Original Research Article

A comparative study of benign and malignant ovarian tumors in tertiary care center

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Abstract

In developing countries like India, patients seek medical help usually during advanced stage of ovarian tumors. Thus, patients with the tumors of ovaries need high index of suspicion. In early stage it present with very vague symptoms like pedal edema and dyspepsia. So, regular screening in females >35 year with serum ca-125 and annual transvaginal USG can help in early diagnosis and treatment. Total of 2275 Gynecological cases were received at the department of Pathology in tertiary referral centre during the period of 2 years from January 2015 to December 2016. In these 454 cases of ovaries both cystic, benign and malignant ovarian tumors were studied. Among these 366 cases included inclusion cyst corpus luteal cyst and follicular cyst in decreasing order 62 cases were of benign tumors included serous cyst adenoma, mucinous cyst adenoma and mature tetratoma. 26 cases were malignant included serous cystadenocarcinoma, mucinous cystadenocarcinoma, malignant teratoma, Krukenberg tumor, yolksac tumor.

Key words

Ovarian tumors, Epithelial tumors, Teratoma.

Introduction

Ovarian carcinoma represents the 6th most common female cancer and 4th leading cause of death due to cancers in women [1]. It is seen predominantly after the third decade. Ovarian tumors is not a single entity but a complex wide spectrum of neoplasm involving a variety of histological tissues, ranging from epithelial tissues connective tissue, specialized hormone secreting to germinal and embryonic cells [1]. The most common are the epithelial tumors forming 80% of all tumors in which 80% are

benign and 20% malignant [1]. Among the malignant ones, 90% are epithelial in origin. 80% are primaries in the ovary and 20% are metastatic from breasts, GIT and colon [1]. Functional and inflammatory enlargements of the ovary develop almost exclusively during the child bearing years [1]. Ovarian cysts of benign nature may occur at any point in the life and constitute about 90% of ovarian tumors. In this study, I have analyzed frequency of ovarian tumors and histopathological patterns in our tertiary care center.

Materials and methods

This was a retrospective and descriptive study done for a period of 2 years starting from January 2015 to December 2016 at the department of pathology, Patna Medical college and hospital, Patna, India, All cases of ovaries- benign cysts, benign tumors and malignant tumors were included in the study. The diagnosis of ovarian tumors is based on histopathology conducted in our pathology department. This was a descriptive study describing the frequency of benign cysts, benign and malignant tumors in our tertiary care center along with age of presentation and histopathological pattern (**Photo – 1 to 12**). Patients with abdominopelvic masses supported by clinical, transvaginal USG/CT/MRI presenting as primary ovarian masses were included in this study. Ovarian masses with GIT lesion, endometrial carcinoma, and cervical carcinoma were excluded from the study. The acquired data were analyzed using descriptive statistics. Frequency of ovarian tumors, benign and malignant was determined and age of presentation of ovarian tumors were analyzed.

Results

Total numbers of gynecological cases during the study period for 2years from January 2015 to December 2016 at the department of Pathology in Patna medical college Patna was 2275. In this 454 cases of ovaries both cystic and benign and malignant ovarian tumors were studied. Among these 454 cases, 366 cases included inclusion cyst, corpus luteal cysts and follicular cysts in decreasing order. 62 cases were of benign tumors included Serous cystadenoma, mucinous cystadenoma and mature teratoma. 26 malignant cases included SCAca, MCAca, Krukenberg tumors, malignant teratoma, yolk sac tumors. In this study, benign cysts of ovary like inclusion cysts, follicular cyst, corpus luteal cyst occurred in age group from (20-60 years).Most of the benign tumours occurred in the age group 20 to 40 years. Mature teratoma mostly seen in (20-30 years) age group. Malignant tumors mostly occur after (40-60 years) age group. Frequency of various benign tumors for the period of 2 years in 2015-16 was as per **Figure – 1**. Frequency of various malignant tumors for the period of 2 years in 2015-16 was as per **Figure – 2**.

Photo – 1: Serous cystadenoma: 10X single layer of cuboidal to columnar cells lining the cyst wall.

