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Case Report

Giant Hemorrhagic Ovarian Cyst in an Adolescence Girl; A Case Report

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Abstract

Adolescent girl presenting with huge abdominal cyst is uncommon in this part of the world. Though most of them are serous cystadenomas of ovaries, but grossly enlarged simple cyst are extremely rare.

Adnexal masses are uncommon occurrences in the adolescent population. However, when they occur, they are anxiety-provoking for both the patient and her family. Many practitioners are unfamiliar with the proper management of these adnexal masses and are quick to proceed with surgical intervention that is often unnecessary. and treatment of benign ovarian cysts in order to conserve ovarian function. Quick intervention and surgical management are justified in case of suspicion of torsion or large hemorrhage.

We present case report of a 13 year old girl who presented to emergency with an acute symptoms of progressive abdominal pain and distension associated with shortness of breath, palpitation, fatigue, difficulty in sitting and supine position with grossly enlarged abdominal pelvic mass. After being stabilized as she was in severe distress and hemodynamic instability, she was operated and subsequently diagnosed as hemorrhagic ovarian cyst, with nearly 12 liters of blood mixed fluid that was aspirated from it before it could be decompressed and removed.

Keywords: *Giant Hemorrhagic Ovarian Cyst; Adolescence Girl*

Introduction

Adolescent girl presenting with huge abdominal cyst is uncommon in this part of the world. Though most of them are serous cystadenomas of ovaries, but grossly enlarged simple cyst are extremely rare.

Case Report

A 13 years old, regularly menstruating Emirati girl, presented to AQWCH emergency department with acute symptoms of few hours origin, primarily of progressive shortness of breath with severe abdominal pain. She gave history of difficulty in sitting and supine position for a week before admission and this, the family attributed to her chronic problem of constipation and morbid obesity.

The patient had attained menarche at age of 11 years and had regular periods with normal flow. her last menstrual period was 2 weeks ago which was normal. She was a regular school going child with not noting any change in size of clothes or fatiguability in school. Due to fallen in morbid class of obesity comparing to her age group children, her physical appearance was unnoticed and possibly neglected by care givers.

On arrival, she looked very pale and was distressed with pain. On general physical examination, her height was 158 cm, weight 95 kg and BMI-for-age percentile was 38 kg/m^2. She was tachycardic, tachypneic, dysphonic and orthopneic. Blood pressure was normal and oxygen saturation in room air was 96 to 98%. Upon abdominal examination she was noted to have a tense abdomen, distended with a huge tender mass, up till the epigastrium. No inguinal lymph nodes were palpable.

No abnormal findings noted on chest auscultation and secondary sexual characters were normal.

Urgent Ultrasonography of abdomen and pelvis was arranged and it reported a large abdominal pelvic cyst possibly arising from right adnexa with minimal ascites, with differential diagnosis of adnexal mass or mesenteric cyst.

Her blood investigations were reported as follows: Hemoglobin was 5.5 g/dl, total white cell was high 33,000. CA- 125 165 miu/ml, BHCG < 0.1 < alpha feto protein 0.5, CEA 0.00.

Serum ferritin was 65 and electrophoresis was normal.

ECG showed sinus tachycardia. Cardiac enzymes were normal. coagulation profile was normal.

Computerized tomography scan without contrast of abdomen and pelvis revealed a multilocular large cystic lesion occupying most of the abdomen from xiphisternum down to pelvis. Differentials include adnexal cyst, ovarian or mesenteric cyst. MRI could not be done considering her instability in supine position.

Alongside the work-up, she was urgently transfused with packed red blood cells in intensive care unit as we decided to stabilize her general condition, while concluding on the nature of this mass. However, during 18 to 24 hours of admission, when her distress and pain could not improve and in fact was the reason when MRI imaging could not be arranged, it was decided by Gynecology team to proceed for laparotomy with Pediatric Surgical team.

Laparotomy through a midline vertical incision was started, initially sub umbilical incision which later modified to para umbilical incision. Tense rectus sheath was separated with adherent peritoneum over it. Peritoneal fluid was taken for cytology and also washings. A Huge lesion was noted occupying whole abdomen and impossible to deliver out of the abdomen. Thus, a small rent was made to aspirate the fluid and reduce size. Initial 2 liters aspirated was blood and thereafter 10 more liter of serous fluid was removed. Then it was noted that the mass was arising from left adnexa and was twisted twice on its pedicle. Left ovary could not be seen separately. Uterus was normal, Right tube was edematous and right ovary was normal. The mass was removed and sent for histopathological examination. She replaced with packed cells during surgery. Skin staples were used. The intra operative and postoperative course was otherwise uneventful and we discharged the girl on sixth post operative day. A follow up a month later the child was doing well.

