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Case Report

Recurrent Ovarian Torsion in a Premenarchal Girl

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ABSTRACT

A 10-year-old girl presented with a recurrence of left ovarian torsion where she presented with intermittent left sided abdominal pain for 2 days. She had a similar presentation occuring 1 month ago. The patient underwent successful ovarian salvage with laparoscopic left ovary detorsion and bilateral oophoropexy 5 hours after presentation. Tumour markers were not raised. Intraoperative incisional ovarian biopsy showed no evidence of malignancy. Ovarian torsion is a rare gynaecological emergency in children with non-specific symptoms. Early recognition and surgery are important to prevent ovarian necrosis. The presentation of acute onset unilateral abdominal pain on the background of a similar previous presentation should alert the clinician of this diagnosis. Although ovarian torsions occur more commonly in the presence of adnexal masses more than 5cm in size, it can also occur in normal ovaries especially in the premenarchal age group. Laparoscopic detorsion is the treatment of choice with oophoropexy a feasible option for prevention of a recurrence. Close follow up with ovarian surveillance is required to ensure resolution of ovarian enlargement.

Introduction

Ovarian torsion has an incidence rate of 2/10 000 to 4.9/100 000 [1]. The symptoms are non-specific ranging from abdominal pain, nausea, vomiting or low-grade fever. The difficulty to differentiate this condition from other surgical conditions e.g. appendicitis, gastroenteritis or renal colic often leads to delayed diagnosis. A 15-year retrospective study by Othman et al. found that 52% of ovarian torsion cases in children occurred at the age group 9-14 years [2]. Misdiagnosis was found to be more common in premenarchal girls compared to women who were postmenarchal [3]. We describe a 10-year-old girl who presented with a recurrence of left ovarian torsion. The diagnosis, investigation and management of this case are discussed with reference to existing literature review.

Case Report

A 10-year-old girl presented with a two-day history of intermittent left sided abdominal pain, which worsened on the day of admission. She had no fever, vomiting or change in bowel habit. There were no urinary symptoms or per vaginal bleed. She had a similar episode of abdominal pain with vomiting 1 month ago, where she had been diagnosed left ovarian torsion and had undergone left ovary detorsion. Examination during this current presentation revealed left iliac fossa localised tenderness but no palpable masses. Her pubertal staging was Tanner stage 2. Pelvic ultrasound (US) showed radiological findings of left ovarian torsion (Figure 1A, 1B and 2A). No definite mass or cyst was seen in the left ovary. Serum beta human chorionic gonadotropin (beta-hCG), cancer antigen 125 (CA-125), carcinoembryonic antigen (CEA) and alpha-fetoprotein (AFP) were not raised. Her unstimulated follicular stimulating hormone (FSH) of 0.8IU/L, luteinising hormone (LH) of 0.09IU/L and serum estradiol of < 37pmol/L were within prepubertal ranges. The patient underwent successful ovarian salvage with laparoscopic left ovary detorsion 5 hours after presentation. Intraoperative findings revealed a grossly enlarged left ovary which was torted with congestion of left fallopian tube. The right ovary also appeared enlarged but was not torsed. Both ovaries were viable. Bilateral oophoropexy was also done with fixation of both ovaries to the

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uterosacral ligament. Intraoperative incisional biopsy of bilateral ovaries showed no evidence of malignancy. A follow up ultrasound 5 months post operatively showed a reduction in size of both ovaries (left 8.51cm^3 and right 9.01cm^3). 11month post operatively, the ovaries had further reduced in size (left 5.7cm^3 and right 8.3cm^3).

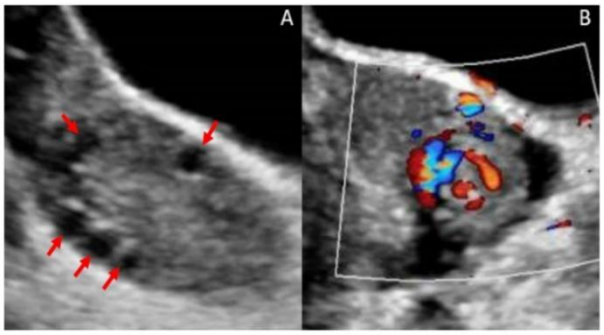

Figure 1: (A) US findings showing enlarged left ovary 18.51cm^3 (normal reference size 2.2cm3 ±0.7 for 10 years old) with peripheral displacement of follicles (red arrows) and mildly echogenic central stroma [18].
(B) US doppler showing twisted vascular pedicle (whirlpool sign) adjacent to the enlarged left ovary.