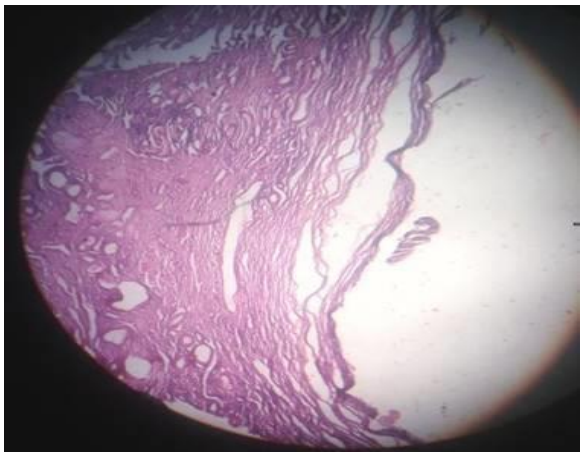


Photo – 2: Mucinous cystadenoma: 10X multiple small cysts lined by columnar epithelium and filled with mucin.

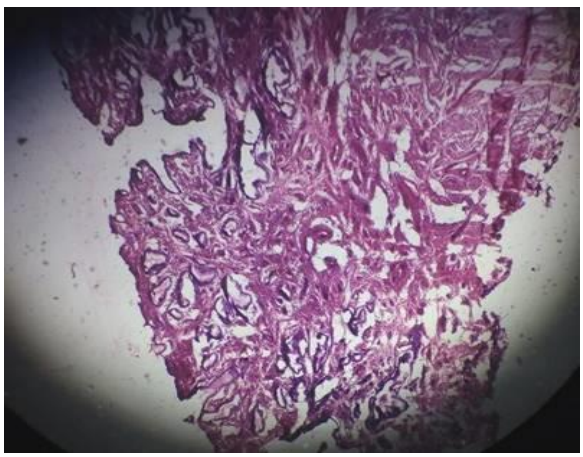


Photo – 3: Mucinous cystadenoma: cut section shows multiloculations filled with mucoid material.

Photo – 4: Gross specimen of Dysgerminoma: Cut section shows multinodular solid quality and tan color.

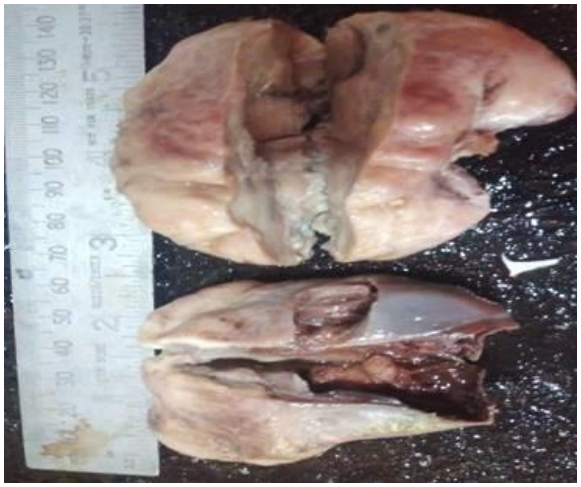


Photo – 5: Histological section of Dysgerminoma showing nest of tumor cells separated by fibrous strands containing lymphocytes (10X).

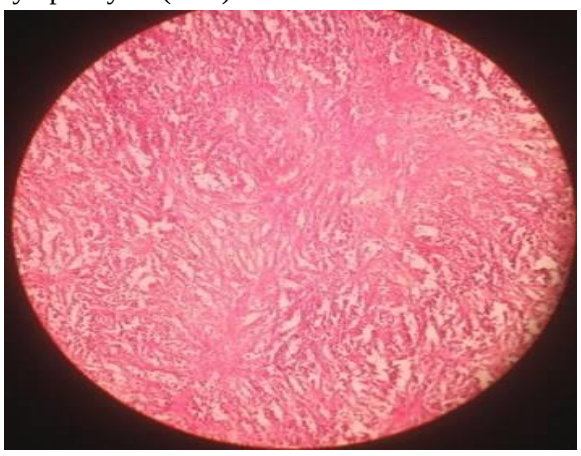


Photo – 6: Histological section of Dysgerminoma showing individual tumor cells are uniform with squared with nuclei and prominent elongated nucleoli and abundant clear granular cytoplasm with prominent cell membrane (40X).

