Original Article

Clinicopathological Study of Adnexal Mass in a Rural Medical College Hospital

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ABSTRACT

Background: Adnexal mass is a frequent occurrence in females and can present with a broad range of clinical, morphological, and histopathological features. Accurate clinical diagnosis with histopathological confirmation is crucial for effective patient management, as adnexal masses can range from a ruptured ectopic pregnancy to a malignant lesion with a risk of mortality. We wanted to examine the clinicopathological characteristics of tubo-ovarian lesions.

Methods: This is a six-year retrospective study conducted at Jahurul Islam Medical College Hospital in Kishoregonj, which included a total of 550 cases of adnexal masses. Clinical information was obtained from the hospital's Obstetrics and Gynecology department database, while histopathological data was gathered from the Pathology department. Data analysis was performed using Microsoft Excel software.

Results: Ovarian pathology constituted 76.36% of the adnexal masses, while 23.63% of cases originated from the fallopian tube. We recorded 168 neoplastic and 252 non-neoplastic lesions from the ovarian lesions. Ninety-one percent (91.1%) of the ovarian neoplasms were benign, 7.1% malignant, and 1.8% were borderline malignant. Serous tumors were the most common (46.4%), followed by mucinous and germ cell tumors (23.2% each). The commonest non-neoplastic lesion was endometriotic cysts (34.5%). The tubal lesions were mostly due to ectopic pregnancy, followed by salpingitis, tubo-ovarian abscess, and endometriosis. The common clinical presentations included menstrual complaints such as irregular bleeding and menorrhagia, as well as lump and pain in the abdomen.

Conclusion: An accurate history taking with clinical and radiological examination followed by histopathology of the resected specimen reveals the diagnosis.

Key Words: Adnexal mass, Tubo-ovarian mass, Ectopic pregnancy, Endometriosis.

INTRODUCTION

The differential diagnosis of an adnexal mass (which includes the ovary, fallopian tube, and surrounding connective tissue) can be intricate and could be from functional cysts, ectopic pregnancies or ovarian malignancies.[1] Among the non-neoplastic lesions, inflammation of the fallopian tubes is common followed by ectopic pregnancy and endometriosis. Non neoplastic lesion of ovary includes benign cystic lesions, inflammation and ectopic pregnancy.[2] Ovarian tumors are mostly benign among the neoplastic lesions in the reproductive age groups, and around 30% are malignant in the postmenopausal women.[3] Ovarian tumors come with diverse clinical manifestation, and often present with non-specific, non-gynecological symptoms. Classified into three types such as epithelial cell tumors, germ cell tumors, and sex cord stromal cell tumors,[4] these tumors often do not exhibit symptoms in the early stages, resulting in advancement of the condition while being diagnosed. The term "Silent Killer" is used to describe ovarian cancer due to its high mortality rate, which is mainly attributed to late detection.[5] Histopathological examinations is done to obtain a conclusive diagnosis of an adnexal mass.[6] However, ultrasonography can detect around 90% of adnexal masses providing clinical evidence about the origin of the adnexal mass,[7] characterized by a lump in the ovary, fallopian tube, or surrounding

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connective tissue. Being a common gynecological problem, it affects nearly 0.17% - 5.9% of asymptomatic and 7.1% to 12% of symptomatic women.[8] Ectopic pregnancies, benign neoplasms, endometriotic cysts, and tubo-ovarian abscesses are common causes of adnexal masses in the reproductive age group, while malignancy is uncommon. In post-menopausal women, both primary and secondary neoplasms of the ovary should be considered as differential diagnoses for adnexal masses.[9]

We wanted to conduct this study to assess the frequency, clinical and histo-morphological characteristics of adnexal masses along with different types of ovarian neoplasms.