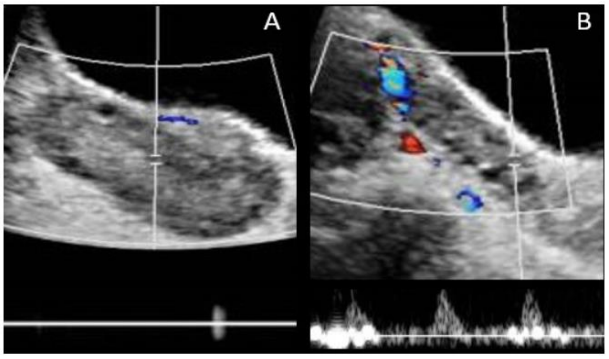

Figure 2: (A) US Doppler showing reduced venous wave form in left ovary.
(B) The right ovary was also enlarged measuring 13.63cm^3 but had preserved arterial and venous blood flow.

Discussion

Premenarchal girls reportedly have a higher incidence of ovarian torsion in the absence of ovarian pathology [2-5]. Although the exact mechanism is not known, it could be postulated to be due to elongated infundibulopelvic ligaments or increased hormonal activity in this age group [6, 7]. This could explain the recurrence of ovarian torsion as seen in our patient. Early recognition and surgery are paramount to prevent ovarian necrosis. The presentation of acute onset unilateral abdominal pain should alert the clinician of this diagnosis, especially if similar episodes had occurred in the past. The most useful diagnostic radiological tool is a pelvic ultrasonography. Enlargement of the ovary with peripheral displacement of follicles is a feature of ovarian torsion due to odema from venous and arterial engorgement. A normal ultrasound however only has a sensitivity rate of 51% and cannot rule out ovarian torsion [2]. Doppler US demonstrates an absence of blood flow in the ovaries due to a compromised venous and arterial circulation in ovarian torsion but can be normal in 60% of cases due to dual blood supply to the ovaries [8, 9]. The role of laparoscopy for diagnosis of ovarian torsion is more reliable compared to clinical and radiological evaluation. In this case, the ultrasound findings of left ovarian torsion were confirmed intraoperatively. The cause of right ovarian enlargement which was shown from pelvic US as well as visualized intraoperatively cannot be ascertained. There is a possibility of a concurrent right ovarian torsion which had spontaneously untwisted before the surgical procedure.

Laparoscopy is currently a more popular approach for surgical intervention for ovarian torsion compared to open laparotomy. Laparoscopy has a more favorable outcome in terms of lower morbidity rate and shorter hospital stay [10]. Laparoscopic detorsion is safe and preserves fertility in girls with torsion of normal ovaries [6, 11]. The majority of ovarian torsion occurs in patients with ovarian masses of 5cm or larger [2, 4, 12, 13]. Benign tumours are more common than malignancy as a cause of ovarian torsion [5, 13, 14]. A retrospective review combined with literature review by Oltmann et al reported that malignancy only constituted about 1.8% of twisted ovaries in 707 children [14]. In our patient, the clinical absence of precocious puberty and abdominal mass was not suggestive of an underlying ovarian pathology eg cyst or tumour. Furthermore, low levels of serum estradiol and tumour markers alleviated the suspicion of ovarian malignancy. This was later on confirmed by a normal intraoperative ovarian biopsy result. This patient would however require close ovarian surveillance post detorsion to ensure resolution of the enlarged ovaries. Persistence of ovarian masses may require reoperation. Patients with torsion of normal ovaries who had been treated conservatively by detorsion are at risk of recurrent torsion at the ipsilateral or contralateral side as was seen in this case [15]. Oophoropexy prevents the recurrence of ovarian torsion but remains controversial as the procedure carries a risk of reduced fertility due to interruption of fallopian tube function and blood supply [16, 17].

Conclusion

The occurrence of ovarian torsion in normal ovaries amongst premenarchal girls is a clinical entity that should be recognized by clinicians. Patients with ovarian torsion commonly presents with abdominal pain, in which the symptoms are indistinguishable from other surgical causes of acute abdomen. A history of similar presentation in the past alludes to the diagnosis of this condition. Diagnosis can be made from pelvic US, but laparoscopy is a more reliable diagnostic tool and preferred approach for surgical intervention. The surgical option of oophoropexy is individualized and should be considered in patients with recurrent torsion.

Conflicts of Interest

None.

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