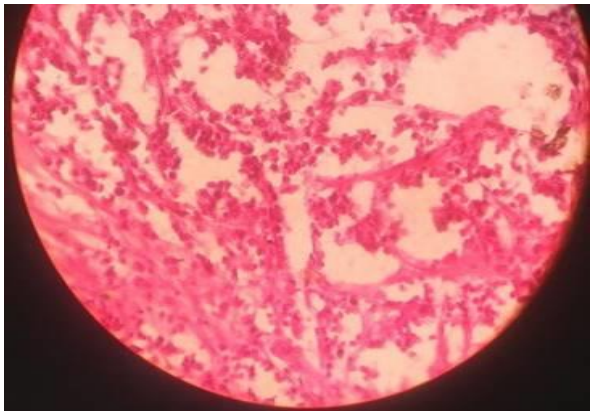


Photo – 7: Histological section of mature teratoma showing squamous epithelium lining the cyst containing cartilaginous tissue, sebaceous glands and a hair follicle (10X).

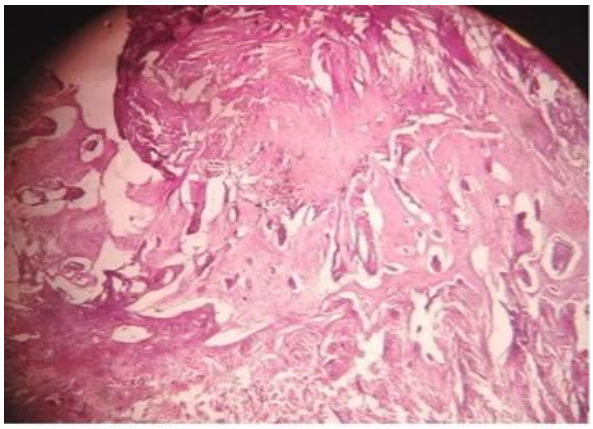


Photo – 8: Cut section of solid teratoma showing most of the solid areas with cartilage and bone and few cystic areas.

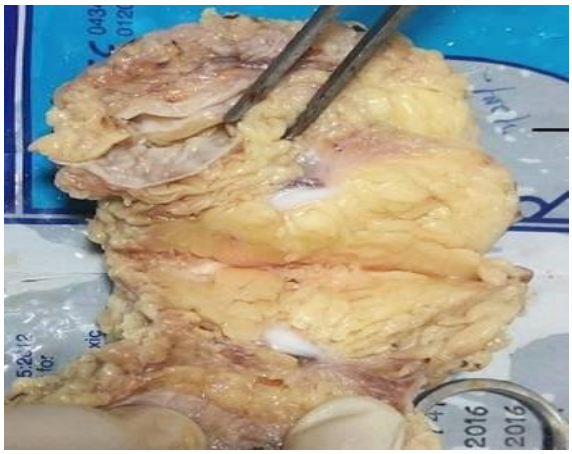


Photo – 9: Krukenberg tumor: Gross specimen showing solid waxy appearance with an intact capsule free of all adhesions.

Photo – 10: Gross specimen of yolk sac tumor: Cut section shows extensive haemorrhage necrosis and cystic degeneration.

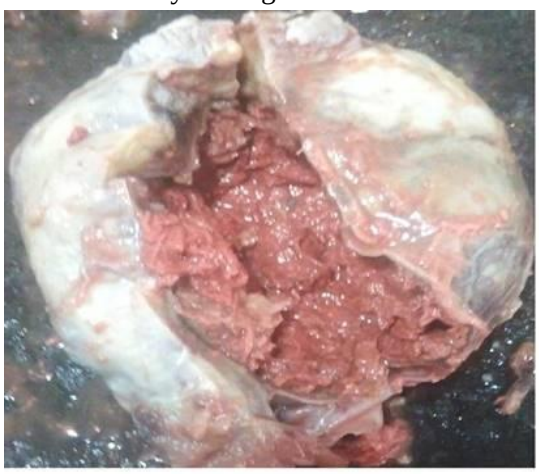


Photo – 11: Immature solid teratoma: CT scan plate showing solid cystic lesion measuring 11.8X20 with minimum enhancement arising from left adnexa with fat density areas and foci of calcification.

