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Original Research Article

Demographic and clinicopathologic profile of malignant epithelial ovarian tumors: an experience from a tertiary cancer care centre in Bangalore, South India

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ABSTRACT

Background: Ovarian cancer is fast emerging as the leading cancer of the female genital tract. It is the second most common gynecological malignancy in India, but has poor outcomes making it the leading cause of gynecologic cancer related deaths. There is a paucity of data regarding demographic details, patterns of care and outcomes of ovarian epithelial malignancies in India. This is a study to evaluate the demographic details, clinical profile and pathology details of epithelial ovarian cancer registering in atertiary cancer center in Bangalore, Karnataka, India.
Methods: This is a retrospective study of the case records of patients diagnosed with epithelial ovarian cancer from January 2012 to December 2014.
Results: Malignantovarian tumors constituted 5.6% of all malignancies in women. 84 cases were of epithelial origin constituting 64.4% of all malignant ovarian tumors. 58% of patients were from Karnataka and 25% were from West Bengal. 27% underwent suboptimal surgery outside at presentation. The median age at presentation was 51 years. Most of the patients were parous (25% were para 2 and 3). 5% patients were nulliparous. Pain abdomen (39%) and abdominal distension/ bloating (16%) were the most common symptoms. 75% of these cases presented in III-IV stage. Method of diagnosis was: primary surgery and Biopsy of mass (50%), fine needle aspiration cytology of mass or ascites/ pleural effusion (40%), and diagnostic laparoscopy in (9.5%) of the patients. The most common histological variants were serous cystadenocarcinoma (32%) and mucinous adenocarcinoma (15%).
Conclusions: Majority of the patients presented with vague nonspecific abdominal complaints which leads to delay in diagnosis. Most of the patients presented in advanced stage of the disease. Delay in diagnosis and improper management prior to registering in tertiary cancer centre was common. There is a need to improve awareness regarding ovarian cancer in general population and also primary care physician.

Keywords: Demographic details, Ovarian cancer, Pathology, South India

INTRODUCTION

Malignant Ovarian Tumors are a group of diseases with varying clinical and biological behaviour. Ovarian cancer is the sixth most common cancer and seventh leading cause of cancer death among women worldwide.[1,2] Age standardized incidence rate is 6.6/100,000 and age standardized mortality rate is 4.0/100,000.[1,2]

In India, ovarian cancer is the third leading site cancer among women next to cervical and breast cancers.[3] As per the population based cancer registries in India, the

age adjusted incidence rates of ovarian cancer vary between 5.4 to 8.0 per 100,000 population in different parts of the country (PBCR report).[3] As the world's population ages, ovarian cancer incidence is expected to increase.[4,5]

The prognosis of ovarian cancer is worst among all gynecological malignancies with the 5 year survival rate being approximately 45%.[5-7] In the US, ovarian cancer is ranked as 4th leading cause of cancer related deaths in females in the age group of 40-60.[7] Poorer outcomes are noted in other developing economies too.[8] This is more evident in a country like India where the patients present in advanced stages and chances of optimal treatment are bleak.

In Indian scenario, we need to assess these factors in the context of ovarian cancer management. This study was conducted in an urban tertiary cancer center in Bangalore, South India. Our center is a comprehensive cancer care Centre with state-of-the-art facilities in surgical, medical and radiation oncology. We register about 60-70 new cases of ovarian cancers every year. This study was undertaken to assess the demographic profile, clinical presentation and pathology of the epithelial ovarian cancers reporting to this center.

METHODS

Medical records of the patients diagnosed from January 2012 to December 2014 as malignant ovarian cancers were reviewed. This study was confined to epithelial ovarian tumors. All these cases were microscopically confirmed either with cytology (adnexal mass or from peritoneal/ pleural fluid) or postoperative histopathology. Information regarding demographic details, clinical features, clinical extent of disease and histological type and grade along with prior treatment at the reporting institute were analysed.

Statistical analysis

Data was expressed as absolute values and percentage or as mean ± standard deviation. Distribution of patients according to age, parity, clinical features and other parameters were tabulated. Age at presentation was statistically accessed using one-way analysis of variance. Kaplan-Meier curves were plotted to understand the effect of stage on survival and log rank test was used to access statistical significance between various survival curves.