METHODS

The researchers from the department of Pathology at Jahurul Islam Medical College in Bajitpur, Kishoregonj conducted this retrospective study on adnexal masses that were surgically treated at the Department of Obstetrics and Gynecology over a period of six years (2015 to 2021). Detailed clinical history and other relevant data of 550 cases were collected from the hospital database. Patients with incomplete history, incomplete clinical data, without related investigations and without histopathological diagnosis were excluded from the study. Patients undergoing chemo and radiotherapy for ovarian cancer also excluded. Newly diagnosed and operated cases with histopathological diagnosis of tubo-ovarian mass were included in the study. Informed written consent were taken during the admission and during operation of the masses. Specimens were received with proper labeling. The department of Pathology performed histopathological analysis on the resected specimen, after applying the appropriate staining technique (haematoxylin and eosin). The collected data was then processed and analyzed using the Microsoft Excel software.

RESULTS

Figure 1 showed that two-third (n=420, 76.36%) of adnexal masses had connections with ovarian pathology and one-third (n=130, 23.63%) were due to tubal lesion. Among the 130 tubal lesions, most common pathology was ectopic tubal pregnancy and/or ruptured ectopic tubal pregnancy (42.3%), nonspecific salphingo-oophoritis (40%), tubo-ovarian abscess (8.5%), tubal endometriosis (7.7%) and Tubercular salphingo-oophoritis (1.5%) shown in Figure 1.

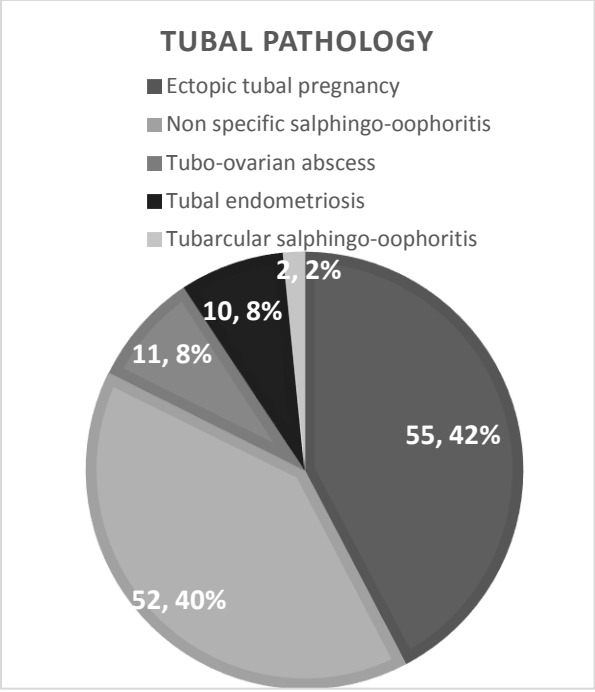

Figure 1: Distribution of tubal pathology among tubo-ovarian mass (n=130)

We recorded 168 neoplastic and 252 non-neoplastic lesions out of the 420 ovarian lesions. Majority of the neoplastic lesions were found to be benign (91.1%), while the rest were borderline malignant and malignant. Among the benign tumors, serous

cyst adenomas (44.6%) were the most common, followed by germ Cell tumors (23.2%) and mucinous cyst adenoma (17.8%). Of the 12 malignant tumors identified, six were mucinous cyst adenocarcinoma, while three each were serous cystadenocarcinoma and endometrioid adenocarcinoma. (Table 1) The mucinous group contained the borderline tumor. Endometriotic cyst was the most common non-neoplastic mass at 34.5% (n=87), followed by inclusion cysts at 28.5% (n=256). Figure 2 displays the distribution of non-neoplastic ovarian lesions.

Table 1: Histopathological distribution of ovarian tumor (n=168)

Histopathological type	No.	%
Surface epithelial tumours	**120**	**71.4**
i.Serous tumour	78	46.4
a. Serous Cystadenoma	75	44.6
b. Serous Cystadenocarcinoma	3	1.8
ii. Mucinous tumour	39	23.2
a. Mucinous cystadenoma	30	17.8
b. Mucinous cystadenocarcinoma	6	3.6
c. Borderline mucinous cystadenocarcinoma	3	1.8
iii. Endometrioid adenocarcinoma	3	1.8
Germ cell tumour	**39**	**23.2**
i. Benign cystic teratoma (dermoid cyst)	36	21.4
ii. Struma ovary	3	1.8
Sex cord stromal tumour	**9**	**5.3**
i. Fibroma/ Fibrothecoma	6	3.6
ii. Granulosa cell tumour	3	1.8

The highest number of benign ovarian tumors was observed in the age group of 21-40 years. The majority of the non-neoplastic lesions were observed in the 41-60-year age group, followed by the 21-40-year age group. All malignant tumors were observed in the 41-60-year age group. The distribution of ovarian lesions in different age groups is presented in Table 2.