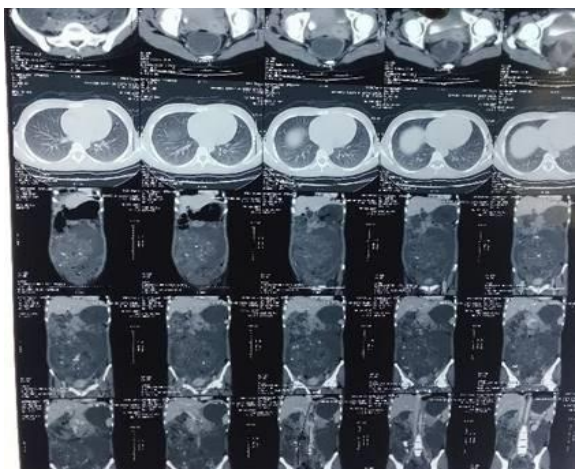


Photo – 12: Immature solid teratoma: CT scan plates showing solid cystic lesion measuring 11.8X20 with minimal enhancement arising from left adnexa with fat density areas and foci of calcification.

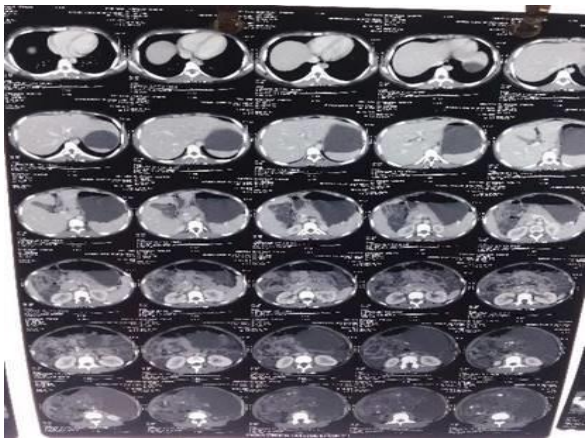
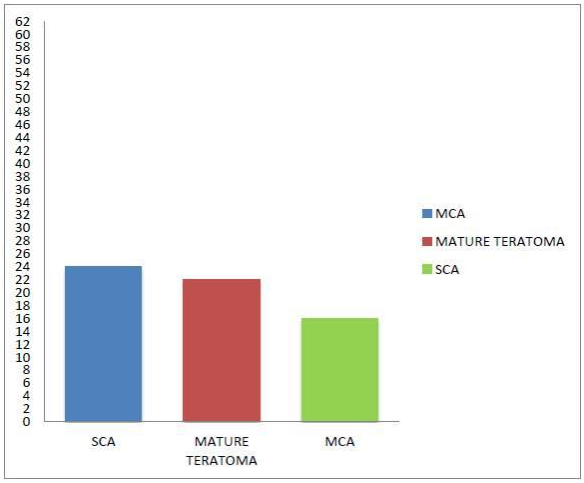


Figure – 1: Frequency of various benign tumors for the period of 2 years in 2015-16.



Discussion

Malignancy of ovaries is the 2nd most common of all genital cancers. In the developing countries like India, ovarian cancer accounts for 10-15% of all gynecological cancers [1]. A woman may develop ovarian cancer in the ratio of 1:70 to 1:100 in her lifetime [1] Normal histology of ovaries consist of superficial cortex where numerous follicles with female gametes in various stages of development are seen [3]. Body of ovary consists of spindle shaped cells, fine collagen fibers and ground substance called ovarian stroma [3]. The surface of the ovary is covered by germinal epithelium which is the continuation of peritoneum [3].

Figure – 2: Frequency of various malignant tumors for the period of 2 years in 2015-16.