Histopathological examination of cyst was reported as hemorrhagic ovarian cyst measures 35 x 27 x 1.8 cm. Tube measures 10 x 2.6 x 0.8 cm. Cut section shows black hemorrhagic thick walled unilocular cyst with smooth inner and outer surfaces. Ascitic and cystic fluid was negative for malignancy. The intra operative and postoperative course was otherwise uneventful and we discharged the girl on sixth post operative day. A follow up a month later the child was doing well.

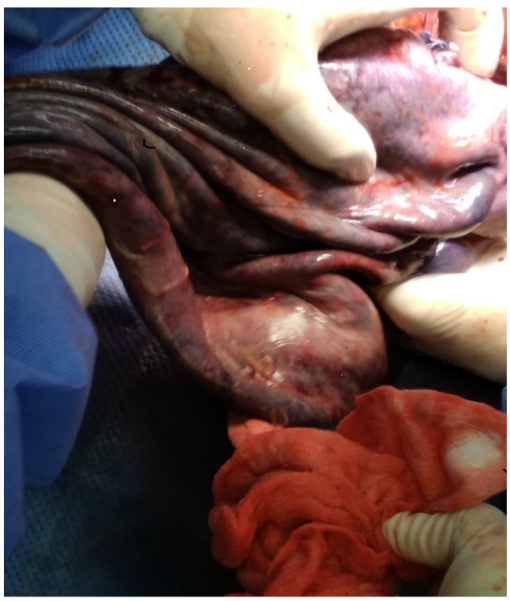

Figure 1: *Giant hemorrhagic cyst in adolescence girl.*

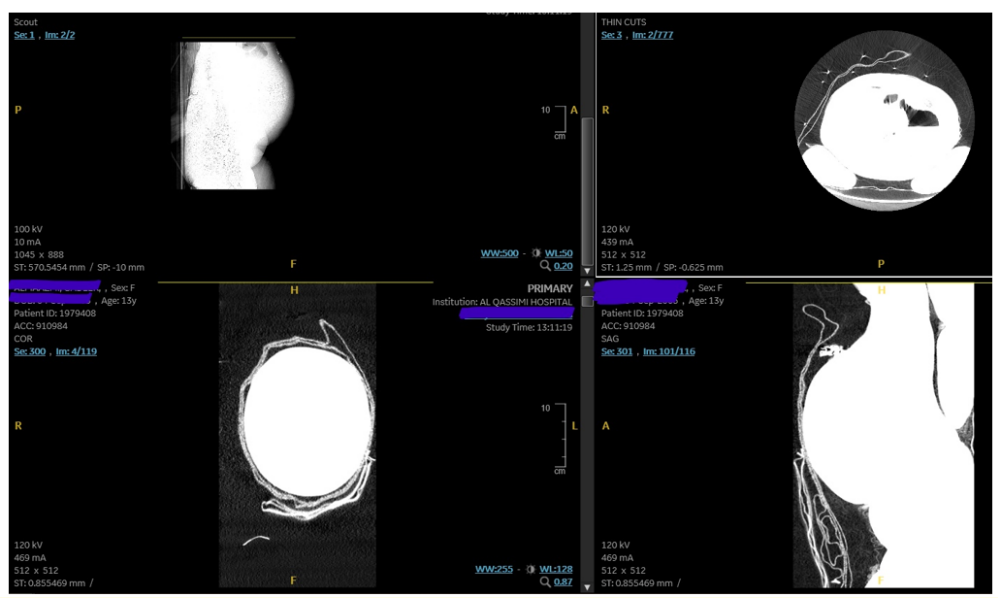

Figure 2: *CT scan image 1.*

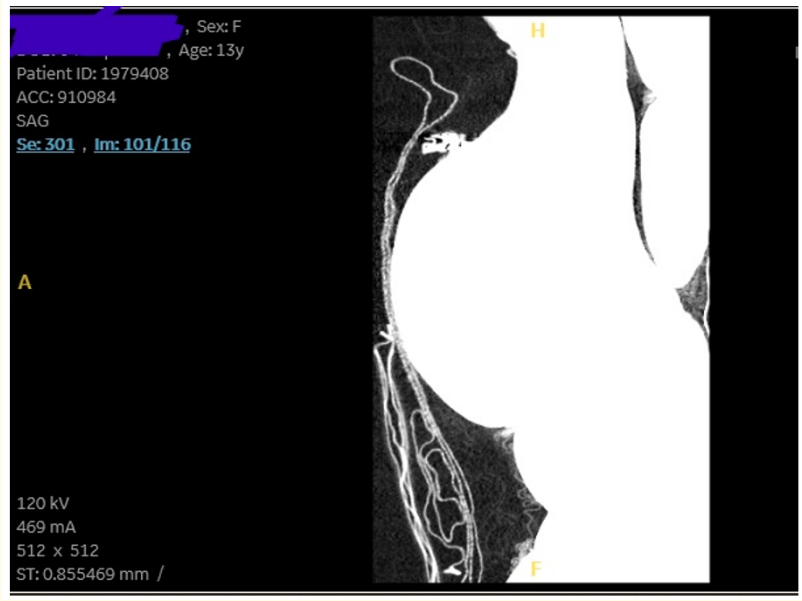

Figure 3: *CT scan image 2.*

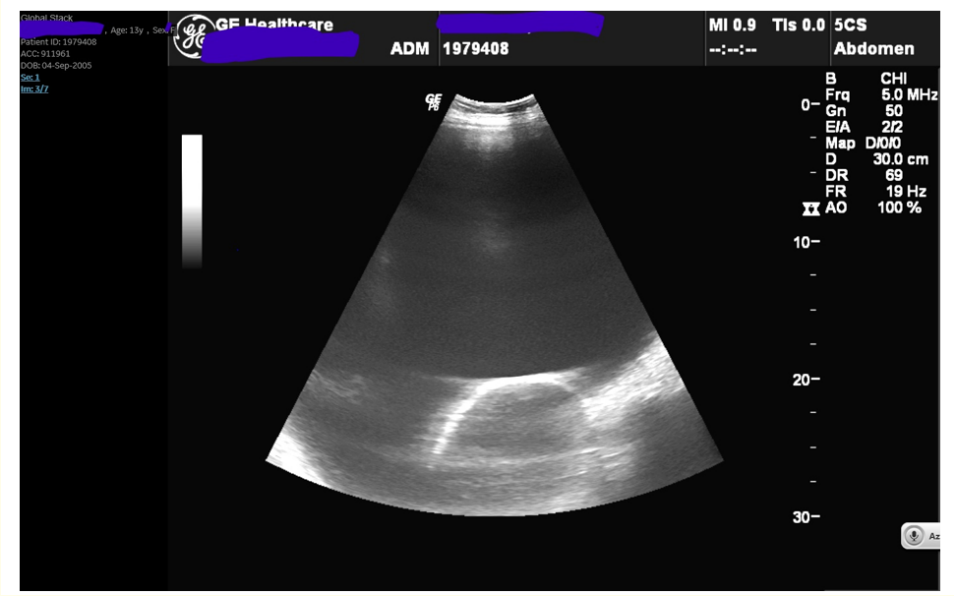

Figure 4: *Ultrasound abdomen.*

Discussion

The estimated incidence of adnexal masses in the adolescent population is approximately 2.6 per 100,000 girls younger than 18 years of age [1]. An estimated ten percent of pediatric ovarian masses are found to be malignant [2,3]. Ovarian malignancies account for only one percent of all malignancies found in female patients less than 15 years of age [4]. While the discovery of an ovarian mass in an adolescent patient is concerned, conservative management is warranted due to the fact that the majority of these tumors are benign [5]. It is important to be aware of the presentation and evaluation.

Ovarian masses are largely categorized as functional cysts, benign neoplasms, or malignant neoplasms. In a review of females under the age of 21 undergoing surgery for an adnexal mass, 57.9% of the cases were diagnosed to have an ovarian cyst [5]. The prepubertal adolescent girls are at a risk of developing functional cysts due to the failure of involution of follicles [6]. Prepubertal cysts are commonly caused by gonadotropin stimulation of the ovary by the immature hypothalamic-pituitary axis [7]. Millar., *et al*. found ovarian cysts in 2% - 5% of prepubertal females undergoing ultrasound [7]. These cysts are mostly small (< 1 cm) and insignificant. In the post pubertal adolescent, cysts result from failure of ovulation or persistence of ovarian follicles [6].