RESULTS

Ovarian cancers constituted 5.6% of all female malignancies. A total of 131 cases were registered during the period mentioned. This study was confined to epithelial ovarian tumors. These tumors constituted 64% of all malignant ovarian tumors and were 84 in number. Median age at presentation was 51 years. Mean age being 50.1±11.3 years (Table 1). As per FIGO staging more than 75% of patients were stage III-IV at the time of registration (Table 2). Most of the patients were parous, 30% of them having 2-3 children. Proportion of ovarian cancer in women having more than 3 children was less (Table 3). Method of diagnosis was cytology (40%), histopathology (50%) and diagnostic laparoscopy (9.5%) (Table 4). In the present series, the most common histological type was serous cystadenocarcinoma (32%), followed by mucinous adenocarcinoma (15.5%) and endometroid carcinoma (2.3%). 36% of cases had a diagnosis of epithelial origin, type not specified and 14% had adenocarcinoma, not specified (Table 5).

Table 1: Age distribution.

Age groups (Years)	No. of patients (%) n=84
10-19	1 (1.2)
20-29	5 (6)
30-39	8 (9.5)
40-49	19 (22.6)
50-59	30 (35.7)
60-69	18 (21.4)
70-79	3 (3.6)

Table 2: 2 FIGO stage distribution.

Stage	Number of patients (%)
Stage Unknown	7 (8.33)
Stage I	11 (13.09)
Stage II	3 (3.57)
Stage III	45 (53.57)
Stage IV	18 (21.42)

Table 3: Parity distribution.

Parity distribution	Number of patients (%)
Nulliparous	5 (6)
Para 1	8 (9.5)
Para 2	19 (10.8)
Para 3	12 (14.28)
Para 4	7 (8.33)
Para 5	7 (8.33)
Para 6	3 (3.57)
Para 7	2 (2.38)
Unknown	21 (25)

Table 4: Method of diagnosis.

Method of diagnosis	Number of patients (%)
Histology	42 (50)
Cytology	34 (40)
Diagnostic Lap	8 (9.5)

Most frequent symptoms were pain abdomen (40%), abdominal distention and bloating (17%) and mass abdomen (8.4%). Other associated symptoms were

respiratory, gastrointestinal, menstrual irregularities and loss of weight (Table 6).

Table 5: Histological features.

Histological type (n = 84)	Number of patients (%)
Carcinoma	30 (36)
Adenocarcinoma	12 (14.2)
Serous cystadenocarcinoma	27 (32.1)
Mucinous cysadenocarcinoma	13 (15.4)
Endometriod carcinoma	2 (2.3)

Table 6: Symptoms at presentation.

Symptoms	Number of patients (%)
Pain abdomen	50 (39.37)
Abdominal distention/bloating	21 (16.53)
Mass abdomen	15 (11.9)
Menstrual disturbances	3 (2.36)
Loss of appetite	12 (9.4)
Urinary symptoms	2 (1.6)
G. I. disturbances	2 (1.6)
Shortness of breath	8 (6.2)
Weight loss	7 (5.51)
Back pain	1 (0.78)
Fever	2 (1.6)
Torsion	1 (0.78)
Constipation	3 (2.36)

Primary surgery was done for 23 patients prior to registration at our center. 87% of these patients were inadequately staged and surgery was sub- optimal. These cases were done by local gynecologists or general surgeons and referred to our center for further management. Only 3 patients had undergone primary optimal cyto-reduction surgery from other cancer centers when they presented for further evaluation at our institute. Prior chemotherapy was administered as adjuvant in 8 patients (9.5%) and as neo-adjuvant in 5 patients (6%). Chemotherapy was incomplete in all these cases indicating that chemotherapy protocols were improperly advocated (Table 7).

Table 7: Treatment prior to registration at the reporting institute (n = 84).

Prior treatment	No of patients (%)
Surgery only	15 (17.8)
Chemotherapy only	5 (6)
Surgery and chemotherapy	8 (9.5)
No treatment prior to Registration at the reporting institute	56 (66.6)

Survival was calculated by Kaplan-Meyer survival curves for 84 patients. Overall survival with regard to stage was analysed. The overall survival for stage I was 52 months; stage III- 28 months and stage IV- 12 months. Median survival for all stages was 29 months and it was statistically significant (P.000) (Figure 1).

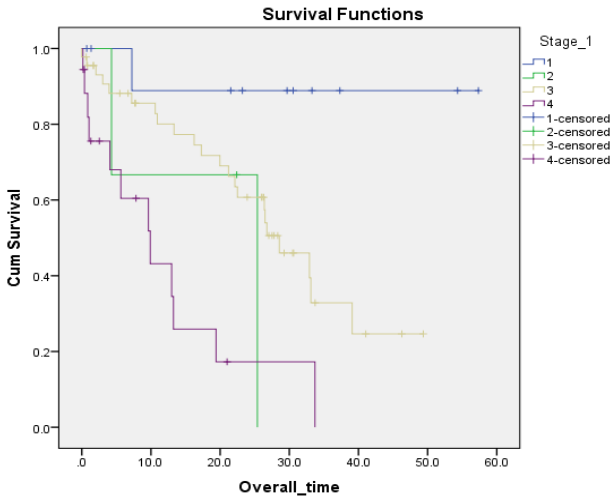

Figure 1: Kaplan meyer survival curves of survival with regards to stage.

