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Incidence of ovarian tumors in Jharkhand -A Tertiary care hospital based study

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I. Introduction

There are various types of ovarian tumors. About 80% are benign and these occurs mostly in young women between the ages of 20 to 45 years.Malignant tumors are more common in older women, between the ages of 46 to 60 years.Ovarian cancer is the eighth most common cancer among the women and accounts for 3% of all cancers in females and the 5th most common cause of death in the United States [1]. According to world health organization histological classification of ovarian neoplasm classified as the basis of origin; Surface-epithelial stromal tumor (65%), Germ cell tumor (15%), Sex cord-stromal tumor (10%), Metastatic (5%), and miscellaneous (5%).Different subtypes of ovarian cancer were discussed in several studies. Studies show that approx. 89% of all ovarian cancer have epithelial origin and the remaining ovarian cancer have non-epithelial origin [2-4]. Surface epithelial-stromal tumor further classified by their cell type; Serous (52%), endometroid (10%), mucinous (6%), or clear cell (6%)[5].Among epithelial ovarian carcinoma 3% are mucinous and others are serous [6]. Germ cell tumors are the most common tumors in children, accounting for 60-70% of all ovarian tumors in this group[7,8,9]. Whereas mature cystic teratomas predominate, the proportion of malignant germ cell tumors (especially Immature teratomas, yolk cell tumors and dysgerminomas) is much greater than in adult [10,11,12,13,14]. Though risk factors are evident most ovarian carcinoma diagnosed after distant metastasis. 5 year survival rate is 30 [15, 16]. In Surface epithelial ovarian cancer, median age of diagnosis is 50-79 years and mostly affects the post-menopausal women [15,17,18]. In India, study of 950 ovarian neoplasm shows that most of them are benign lesion and occurred between the ages of 25 to 42 years. While the malignant lesion presented commonly between 41 to 64 years of age.[19]. The most common benign tumors in India were Serous cystadenoma (30%) followed by Mature teratoma (16%), mucinous cystadenoma (11%). While In Malignant lesion, serous cystadenocarcinoma was more predominant (11%), and it is presented bilaterally in approx. 50% of cases followed by mucinous cystadenocarcinoma which is accounts for about 9%. Patient presented with suspicious adnexal masses and pain over lower abdomen. Pre-operative FNAC has been found the sensitivity (86%), and specificity (98%).[20]. Intra operative frozen section biopsy has been used for the diagnosis of ovarian neoplasm which has sensitivity is about 99% in benign and about 93% in malignant neoplasm respectively.[21]

II. Material And Methods

Study type: Retrospective study
Place of Study: Department of Pathology,RIMS,Ranchi(Jharkhand)
Study Duration: Eighteen month
Study of Population: All subjects attending at OPD (Out Patient Department) at RIMS at Department of Obs&Gynae, of suspected adnexal masses. And US Guided FNAC done at Department of pathology and any suspected case of Malignant lesion, surgery was done at department of Obs&Gynae and Histopathological Examination was done (received sample) at Department of Pathology,RIMS.

Inclusion criteria

1. The patient suspected to have adnexal mass that is either benign or malignant and in case of any malignancy, undergoes hysterectomy and oophorectomy at RIMS,Ranchi
2. Previously diagnosed case of neoplastic ovarian mass proven radiologically.
3. Those patient who will give informed consent for participating in the study.