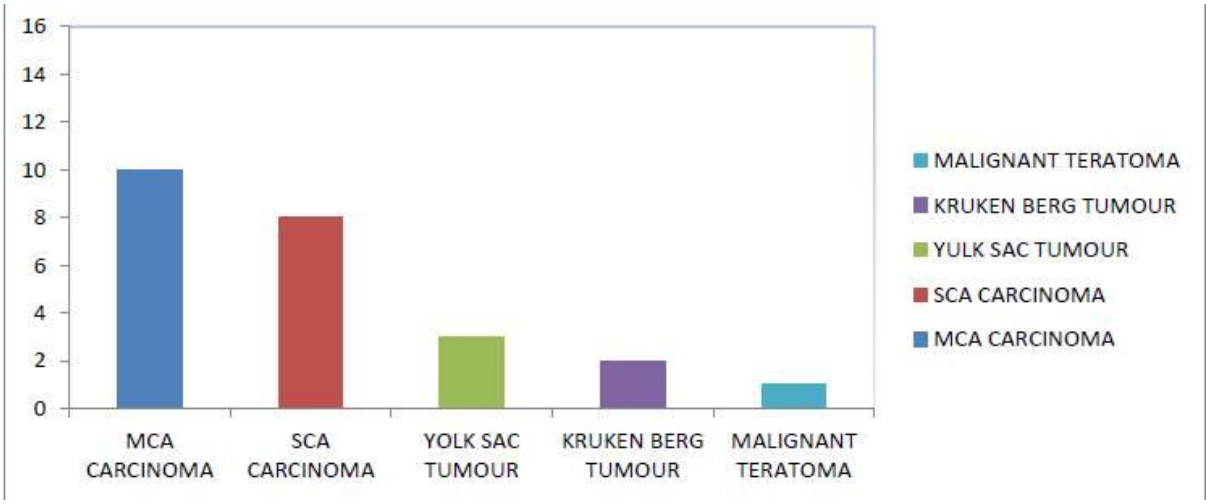


Table – 1:
WHO classification of ovarian tumors [1]
I Common epithelial tumors

Serious tumor	Mixed epithelial tumor
Endometrioid tumor	Undifferentiated carcinoma
Mucinous tumor	Unclassified
Clear cell tumor	Brenner tumor

II Sex cord tumor (Gonadal-Stromal)

- Granulosa
- Theca cell tumors
- Androblastoma (Sertoli)
- Gynandroblastomas
- Unclassified
- Stromal cell tumors
- Leyding cell tumors

III Lipoid cell tumors
IV Germ cell tumors

- Dysgerminoma
- Endodermal sinus tumor
- Embryonal carcinoma
- Polyembryoma
- Choriocarcinoma
- Teratoma

V Gonadoblastoma

- Pure
- Mixed with Dysgerminoma/ Other germ cell tumors

VI Soft tissue tumors not specific to ovary
VII Unclassified tumor
VIII Secondary (Metastatic tumor)
IX Tumor like condition

Ovarian diseases are broadly categorized into non-neoplastic cysts, inflammatory condition and neoplasms [2].

Table – 2:
Non-neoplastic cysts

- Inclusion cyst
- Follicular cyst
- Theca leutin cyst
- Poly cystic ovaries
- Corpus leuteum cyst
- Developmental cyst

Borderline tumors are characterized by epithelial proliferation greater than that of benign tumors more than two layers and less than four layers stratification but absence of destructive invasion of the stroma [4] 10-20% of epithelial tumors are of low malignant potential/borderline tumors (Grade 0),which remain confined to the ovaries for long in the age group 30-50 year. Survival Rate for 5 years is 90% [1].

Table – 3:
Risk factors that predispose to ovarian cancer

- Low parity
- Decreased fertility
- Delayed childbearing

- Familial predisposition
- High dietary fat
- Industrial pollution
- Smoking
- Obesity
- Association with colon, breast, endometrial carcinoma.
- Use of talc on perineum
- Genetic predisposition to BRCA-1 and BRCA-2 mutation.

Table – 4:
Protective factors against the tumors are [1]

- Multiparity
- Breast feeding
- Anovulation
- Use of OC pills

80% of ovarian malignancies are of epithelial origin and almost 80% are in stage III/IV at the time of diagnosis [1]. Before menarche 10% are malignant, during reproductive age 15% and after menopause 50% of ovarian tumors are malignant.

