



OVARIAN MASSES IN PAEDIATRIC POPULATION- A SINGLE CENTER EXPERIENCE

Paediatrics

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ABSTRACT

INTRODUCTION-Adnexal abnormalities in pediatric patients are uncommon but not rare. Diagnosis may be more difficult, even delayed or missed, because of low index of suspicion; nonspecific complaints; or consideration of more common, acute abdominal processes that mimic adnexal issues. This article will review the features of adnexal lesions, including neoplasms, benign masses with or without vascular compromise.

AIM - To evaluate clinical presentation, histopathology and management and outcome of ovarian masses in paediatric population.

METHODS - An observational retrospective study in which patients with ovarian mass below 12 years of age were studied in Department of Paediatric Surgery, NRS Medical College Kolkata, between June 2017 to June 2020.

RESULTS- Most of the patients belonged to above 5 years of age (n=10) few patients were found in the group less than 1 year (n=3). Median age at presentation 5years. The most common symptoms at presentation was abdominal mass (68%). Majority of the patients belong to low socioeconomic status of the patients that is grade IV of Kuppaswamy classification. Malignant lesions constituted 64% of the study population and benign lesions constituted of 36%.

CONCLUSION- In conclusion ovarian tumors are rare in children. Abdominal pain was the most common complaint. Benign masses consist of ovarian cyst and twisted ovarian cyst. Germ cell tumors are the most common ovarian malignancy in children

KEYWORDS

INTRODUCTION

Adnexal abnormalities in pediatric patients are uncommon but not rare. Diagnosis may be more difficult, even delayed or missed, because of low index of suspicion; nonspecific complaints; or consideration of more common, acute abdominal processes that mimic adnexal issues. This article will review the features of adnexal lesions, including neoplasms, benign masses with or without vascular compromise.

Gynecological malignant conditions account for approximately 3% of all types of cancer in children.[1] Ovarian tumors constitute around 1% of childhood malignancies. Incidence is reported to be 2.6 cases per 100,000 girls per year.[2,3]. Around one-third of childhood ovarian neoplasms are thought to be malignant. Pathologically, the nature of ovarian tumors ranges from benign cysts to highly aggressive malignant tumors, and with varied presentations [5]. Ovarian masses are classified as non-neoplastic and neoplastic, and simple ovarian cysts are the most common mass in children [6].

The aim of our study is to review the clinical presentation, treatment, and outcome of children with ovarian tumors below the age of 12 years, treated in our institution, over a 5year period.

AIM

To evaluate clinical presentation, histopathology and management and outcome of ovarian masses in paediatric population.

METHODS

An observational retrospective study in which patients with ovarian mass below 12 years of age were studied in Department of Paediatric Surgery, NRS Medical College Kolkata, between June 2017 to June 2020. Baseline investigations, ultrasonography of the whole abdomen was done in all cases. Tumor marker estimation (serum alpha fetoprotein and beta human chorionic and CA 125) was done.

RESULTS

25 patients were studied regarding presenting features, demographic profile, histopathology, management and outcome. Most of the patients belonged to above 5 years of age (n=10) few patients were found in the group less than 1 year (n=3). Median age at presentation 5years.

The most common symptoms at presentation was abdominal mass (68%). Precocious puberty was uncommon (4%). Rest of the complaints were pain abdomen, abdominal distension and antenatal diagnosis of ovarian mass.

Majority of the patients belong to low socioeconomic status of the patients that is grade IV of Kuppaswamy classification.

Left side ovary was most commonly involved as compared to right (n=14). Most of the patients were diagnosed as ovarian mass by ultrasonography (n=20) rest were diagnosed by Contrast Enhanced Computed Tomography scan.

Serum AFP was found to be raised in majority of the patients with malignant lesion (n=10)

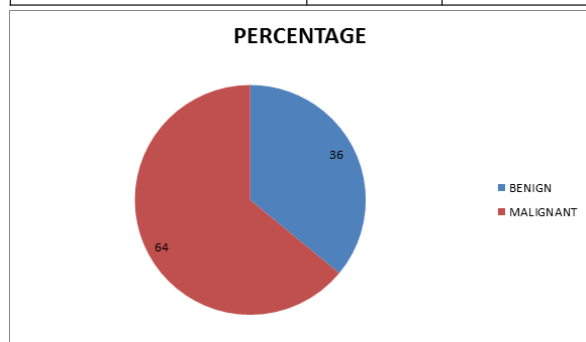
Histology of malignant lesions was mostly germ cell tumors out of which 63.63% were primitive germ cell tumor and 27.27% biphasic or triphasic teratoma (WHO Classification of ovarian tumors).