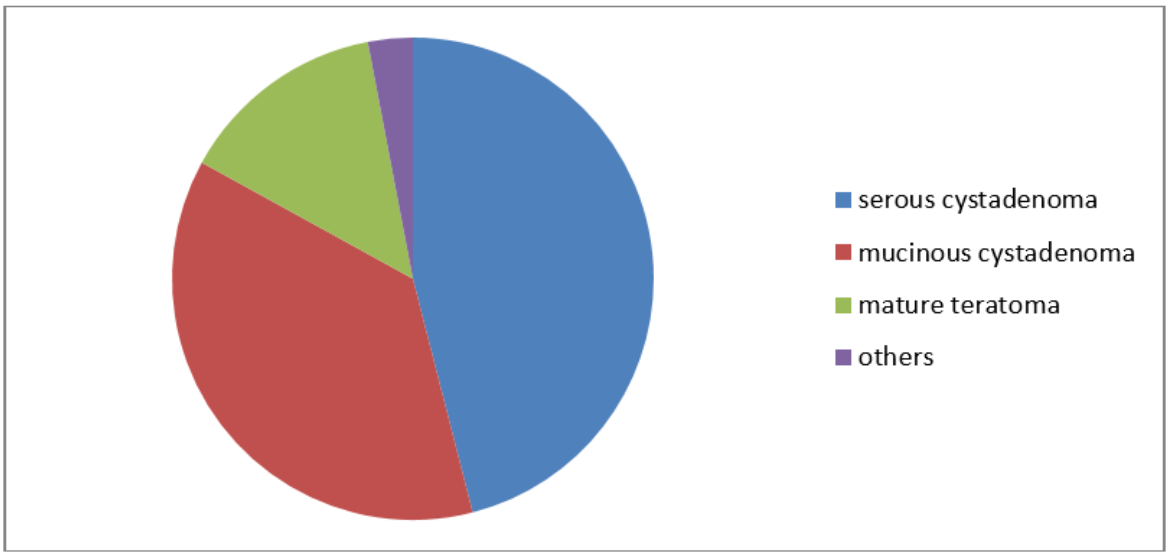
Data collection

A pre-tested, semi-structured questionnaire containing questions, pertaining to socio-demographic profile, symptoms and signs associated with ovarian masses. Clinical, FNAC, Radiological, and Histopathological (HPE) finding etc. will be used for the purpose of data collection.

III. Result

There are 790 total cases reported of ovarian tumor during the year 2018 (August) to 2020 (March) in RIMS,Ranchi. Out of which 78% of benign and 22% of malignant lesion. We found benign lesion mostly occurs between the 20-45 years of age group of people. While malignant lesion occurs most commonly 46-70 years of age group of people. In benign lesion, serous cystadenoma is more prevalent accounts for 46% followed by mucinous cystadenoma 37%, mature teratoma 17%. In malignant lesions, serous cystadenocarcinoma is more prevalent accounts for about 41% followed by mucinous cystadenocarcinoma 39%, dysgerminoma (ovarian counterpart of testicular seminoma) 12%, yolk sac tumor 6% and metastatic 2%.Germ cell tumors which include Teratoma (Mature and Immature), Dysgerminoma, and Yolk cell tumor are mostly affects the younger age group of population between 20-45 years of age. Benign tumor of ovary which is surface-epithelial stromal tumors Viz... Serous cystadenoma, Mucinous cystadenoma also prevalent in 20-45 years of age group.

Distribution of Benign ovarian tumors during the period August 2018-March 2020 at RIMS,Ranchi



Distribution of various type of histological varieties of ovarian cancers during the period Aug 2018-March 2020 at RIMS,Ranchi

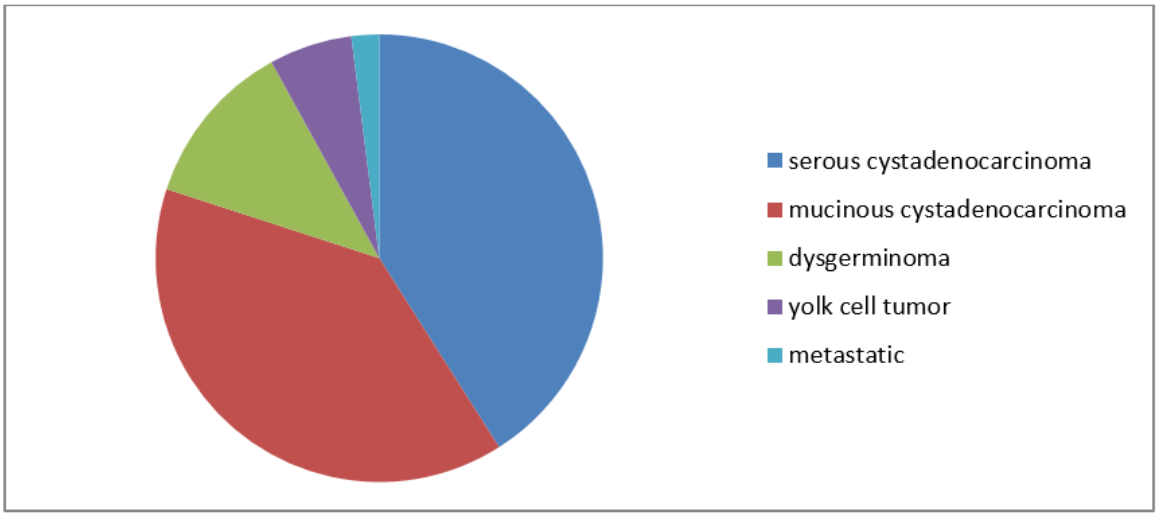
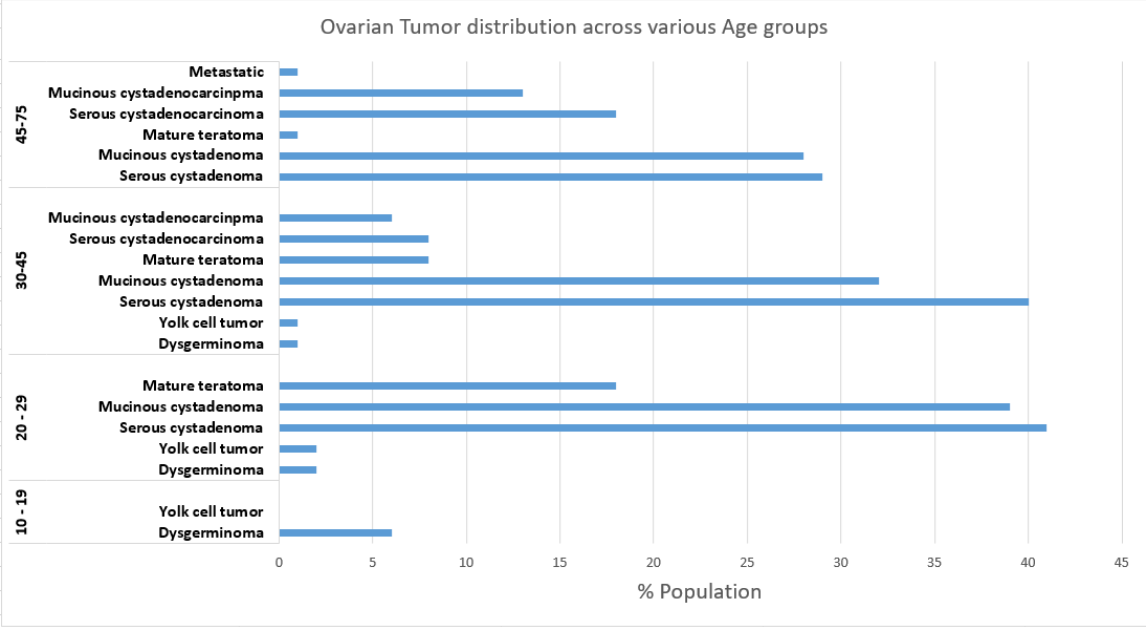