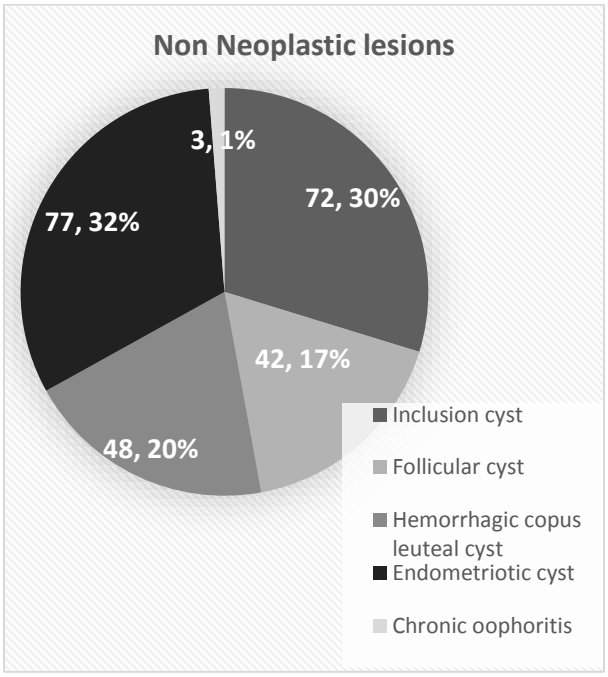

Figure 2: Distribution of non-neoplastic ovarian lesions (n=252)

Abdominal pain (Table 3) was the most frequent clinical presentation reported among neoplastic and non-neoplastic lesions in our study, with 29.3% of patients presenting with this symptom were within the reproductive age group. The feeling of an abdominal lump was the second most common presentation, affecting 25% of patients, followed by menstrual abnormalities in 11% of patients. In addition, incidental detection of an ovarian mass was the third most common presentation, affecting 18.6% of patients.

Table 2: Distribution of ovarian lesion in different age group

Age (in years)	Neoplastic Tumour								Non-Neoplastic lesion				
	Serous tumours		Mucinous tumours			Germ cell tumour	Endometrioid adenocarcinoma	Sex cord tumour	Inclusion cyst	Follicular cyst	Endometriotic cyst	Copus leuteal cyst	Chronic oophoritis
	B	M	B	BL	M								
<20	3	-	-	-	-	3	-	-	6	-	-	6	-
21-40	21	-	18	3	-	21	-	6	12	9	33	9	-
41-60	33	3	9	-	6	12	3	3	42	30	33	27	3
>60	9	-	-	-	-	3	-	-	3	-	3	-	-

The majority of ovarian tumors (53.7%) had a maximum diameter ranging from 1cm to 2cm. Among surface epithelial tumors, the largest number (51.11%) fell within the 10-19 cm range. Malignant tumors were found to be larger in size compared to benign tumors. A large proportion of benign tumors (63.63%) were cystic, whereas a significant number of malignant tumors (37.7%) were solid. Variegated appearance was observed in 20.45% of benign tumors and 26.22% of malignant tumors. A quarter of benign tumors (25%) were unilocular, while only 18.3% of malignant tumors were found to be unilocular.

