnostic approach should be used for a definite diagnosis and management of adnexal mass.

It should be a priority to try to preserve ovaries while operating on a patient with adnexal mass. The trend is in favour of laparoscopic surgery whenever available with its benefits. Laparoscopic surgery should be encouraged for as a surgical mode in young patients.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Hospital and clinics Coauthor(s): Nelson Teng, MD, PhD, Associate Professor, Department of Gynecology and Obstetrics, Division of Gynecologic Oncology, Stanford School of Medicine Contributor Information and Disclosures Updated: Oct 16,2008.
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Cite this article as: Prajapati RR, Shah AC. Diagnosis and management of adnexal masses. Int J Reprod Contracept Obstet Gynecol 2024;13:1735-9.