Table – 5:
Incidence of different epithelial ovarian tumors

- Serous – 75%
- Mucinous – 20%
- Endometrioid – 2%
- Brenner – 1%
- Clear cell – 1%
- Undifferntiated – 1%

Among serous tumors, 50% of benign tumors undergo malignant change, while only 5% of mucinous cyst transforms malignant [1].

The reason behind the late diagnosis of ovarian tumors at very advanced stage III/IV is the vague symptoms for longer period like abdominal fullness, dyspepsia, pedal oedema. But malignant tumors grow rapidly and becomes symptomatic presenting with abdominal enlargement due to ascites pressing on diaphragm leading to breathlessness and discomfort to the patient. Abnormal postmenopausal bleeding and abdominal pain due to stretching of peritoneum. Weight loss, cachexia and anemia are sign and symptoms of advanced stage of cancer [1].

Serum CA-125 is the tumor marker for screening as well as to assess the recurrence of tumor. Its level is also used to decide the response and duration of therapy in postop follow up [1]. USG is used to diagnose the tumor. CT and MRI are used to know the extent of spread of the tumor. Laparotomy and maximal reduction is the primary and gold standard treatment in all ovarian malignant tumors. The surgical staging is followed by definitive surgery or debulking followed by chemotherapy and radiotherapy [1].

Table – 6:
FIGO staging of ovarian carcinoma [1]
Stage I – Tumor restricted to one or both ovaries
IA – Tumor restricted to one ovary
IB – Tumor restricted to both ovaries
(No tumor on external surface, capsule intact, no malignant ascites)
IC – Tumor IA/IB positive for surface malignant ascites, growth, capsule ruptured, Malignant ascites or positive washing.

Stage II - Tumor involves one or both ovaries with pelvic extension.
IIA - Extension/Metastasis to uterus tubes and/or pelvic extension.
IIB – Extension to other pelvic organs
(No malignant cells in ascites)
IIC - IIA/IIB with surface growth, capsule ruptured/prior to surgery, malignant ascites or positive washings.

Stage III - Tumor involving one/both ovaries, with microscopic implants outside pelvis, and/or positive nodes (Inguinal, Retroperitoneal)
IIIA - Tumor grossly limited to the pelvis, nodes negative, but microscopic seeding of Peritoneum of abdominal wall.
IIIB - Tumor with abdominal peritoneal implants of less than 2cm size and nodes negative.

IIIC - Abdominal implants of more than 2cm or positive nodes.

Stage IV - Growth involving one or both ovaries with distant metastases in liver, lungs and pleura Tap fluid for cytology.

Table – 7:

FIGO staging	**Five year survival rate** [1]
0	90-100%
I	70%
II	25-30%
III	10%
IV	0-5%

Differential diagnosis of large abdominal masses are uterine enlargement, pregnancy, fibromyomas, pelvic endometriosis, pregnancy, abdominal cysts, abdominal pregnancy, urinary retention, full bladder, intestinal tumors, hydronephrotic kidney, pelvic retroperitoneal tumors, accentuated obesity, ascites, cyst of urachus, mesenteric cyst, abdominal cocoon, echinococcus.

Conclusion

In my study for the period of 2 years - 2015 and 2016 most of the cases were of benign cysts, next was benign tumors and the least were malignant tumors. Among malignant tumors epithelial tumors were the commonest serum ca-125 screening along with annual pelvic examination after 35 years of age along with transvaginal USG can be used as regular screening methods to evaluate early detection of ovarian cancer. Prophylactic oophorectomies reduce the considerable risk of ovarian cancer. Thus by early diagnosis and treatment, we can save the life of many women and thus can also help many children by saving their mother.

References

1. VG Padbidri, Shirish N Dafary. Shaw's Text Book of Gynecology, 14th Edition, p. 238-384.
2. Juan Rosai, Rosai and Ackermann's-Surgical pathology, 10th edition, volume 2, South Asia edition, AISSS-1577.
3. Barbara Young, James Lowe, Alan Stevens, Jon W. Heath (P-360) wheater's funcitional histology, A text and colouk atlas, 5th edition.
4. Barakat RR. Borderline Tumours of the Ovary. Obstetrics and Gynecology clin north., 1994; 21: 93.