Table 3: Clinical presentation of patients (n=550)

Clinical presentation	No. of patients with percentage
Pain abdomen	161 (29.3%)
Abdominal lump	138(25%)
GI symptoms	34(6.2%)
Post-menopausal bleeding	22(4%)
Menstrual abnormality	60(11%)
Infertility	33(6%)
Incidental finding	102(18.6%)

DISCUSSION

Among the 550 cases of tubo-ovarian mass 76.36% were due to ovary related pathology and 23.63% cases were due to different tubal pathology. Most common tubal pathology were ectopic tubal preganancy, nonspecific salphingo-oophoritis, tubo-ovarian abscess, tubal endometriosis. Two cases of tubercular salphingo-oophoritis were found. These findings are similar with Mittal et al, who investigated 75 cases of adnexal masses and found that 24% of them originated from the fallopian tube, while 68% of them were of ovarian origin.[10] However, our results contradict those of Tripathi et al. analyzed 100 adnexal mass cases and reported that 56% of them were due to ectopic gestation, 10% were of ovarian origin, 31% had a dual origin, and 3% of the cases originated from the broad ligament.[11] In our study tubal pathology was less than to ovarian pathology. Among the tubal pathology, the ectopic pregnancy is the surgical emergency requiring immediate surgery but in almost all the ovarian pathology needs surgical intervention including neoplastic and non-neoplastic lesions. In actual cases may be salphingo-oophoritis related tubo-ovarian lesion are

common but treated by antibiotics in the outdoor practice and resolved so need not to be admitted in the hospital.

Ovarian tumors possess histological diversity. The incidence of surface epithelial tumors is highest worldwide, making them the most commonly observed type of tumor.[3] In our study of 420 ovarian lesions, there were 168 neoplastic lesions. Surface epithelial tumors (71.4%) formed the main bulk of neoplastic tumors. The distribution frequency of ovarian tumors in our study was comparable to the findings of Swami GG et al. who reported an incidence of 61.6% for epithelial tumors and 21.7% for germ cell tumors.[12] Mondal et al.[13] also found similar result in their study. In our study, 34.5% of the non-neoplastic lesions were endometriotic cysts, which may explain the presence of menstrual abnormality. Al-Fozan H et al. also reported a high incidence of ovarian endometriosis (45.9%).[14] According to the findings of the study, the incidence of benign ovarian tumors was higher in women belonging to the reproductive age group (21-40 years), whereas all cases of malignant ovarian tumors were observed in women between 41-60 years of age. Manivasakan J noted an even distribution of benign ovarian tumors among women in the reproductive and perimenopausal age groups.[15] In contrast, Ashraf A et al found that a significant proportion (71.4%) of malignant ovarian tumors were observed in women belonging to the reproductive age group.[16] A study conducted in the USA has reported a higher incidence of ovarian cancer in elderly women who are in the perimenopausal stage.[17]

Common clinical presentation were lower abdominal pain (29.3%) followed by feeling of abdominal lump (25%). Cause of this abdominal pain was due to ovarian torsion, tubo-ovarian abscess and chronic pelvic inflammatory disease. Torsion, intracystic haemorrhage, adhesion, central necrosis are common causes of pain in tubo-ovarian mass lesion.[18] Menstrual abnormalities found in this study were irregular bleeding, menorrhagia and dysmenorrhoea. Findings similar to our study regarding abdominal pain, lump and menstrual abnormalities were seen by Kanthikar SN *et al.*[19] A considerable proportion of ovarian masses were identified incidentally through radiological examination or during histopathological examination of hysterectomy with salpingo-ophorectomy specimens due to leiomyoma, adenomyosis, or cervical prolapse. We found the size of the ovarian masses ranged from 1-22.5 cm. Non-neoplastic lesions were predominant in masses smaller than 5 cm, while the larger ones (>15 cm) were predominantly mucinous and endometriotic lesions. Benign tumours were smaller in comparison to malignant tumour. Benign tumours are less variegated on cut section than to malignant. Malignant tumours were more solid in nature. These finding are in co-ordinance with other study.[20]

CONCLUSION

The most frequent tubal pathology observed was ectopic tubal pregnancy. Ovarian neoplasms were another leading cause of adnexal masses, with serous cyst adenoma being the most common benign tumor. Benign ovarian tumors were predominantly observed in the reproductive age group, while malignant tumors were more common in post-menopausal women. Abdominal lump and lower abdominal pain were the most commonly reported clinical complaints, often associated with torsion and tubo-ovarian abscess.

