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CASE REPORT

Non-Tender Huge Abdominal Mass in an Adolescent

Bilateral paraovarian cysts

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ABSTRACT: Paraovarian cysts constitute about 10% of all adnexal masses in females and occur most commonly in the third and fourth decades of life. These cysts are benign and usually uncommon in adolescence. Such cysts pose a diagnostic challenge while distinguishing them from ovarian cysts clinically and during radiological investigations. We report a rare case of a 13-year-old female patient with bilateral paraovarian cysts, including a giant cyst in right mesosalpinx presenting to Sohar hospital, Oman in 2018. The definitive origin of the huge mass on the right side of abdominal cavity could not be established in the current case despite contrast enhanced computerized tomography. It was only on laparoscopic exploration that this mass was identified as a giant paraovarian cyst. Both the giant cyst and a smaller paraovarian cyst on the left side were enucleated with minimally invasive surgery while preserving the fertility of the patient. Only one other similar case of bilateral paraovarian cysts in an adolescent, including a giant cyst managed with laparoscopy, has been documented previously.

Keywords: Adolescent; Parovarian Cyst; Laparoscopy; Ultrasonography; Minimally Invasive Surgical Procedures; Case Report; Oman.

Paraovarian cysts represent about 10% of all adnexal masses in women and occur, most commonly, in third and fourth decades of life.[1] They usually arise from the mesothelium covering the peritoneum.[2] They can also emerge from the paramesonephric tissue. But in rare cases they can develop from the mesonephric remnants.[2] These cysts are usually benign and giant paraovarian cysts are extremely uncommon during adolescence.[3,4] They are often difficult to clinically distinguish from ovarian masses, appearing similar to ovarian cysts even using ultrasonography.[5] Traditionally, these cysts have been labelled as being 'large' when they are more than five cm and 'giant' when they are over 15 cm in diameter.[6] Contrast enhanced computerized tomography (CECT) established this mass as a huge adnexal cyst. Since the origin of this mass could not be decided, laparoscopy was performed to determine the origins of the cyst and treat it simultaneously. Very few cases of bilateral paraovarian cysts of this size have been documented among adolescents.[5,7,8] We report a case of bilateral paraovarian cysts in an adolescent, in whom one cyst qualified as a giant cyst that was treated using laparoscopy.

Case Report

A 13-year-old female patient presented to the gynaecology clinic at Sohar hospital, Oman in 2018 with persistent vaginal bleeding for almost one month. The bleeding would pause for five days only to resume again. The patient had been experiencing irregular menstruation since attaining menarche one year earlier. An extremely large, non-tender mass arising from the pelvis and reaching just above the umbilicus was discovered during per abdominal examination. Ultrasonography of the abdomen revealed a right ovarian cyst with a small area of hyperechogenicity and no probe tenderness. Contrast enhanced computerized tomography (CECT) showed a large pelvic-abdominal, non- enhancing cystic lesion, measuring 11 × 20 × 23 cm (anteroposterior × transverse × craniocaudal) in size, displacing the surrounding viscera [Figure 1]; additionally, a rim of free fluid, likely representing a right adnexal cyst, was noted. A cyst of similar density measuring 3.5 × 3.3 × 4.3 cm in size was observed on the left side. Examinations of the uterus and other viscera were unremarkable. The levels of lactate dehydrogenase, alpha-fetoprotein, beta-human chorionic gonadotropin, thyroid function tests and cancer antigen 125, along with routine laboratory workup, were all within normal limits. The patient's haemoglobin was 11 g/dL.

The patient underwent laparoscopic exploration under general anaesthesia. After a Veress needle introduced through Palmer's point was deemed unsatisfactory, a 10 mm primary trocar was inserted in the supraumbilical area (Hasson's technique) following which two accessory ports, each measuring 5 mm, were created in the left and right iliac fossae. A giant paraovarian cyst extending to a part of the ovary was visualised in the field on the right side. [Figure 2].

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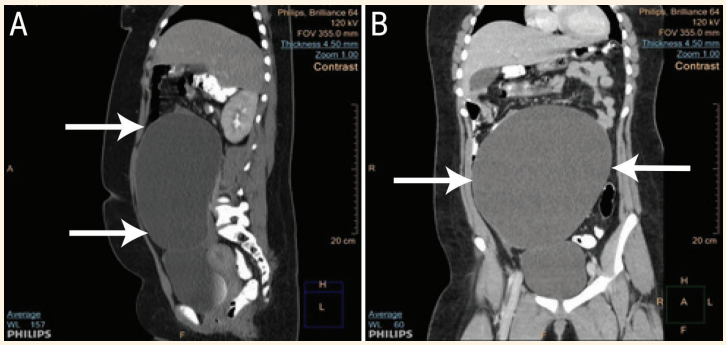

Figure 1: A contrast enhanced computerised tomography scan showing **(A)** a transverse view (measuring 20 cm) and **(B)** a craniocaudal view (measuring 23 cm) of the cystic lesion (arrows) in the abdomen of a 13-year-old female patient.

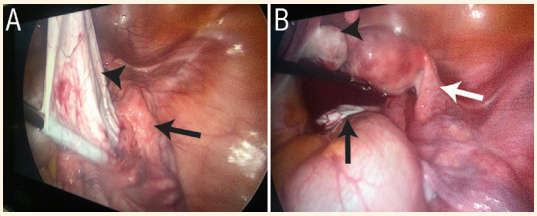

Figure 2: Intraoperative views showing a giant paraovarian cyst extending to a part of the ovary in a 13-year-old female patient. **(A)** The arrowhead points to the aspirated giant paraovarian cyst and the arrow points to the right fallopian tube. **(B)** The arrowhead points to the left ovary, the white arrow points to the right fallopian tube with ovary underneath and the black arrow points to the collapsed giant ovarian cyst.