Table represents the ovarian cancer distribution according to the age group in our study:



Risk factor including age, hormonal, genetic, parity, infertility, menarche, post menopause, oral contraception, hormonal replacement therapy, obesity, diet and nutrition, cigarette smoking, alcohol consumption are indirectly proportional of ovarian cancers.

Risk Factors related to Ovarian Cancer in India

Risk Factors	Protective	Predisposing	Controversial
Age		✓	
Age of Menarche and Menopause			✓
Parity	✓		
HRT			✓
Infertility		✓	✓
Family History		✓	
BRCA Mutation		✓	
Lynch Syndrome		✓	
Obesity			✓
Alcohol,Caffeine,Cigarettes			✓
PID			✓
Oral contraceptives	✓	✓	

IV. Discussion

In our study, the proportion of ovarian malignancy is about 28% of all gynecological malignancy during last 1 ½ years. Serous cystadenocarcinoma which is more prevalent in our community (41%), followed by Mucinous cystadenocarcinoma (39%), Dysgerminoma (12%), Yolk cell tumor(6%) and metastatic carcinoma was 1% among all ovarian malignancy. The common age group of these malignant lesion in between was 46-70 years of age. Se Ik Kim et all reported histological subtype in 90% cases on epithelial ovarian carcinoma [22]. Risk factor including Age, the epithelial ovarian carcinoma was mainly present in post-menopausal women over 65 years. Older age in this disease was associated with more advance disease and lower survival rate, because older women were treated less aggressively in contrast with younger patient. Early menarche and menopause had no effect of ovarian cancers. Family history of breast cancer or ovarian cancer associated with increased the risk of ovarian cancers. BRCA mutation (Tumor suppressor gene mutation) associated with increase the risk of ovarian carcinoma. Lynch syndrome also responsible for the ovarian carcinoma in about 10-15%. Life style factor like nutrition and diet, obesity, alcohol consumption, caffeine and cigarette smoking was also indirectly

risk factors of ovarian carcinoma. Regarding the histological varieties of ovarian cancer, 15% of patient had granulose cell tumors which is a type of sex cord stromal tumor, which usually occurs in women over 14 years of age. And in many cases it was associated with hyper-estrogen and can cause endometrial hyperplasia.