REFERENCES

1. Graham L. ACOG Releases Guidelines on management of adnexal masses. Am Fam Physician. 2008;77(9):1320–3.
2. Kumar V, Cotran RS, Robbins SL. The Female genital Tract. In: Kumar V, Cotran RS, Robbins SL (Editor). Basic Pathology 6th Ed. Harcourt Asia PTE LTD 2001:1039-52.
3. Berek JS, Natarajan S. Ovarian and fallopian tube cancer. In: Berek JS (Editor). Berek and Novak's Gynaecology 15th Ed. Wolter Kluwer Health (India) Private Limited 2012:1350-427.
4. Doufekas K, Olaitan A. Clinical epidemiology of epithelial ovarian cancer in the UK. Int J Women's Health. 2014; 6: 537-45.
5. Jaffer Y, Ehsan N, Ambreen. Clinical presentation of ovarian tumors. Journal of Surgery Pakistan (International). 2013;18(2):82-6.
6. Gentry-Maharaj A, Menon U. Screening for ovarian cancer in the general population. Best Pract Res Clin Obstet Gynaecol. 2012;26:243-56.
7. Brown DL, Dudiak KM, Laing FC. Adnexal masses: US characterization and reporting. Radiology. 2010;254(2):342-54.
8. Bhargava S, Bhatia G. Clinicopathological study of Tubo ovarian masses- A study of 110 cases. Indian J Pathol Oncol 2021;8(1):26-31
9. Bhagde AD, Jani SK, Patel MS, Shah SR. An analytical study of 50 women presenting with an adnexal mass. Int J Reprod, Contracept, Obstet Gynecol. 2016;6(1):262–5.
10. Mittal A, Kundal RK, Kaur K, Mathur M, Sandhu A, Kaushal N. Clinico-Pathological Correlation of Tubo-Ovarian Lesions. Ann Int Med Dent Res. 2018;4(3):51–5.
11. Tripathi U, Munda G. Study of correlation of ultrasonography with surgical evaluation of adnexal masses: a prospective study. Int J Reprod, Contracept Obstet Gynecol. 2018;7(10):4218–22.
12. Swamy GG, Satyanarayana N. Clinicopathological analysis of ovarian tumor - a study on five year samples. Nepal Med Coll J. 2010;12(4):221-3.
13. Mondal SK, Bandopadhyay R, Nag DR, Roychowdhury S, Mondal PK, Sinha SK. Histological pattern, bilaterality and clinical evaluation of 957 ovarian neoplasms. A 10 year study in a tertiary hospital of Eastern India. J Can Res Ther. 2011;7:433-7.
14. Al-Fozan H, Tulandi T. Left lateral predisposition of endometriosis and endometrioma. Obstet Gynaecol. 2003;101:164-6.
15. Manivasakam J, Arounssalame B. A study of benign adnexal masses. Int J Reprod Contracept Obstet Gynecol. 2012;1(1):12-6.
16. Ashraf A, Shaikh S, Ishfaq A. The relative frequency and histopathological pattern of ovarian masses. Biomedica. 2013;28:98-102.
17. Quirk JT, Natarajan N. Ovarian cancer incidence in the United States 1992-1999. Gynaecol Oncol. 2005;97:519-23.
18. Kumar P & Malhotra N. Tumours of Ovary. In: Jeffcoate's Principles of Gynaecology, 7th edition, Jaypee Brothers Medical Publishers, India, 2008;524.
19. Kanthikar SN, Dravid NV, Deore PN, Nikumbh DB, Suryawanshi KH. Clinico-histopathological analysis of neoplastic and non-neoplastic lesions of the ovary: a 3 year prospective study in Dhule, North Maharashtra, India. Journal of Clinical and Diagnostic Research. 2014;8(8):FCO4-7.
20. Ellenson LH, Pirog EC. The Female Genital Tract. In: Kumar V, Abbas AK, Fausto N and Aster J (Editor). Robbins and Cotran Pathologic Basis of Disease 8th Ed. W B Saunders Company, Philadelphia, USA 2014:1021-34.