The ovarian masses underwent complete surgical management in 20 patients. Treatment completed with chemotherapy with bleomycin, etoposide, cisplatin for malignant lesions. Benign masses included ovarian cysts, torsion of ovary.

Table 1: Demographic Profile Of Patients

CHARECTERISTICS	NO. OF PATIENTS	PERCENTAGE
AGE AT PRESENTATION		
<1 YEAR	3	
1-5 YEAR	9	
>5 YEAR	13	
PRESENTING COMPLAINTS		
ABDOMINAL MASS	14	
PAIN ABDOMEN	6	
ABDOMINAL DISTENSION	2	
ANC DETECTION	2	
PRECOCIOUS PUBERTY	1	
SOCIOECONOMIC STATUS		
I	0	
II	2	
III	6	
IV	15	
V	2	
SIDE INVOLVED		
RIGHT	8	

LEFT	17	
DIAGNOSIS		
ULTRASONOGRAPHY	22	
CECT	3	



Graph 1: Types Of Ovarian Masses

DISCUSSION

Ovarian masses may represent physiologic cyst, benign type of neoplasm, or malignant neoplasms. Presenting symptoms may be pain or asymptomatic mass. Pelvic sonography is a very useful tool in the diagnosis of ovarian cyst, and torsion in children [6]

The median age of presentation is above 5 years in our study. The median age at presentation was 10 years in study by Rajeswari, et al. [7] and De Backer et al. had reported a median age at the presentation of 9 years for malignant ovarian lesions [8]

Most commonly patients in this group belong to lower socioeconomic strata of the society. Socio economic and cultural factors are believed to influence help-seeking attitudes in childhood cancer; this usually results in late in hospital presentation and subsequent poor outcomes as has been in a study by Meremikwu and Brown in separate studies in Nigeria [9,10]

Abdominal mass was the most common presenting feature in our study. The next main symptom at presentation being abdominal mass. Endocrine symptoms were reported in 4 of 66 patients in De Backer series isosexual precocious puberty in two, precocious pseudopuberty in one, and hypogonadotropic hypogonadism with a delay of puberty in one but we had only one case of isosexual precocious puberty [8]. Acute abdominal pain (47%) was the most common presenting symptom in study by Sadeghian N et al [11] but in Zhang et al.'s study series [6] it was 39.5%, and in Ammor et al.'s study [12] it was 55%.

Bagolan et al. [13] said that patients with echogenic cysts with fluid debris, retracting clot or septation should undergo surgery because such findings were associated with complications. Several imaging modalities such as ultrasound and Contrast enhanced computed tomography scan are done as an initial imaging modality in children with ovarian masses. A transabdominal ultrasound is usually the first imaging of choice and will help to distinguish between solid and cystic masses. Contrast enhanced computed tomography scan will help to assess the nature and extent of tumor better and may also aid in predicting the chance of malignancy. Malignant tumors tend to be larger and more solid or heterogeneous than benign tumours. (14)

Malignant lesions constituted 64% of the study population and benign lesions constituted of 36%.

Benign masses consist of ovarian cyst and twisted ovarian cyst. The treatment of anechoic cysts depends on their size at diagnosis. Those that were less than 5 cm in diameter were unlikely to cause problems. The cysts that were larger than 5 cm in diameter often required surgery for postnatal torsion or other complications as reported in literature [14]. Neonatal ovarian cysts are rare. Neonates, influenced by maternal hormones, are likely to have functional cysts. [15]

Ovarian tumors in children are mainly germ cell tumors. nearly two-thirds of ovarian tumors in children are germ cell tumors in contrast to adults in whom a majority of tumors are of epithelial origin. In our study also most common were germ cell tumors (n=10), second most common was teratoma (n=4). In study by Rajeswari, et al of the total 47 patients, 44 were germ cell tumors, 2 were sex cord stromal tumors,

and 1 was an epithelial ovarian tumor. Of the germ cell tumors, 9 were benign teratomas; 5 were immature teratomas Grade 3; the remaining were malignant germ cell tumors. In the series by Biswajit et al., the most common histopathology is mixed germ cell tumor followed by dysgerminoma and endodermal sinus tumors. [16]

18 patients were managed by salpingoophorectomy rest all by cyst excision Cisplatin based BEP (Bleomycin, Etoposide, Cisplatin) regimen is the most widely used chemotherapy for ovarian Germ Cell Tumors.