DISCUSSION

This is a retrospective study of epithelial ovarian tumors from a tertiary cancer care center in Bangalore, South India from January 2012 to December 2014. Malignant ovarian cancers constituted 5.6% of all cancers in women reporting to our center. As per the Hospital Based Cancer Registry in our center, it is the fourth leading site of cancer in women trailing behind cervical, breast and oral cancers. This result is similar to the consolidated report of Hospital Based Cancer Registry of NCRP 2012-2014 in the city.[3]

Goodman et al. reported that 91.9% of ovarian tumors were epithelial.[9] In present study the epithelial ovarian tumors constituted 64% (84 cases) of all ovarian cancers. Although globally ovarian cancer incidence rates increase with advancing age, in developing countries this cancer occurs in the younger women, mean age ranging from 46 to 49 years.[10] In present study, the age at presentation started increasing from 40-49 years and peaked at 50-60 years with the mean age being 50.1±11.3. Other Indian studies too mention mean age as 48.8±11.2 and 55.98±9.24 respectively.[11,12]

Numerous studies have shown parity to be protective against ovarian cancer. Multiparas women have a risk reduction as high as 40-60% compared to nulliparas.[13,14] In some studies done in India, nulliparity is considered as an important risk factor especially in relation to family history of cancer.[15,16] However in present study, although the proportion of ovarian cases decreased with increasing parity, this relation was not established with statistical significance, probable reason being parity data was unavailable in 23% of patients.

Method of diagnosis is not mentioned in any of the studies in India. Histopathological diagnosis was available in 44% of cases prior to registration. This was either through fluid cytology or primary surgery. Diagnostic laparoscopy was done in 8 patients for staging and diagnosis at our center. The rest were diagnosed either through ultrasound guided biopsy of the primary lesion, fluid cytology or FNAC (fine needle aspiration cytology) of primary or secondary lesions.

About 75% of these cancers presented in advanced stage (III-IV). Similar results are noted in other Indian studies too.[4,12,13] Lack of proper screening tests, delayed referral by primary care physician and chronic symptoms mimicking other common ailments are reasons for late stage at presentation in our country.[17]

Most frequent histological subtype was the serous variant of adenocarcinoma followed by mucinous and endometriod types, similar to other studies.[10-12,15] Histological grading was not mentioned in most of the cases; although grade is an important prognostic factor in patients with ovarian cancer. There are no symptoms in early stage ovarian cancers. It has been shown that patients with ovarian cancers may have symptoms for atleast several months before their diagnosis.[18] In present study we observed that pain abdomen (40%) and abdominal distention with bloating (16%) were the most frequent symptoms. Few patients presented with abdominal mass. Duration of these symptoms were anywhere between 2 to 6 months. Other associated symptoms were loss of appetite, menstrual irregularities. These symptoms were the most common symptoms observed in in other Indian studies.[10-12,15]

There is enough evidence to show that patients with advanced ovarian cancer have a significant survival benefit when a gynecologic oncologist is involved in their care.[19] In present study more than one fourth of patients were operated outside prior to registration at the cancer institute. These surgeries were conducted by general gynecologists. Operative notes regarding staging and volume of disease left behind was lacking and the surgery was sub-optimal.

Decreasing survival was observed with advancing disease. Overall survival was 52 months for stage I and decreased to 12 months in stage IV disease. Limitation of our study was that it is retrospective and data of several inpatient variables were missing which may lead to bias.

CONCLUSION

Majority of the patients presented with vague nonspecific abdominal complaints which leads to delay in diagnosis. Most of the patients presented in advanced stage of the disease. Present data is similar to other Indian studies regarding early mean age of onset, stage of disease at presentation, histological type distribution. There is no effective screening test for detecting malignant ovarian tumors. Advanced ovarian cancer has poor outcomes. Awareness of ovarian cancer in general population is low.

The primary care physician overlooks the symptoms of ovarian cancer as they overlap with those of more common G.I. diseases. Suboptimal management by primary care physician was common. Hence, efforts need to be made to create awareness with regard to recognition of certain symptoms by patients and clinicians to identify these cancers in early stage.

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