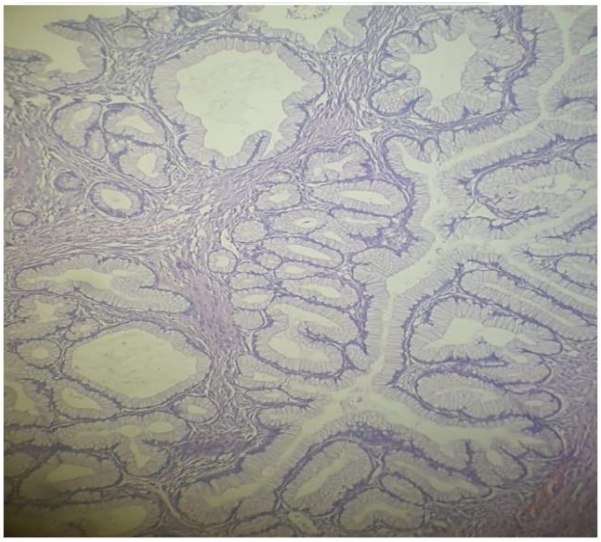


Figure 1: Mucinous cystadenomaOvary (100x, H&E)

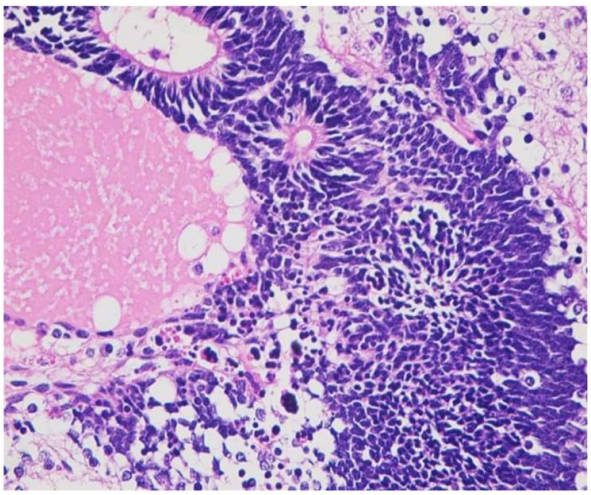


Figure 2: TeratomaOvary (100x, H&E)

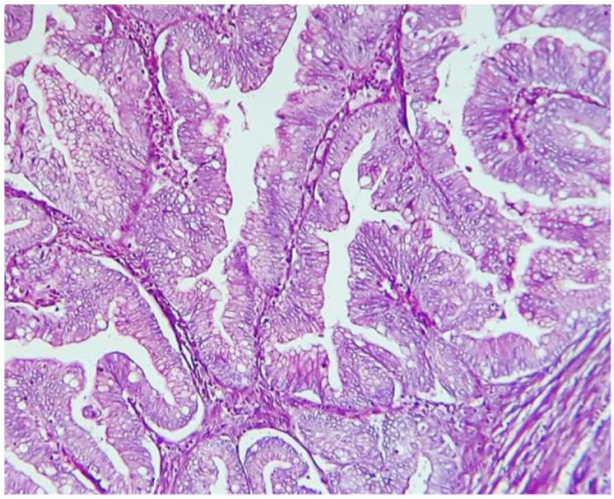


Figure 3: Mucinous cystadenocarcinomaOvary (100x, H&E)

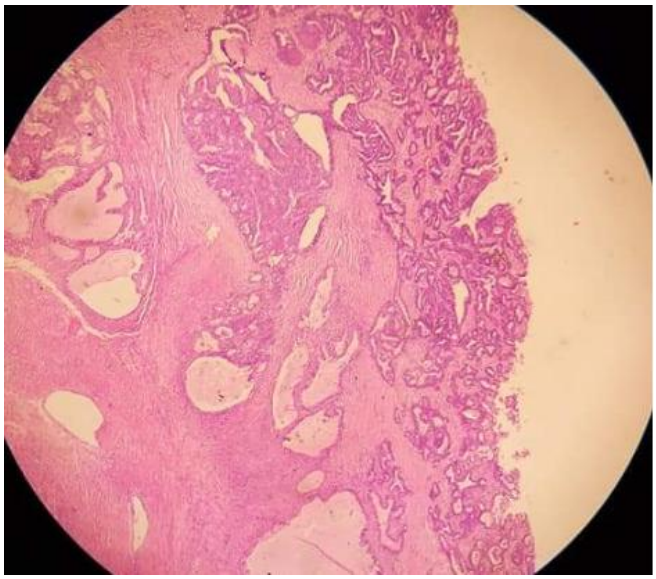


Figure 4: Serous cystadenocarcinoma Ovary (100x, H&E)

V. Conclusion

Based on the finding of this study, ovarian cancer is a fatal disease in our country. Lackof facilities for screening in turn leading to delayed diagnosis. Most common risk factor including obesity, infertility, use of oral contraception and genetic factor are associated with ovarian cancer. It would greatly enhance the detection rate if screening and testing for the CA-125 antigen were a mandatory practice. Life style modification reduces the risk of ovarian cancer.

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Conflicts of interest- There are no conflict of interest.

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