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Paediatric Surgery

PROSPECTIVE STUDY OF CHILDHOOD OVARIAN CANCERS – INSTITUTIONAL EXPERIENCE

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ABSTRACT Ovarian cancers in children are rare and germ cell tumors comprise most of them, and prognosis is better than for adult women. This is prospective study conducted for 4 years between 2019 to 2022 , 14 patients were diagnosed at Coimbatore Medical College Hospital, Coimbatore . Clinical presentation, imaging findings, operative features, tumor markers, histopathology were studied and followed. Various clinical presentation were seen in the study, with abdominal pain being the most common presentation. Median age of the study was 9.5 years. With three were less than five years of age. More than half of study patients had abdominal pain (58%) as most common presenting symptom followed by mass abdomen (28%). Two children presented with precocious puberty at the age of 5 years (14%). All 14 patients had pathology on one side only. Presentation in form of abdominal mass and other non-specific symptoms also seen. There were 8 (58%) cases of dysgerminoma,4 Mixed germ cell tumor and 2 yolk sac tumor. All the patients are healthy during the follow up till now. Although ovarian cancers are rare in pediatric age group, they should be as differential diagnosis in these patients with presentation of abdominal pain, mass or other non-specific symptoms, as they have very high cure rates when diagnosed in early stage.

KEYWORDS : ovarian cancers, Dysgerminoma, abdomen pain.

INTRODUCTION

Ovarian cancers are one of leading causes of death from cancer in women. Main reason being for deaths being because early disease cause minimal, nonspecific, or even no symptoms so that most patients are diagnosed at an advanced stage. Most primary ovarian tumors arise from epithelial cells in adult women, whereas in children, malignant ovarian tumors are rare, germ cell tumors comprise most of them, and prognosis is better than for adult women.1-3

MATERIALS AND METHODS

It is a prospective study done in pediatric patients presenting to Department of Pediatric Surgery at Coimbatore Medical College Hospital, Coimbatore from 2019 to 2021.A total of 14 children of age less than12 years with diagnosis of ovarian cancer were taken in the study. Those children less than 12 years of age and with ovarian cancers where the criteria for inclusion whereas those above 12 years of age and with benign ovarian tumours were excluded from the study.

RESULTS AND DISCUSSION

Malignant ovarian tumors in children are relatively rare, representing approximately 1% of all childhood malignant tumors (3). In this study 14 patients were diagnosed with ovarian cancers.

Median age of the study was 9.5 years. With three were less than five years of age. As seen in above data, more than half of study patients had abdominal pain (58%) as most common presenting symptom followed by mass abdomen (28%). Two children presented with precocious puberty at the age of 5 years (14%).

Table 1: Presenting Symptom

S.No	Presenting symptom	Numbers/ Percentage
1	Abdominal pain	8/14 (58%)
2	Mass abdomen	4/14 (28%)
3	Precocious puberty	2/14 (14%)
	Total	14

All 14 patients had pathology on one side only. Imaging test for diagnosis included abdominal ultrasonogram, abdominal computed tomography and Magnetic resonance imaging. Total tumor resection when possible is recommended by all studies, and salpingo-oophorectomy is the suggested surgical resection because cancer cells may spread to the fallopian tube through ovarian lymphatics. In our study, Surgery was performed in all the 14 patients and the procedure performed was unilateral salpingo-oophorectomy. Some of intraoperative pictures of ovarian cancers shown in figure-1. There were 8 cases of dysgerminoma , 4 cases of Mixed germ cell tumor and 2 cases of yolk sac tumor. Thus dysgerminoma constituted the major pathology of 58% in our study.

In our study, more than half of study patients had abdominal pain (57%) as most common presenting symptom which were similar to Say-Tin Yeap et al (4) studies of 66.7% and they had yolk sac tumour as common one and for us dysgerminoma (58%) was common in our study.

Germa Norris and Jensen (5) reviewed 353 ovarian tumors in young females and found germ cell tumors constituting 80% of the preadolescent ovarian cancers. Hassan et al (6) reported germ cell tumors comprised 49.1% of all malignant ovarian tumors in girls through age 19. Schultz et al found that 67.5% of pediatric malignant ovarian tumors were germ cell tumors. In our study, all were germ cell tumours.

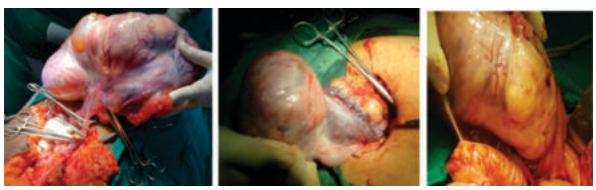

Figure -1: Intraoperative Images Of Ovarian Cancers

Table 2: Pathological Diagnosis

S.No	Pathology	Numbers/ Percentage
1	Dysgerminoma	8 (58%)
2	Mixed Germ Cell Tumor	4 (28%)
3	Yolk Sac Tumor	2 (14%)
	Total	14

Tumor markers are important for evaluating malignant ovarian tumors for diagnosis, relapse, and follow-up (7). Various tumor markers have been used for monitoring the clinical status of malignant germ cell tumors, including AFP, b-hCG, human placental lactogen, pregnancy-specific b1 glycoprotein, fibronectin, transferrin, a-antitrypsin, carcinoembryonic antigen, alkaline phosphatase, lactate dehydrogenase, cancer antigen-125, and neuron-specific enolase (8,9). Among these tumor markers, AFP and b-hCG are the most used. AFP can be used as a tumor marker for endodermal sinus tumor, embryonal carcinoma, and malignant mixed germ cell tumor. Elevated levels of b-hCG can be seen in some patients with pure dysgerminoma, mixed germ cell tumor, embryonal carcinoma, and ovarian choriocarcinoma (10).

In our study tumour markers were evaluated by radioimmunoassay

methods. High AFP (Alpha Feto Protein) were noticed in eight of our patients and four had high level of beta human chorionic gonadotropin (hCG). Remaining two had normal levels. All the ovarian cancers were germ cell tumours in our study and all these patients were subjected to chemotherapy in form platinum based regimens (bleomycin, etoposide, and cisplatin regimen). Along with higher cure rates, platinum-based combination therapies were reported to be able to preserve normal menstrual function and maintain fertility with healthy offspring. There were no major chemotherapy related toxicity in our study. There were relapse in two patients with yolk sac tumour and they were subjected to additional chemotherapy with cisplatin, ifosfamide, and etoposide and they are disease free till date. Most of our patients had high levels of AFP which returned to normal within three months of treatment. In our study various factors were studied which were age of children, histological diagnosis, stage of disease and tumor markers for their role in prognosis of the disease but our results were inconclusive of possible limited patients in the study group.

CONCLUSION

Childhood ovarian cancers are having high cure rates when diagnosed in early stage of disease process and hence high index of suspicion and differential diagnosis of ovarian cancers to be had in all female children presenting with abdominal pain or mass.

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