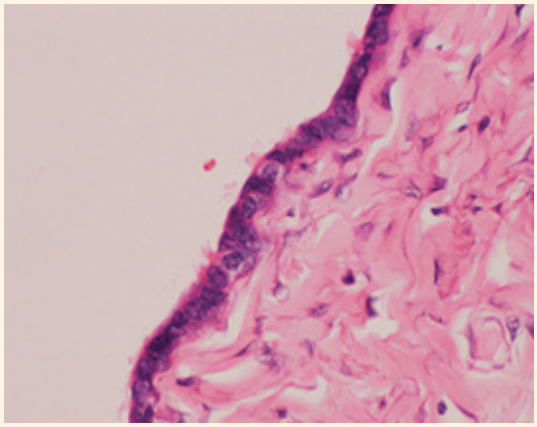

Figure 3: Histopathology of a specimen obtained from the giant paraovarian cyst on the right side of the ovary at 100x magnification consistent with a diagnosis of a benign serous cystadenoma.

The cyst wall was punctured using a trocar and about three litres of clear fluid was aspirated. The giant cyst was visibly found to be emerging from paraovarian structures on the right side adjacent to the ipsilateral ovary. The ampullary and fimbrial ends of the fallopian tube were not visible. A linear incision was made on the cyst wall and the cyst was completely peeled off from its bed paying close attention to the fallopian tube. The specimen was removed using a laparoscopic tissue retrieval bag. The right ovary was reconstructed using absorbable knotless barbed antibacterial (polydioxanone) sutures. A paraovarian cyst measuring 3–4 cm in size was visible on the left fallopian tube. This cyst was also peeled off and haemostasis was ensured. Pelvic irrigation was performed with normal saline. All ports were removed under direct vision and gas was deflated from the supraumbilical port. About 200 ml of blood was lost during the whole procedure. Polyglactin number 0 was used to close the fascia and suture number 3–0 of the same material was used for closure of other ports.

The intra-operative and postoperative courses were uneventful and the patient was discharged on the third day following surgery. At the time of writing, the patient was doing well and her menstrual irregularity had resolved after treatment with oral mefenamic acid. Histopathology of the specimen obtained from the giant cyst [Figure 3] and the smaller cyst from left side established the diagnosis of paraovarian cysts consistent with benign serous cystadenoma. There were no solid components found in either of the specimens. The patient's parent provided consent for publication of this case report.

Discussion

Giant paraovarian cysts are extremely uncommon in adolescents.[4] They are usually benign and rarely malignant.[8] Radiological tools are crucial in identifying and locating cystic growths and their extensions. Although magnetic resonance imaging (MRI) is the investigative technique of choice in delineating the extent and margins of a cyst, due to non-availability, CECT findings were relied on.[9] Nevertheless, ovarian cysts may still be indistinguishable from paraovarian cysts.[10] Surgical exploration is the ultimate solution for diagnosis and management. It is well-known that laparotomy facilitates direct visual inspection and

is preferable for large tumours/cysts. Nevertheless, it was decided to proceed with a minimally invasive procedure (i.e. laparoscopy), while complete preparation for a laparotomy was ensured in case the largeness of the cyst posed a difficulty during the procedure. During laparoscopic cystectomy, cysts are decompressed following which the shrunken specimen is removed.[11] While there is a potential risk of fluid spillage, careful handling renders this risk negligible. Conservative ovarian surgery including enucleation of the cyst and preservation of the ovary and fallopian tubes is the standard treatment to preserve fertility in these adolescents.[8] Laparoscopy through Palmer's point was undertaken for the current patient. As this attempt failed, Hasson's technique was resorted to and successful removal of both cysts was ensured with minimal bleeding and preservation of the ovaries and fallopian tubes.

Parovarian cysts are known to be usually asymptomatic.[8] However, pressure effects from giant cysts may affect neighbouring organs and lead to pain or torsion, perforation and even haemorrhage.[12] While giant paraovarian cysts in adolescents are a rare occurrence, bilateral paraovarian cysts in this age group are even rarer. They are reported more often in adults.[12–14] The current case presented with bilateral paraovarian cysts, one of them fitting the definition of a giant cyst. An initial presenting symptom was excessive vaginal bleeding which could have been due to an immature hypothalamo-pituitary-ovarian axis since no uterine or endocrinological cause could be identified. Although giant cysts are almost always benign, diligent diagnostic work-up, including imaging and tumour markers is desirable to rule out malignancy.[8] Normal levels of tumour markers and histopathology ruled out malignancy in this case.

Laparoscopic removal of giant unilateral parovarian cysts in adolescents is well documented.[9,15,16] Although bilateral parovarian cysts in adolescents have been reported to be treated with laparoscopy, these cysts were relatively small.[7] More recently, a report of a giant paratubal cyst in a teenager managed with laparotomy was published.[17] However, only one report has documented a case of bilateral parovarian cysts treated with laparoscopic enucleation of a giant parovarian cyst in the adolescent age group with a size comparable to the current patient.[4] To the best of the author's knowledge, this is the second reported case of bilateral paraovarian cysts in an adolescent including a giant cyst that was managed with laparoscopy.

Conclusion

Giant paraovarian cysts are an uncommon occurrence during adolescence. We report a rare case of an adolescent with bilateral paraovarian cysts, one of them fitting the description of a giant cyst. The patient was managed with a fertility-sparing, minimally invasive surgery. Despite radiological investigations, there was a dilemma in arriving at a preoperative diagnosis. The extent and margins of the giant cyst could only be delineated during laparoscopic exploration. Successful overcoming of the challenges of preserving fertility and post-surgical cosmetic appearance prompted the documentation of this case.

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