Ovarian mass or cyst that occur in adolescence and childhood encompass a variety of benign and malignant tumors, including simple cyst, germ cell tumors (GCTs), surface epithelial stromal tumors, sex cord–stromal tumors (SCSTs), and miscellaneous tumors (i.e. gonad blastoma, malignant lymphoma and leukemia, small cell carcinoma, and soft-tissue.

Classification	Comparative Frequency
GCT	60% - 80%
Epithelial stromal tumor	15% - 20%
SCST	10% - 20%
Miscellaneous tumors	< 5%

Table 1: *Classification and comparative frequency of ovarian tumors in children and adolescents.*

Tumor Marker	Associated Ovarian Tumors
AFP	Yolk sac tumor Immature teratoma Embryonal carcinoma Sertoli-Leydig cell tumor (rare)
B-hCG	Choriocarcinoma Embryonal carcinoma Dysgerminoma (rare)
LDH	Dysgerminoma
CA-125	Epithelial tumors
Inhibin	Granulosa cel tumor

Table 2: *Tumor marker with associated tumors.*

Note: AFP: α-Fetoprotein; β-hCG: Beta Subunit of Human Chorionic Gonadotropin; LDH: Lactic Dehydrogenase.

Diagnostic approach: In young girls with a suspected adnexal mass, the first diagnostic step is to define the exact site of origin and distinguish the lesion from other diseases with similar symptoms (eg, appendicitis). Lesions with an ovarian origin should be determined to be either benign or neoplastic. Although malignancy is uncommon but likelihood of malignancy should be assessed because this is critical when assigning patients to either conservative management or an appropriate surgical approach for fertility preservation.

Computed tomography (CT) or magnetic resonance (MR) imaging should be performed to obtain additional information, such as the nature and extent of the tumor. Although it often is difficult to distinguish between benign and malignant ovarian tumors, imaging findings can help predict malignancy; malignant tumors will appear predominantly solid or heterogeneous and tend to be larger than benign tumors [8,9]. MR imaging is the preferred imaging modality in some cases owing to the excellent soft-tissue contrast it provides. However, the MR imaging examination is longer and may require sedation in a younger child [10]. Thus, despite the use of radiation, CT remains an important imaging modality for the staging of ovarian tumors and surgical planning [11].

Assay of serum tumor markers is the next step in establishing the differential diagnosis (Table 2). The serum AFP level is elevated in patients with GCTs such as yolk sac tumors, immature teratomas, embryonal carcinomas, and mixed GCTs with yolk sac elements [12]. Rarely, the AFP level can also be elevated in Sertoli-Leydig cell tumors with hepatoid differentiation or elements [13]. The serum marker β-hCG is mainly associated with choriocarcinoma. Serum β-hCG levels are also elevated in some cases of embryonal carcinoma and mixed GCT or rarely in dysgerminoma, related to the presence of syncytiotrophoblastic-like giant cells [14]. The LDH level may occasionally be elevated in dysgerminoma [15]. CA-125 levels are more frequently elevated in patients with epithelial ovarian cancers than in those with GCTs. However, CA-125 levels should not be routinely obtained in children, particularly in premenarcheal girls, as epithelial ovarian tumors are extremely rare before menarche [16,19]. Inhibin, a polypeptide hormone produced by the granulosa cells of normal ovarian follicles, is a useful marker for the diagnosis and surveillance of tumor relapse in granulosa cell tumors [17]. Among these tumor markers, elevated AFP, β-hCG, and CA-125 levels raise concern for ovarian malignancy. However, negative tumor markers do not exclude the possibility of malignancy because the markers are positive in only 54% of cases [8,18].

What is intriguing in this case is that a large cyst presented with an acute course only, making it a diagnostic dilemma for the managing clinicians. Severe anemic presentation with normal iron profile and Hb electrophoresis was suggestive of acute presentation and intraperitoneal blood loss. Our differential diagnosis was serous cystadenoma of ovary or mesenteric cyst or hemorrhagic cyst with or without rupture. The diagnostic approach should be directed to differentiate a benign condition from neoplastic one. The aim of treatment are resolution of symptoms and preservation of ovarian tissue for future fertility.

Conclusion

Ovarian cyst while common in adolescence, are rarely huge. Most commonly, they are follicular cyst and occur due to dysfunctional ovulation with persistence of remaining follicle.

Abdominal mass in this age group often mislead. However, what clearly was a stepwise course of assessment and thus preparedness for surgery made it a safe surgery with good post-operative outcome for this adolescent. Clinical symptoms should guide a multidisciplinary team in making appropriate timely decisions.

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