CONCLUSION

In conclusion ovarian tumors are rare in children. Abdominal pain was the most common complaint. Benign masses consist of ovarian cyst and twisted ovarian cyst. Germ cell tumors are the most common ovarian malignancy in children. With surgery and chemotherapy using BEP (Bleomycin, Etoposide, Cisplatin) regimen, a good outcome can be expected in majority of the patients with ovarian tumors.

REFERENCES

1. Singhal SR, Rattan KN, Nanda S, Singhal SK. A 9-Year Review of ovarian masses in Children and Adolescents. *J Gynecol Surg* 2008;24:113-6.
2. Brown MF, Hebra A, Macgeehin K, Ross AJ 3rd. Ovarian masses in children: A review of 91 cases of malignant and benign masses. *J Pediatr Surg* 1993; 28: 930-2.
3. Ayhan A, Bukulmez O, Genc C, Karamursel BS, Ayhan A. Mature cystic teratomas of the ovary: case series from one institution over 34 years. *Eur J Obstet Gynecol Reprod Biol* 2000; 880: 153-7.
4. Pontarelli EM, Emami C, Nguyen NX, Torres M, Anselmo DM. Single-incision laparoscopic resection of ovarian masses in children: a preliminary report. *Pediatr Surg Int* 2013; 29: 715-8.
5. Liu H, Wang X, Lu D, Liu Z, Shi G. Ovarian masses in children and adolescents in China: analysis of 203 cases. *J Ovarian Res* 2013; 6: 47-52.
6. Zhang M, Jiang W, Li G, Xu C. Ovarian masses in children and adolescents-An Analysis of 521 clinical cases. *J Pediatr Adolesc Gynecol* 2014; 27: 73-7. 13
7. Rajeswari, et al.: Childhood ovarian tumors – 10-year experience. *Indian Journal of Cancer* | April–June 2016 | Volume 53 | Issue 2
8. De Backer A, Madern GC, Oosterhuis JW, Hakvoort-Cammel FG, Hazebroek FW. Ovarian germ cell tumors in children: A clinical study of 66 patients. *Pediatr Blood Cancer* 2006; 46: 459-64.
9. Meremikwu MM, Ehir JE, Nkanga DG, Udoh EE, Ikpat OF, Alaje EO. Socioeconomic constraints to effective management of Burkitt's lymphoma in south-eastern Nigeria. *Trop Med Int Health* 2005; 10: 92–98.
10. Brown BJ, Adeleye AO, Ibeh JN. A Prospective Study on the Causes of Delayed Diagnosis of Childhood Cancer in Ibadan, Nigeria. *Pediatr Hematol Oncol* 2015; 32: 365–373.
11. Sadeghian N, Sadeghian I, Mirshemirani A, et al. Types and frequency of ovarian masses in children over a 10-year period. *Caspian J Intern Med* 2015; 6(4): 220-223
12. Ammor A, Kiswa MK, Oulahyane R, et al. Ovarian tumors in children: A review of 18 cases. *Afr J Paediatr Surg* 2012; 9: 231-6.
13. Bagolan P, Rivoecchi M, Giorlandino C, Bilancioni E, Nahom A, Zaccara A, et al. Prenatal Diagnosis and clinical outcome of ovarian cysts. *J Pediatr Surg* 1992; 27: 879-81.
14. Shauris RN, Gohary E, Cook RC. Ovarian cysts and tumors in infancy and childhood. *Ann R Coll Surg Engl* 1985; 67: 17-9
15. Heo SH, Kim JW, Shin SS, Jeong SI, Lim HS, Choi YD, et al. Review of ovarian tumors in children and adolescents: Radiologic-pathologic correlation. *Radiographics* 2014; 34: 2039-55.
16. Biswajit D, Patil CN, Sagar TG. Clinical presentation and outcome of pediatric ovarian germ cell tumor: A study of 40 patients. *J Pediatr Hematol Oncol* 2010; 32: e54-6.