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Ovarian Torsion in a Prepubertal Girl: Infrequent Yet to be Anticipated

Sravani Chithra .Ch[1], Geetha .V[2], Senthil Kumar Azhisoor Chandrasekhar[3], Kundavi Shankar[4]

[1]Institute of Reproductive Medicine, Madras Medical Mission, Chennai, India

[2] Institute of Reproductive Medicine, Madras Medical Mission, Chennai, India

[3] Senior Surgical Oncologist, Madras Medical Mission, Chennai, India

[4] Head of the Department, Institute of Reproductive Medicine, Madras Medical Mission, Chennai, India
Email: *drsravanichithra[at]gmail.com*

Abstract: ***Adnexal torsion accounts for 3% of all gynaecologic emergencies. Of this pediatric ovarian torsion is relatively rare. It consists of a spectrum of pathologies including ovarian torsion, ovarian torsion with tubal torsion and isolated fallopian tube torsion. It is associated with high morbidity if not treated immediately. Patients with adnexal torsion usually present with acute abdominal pain along with gastrointestinal symptoms such as nausea and vomiting. But due to presence of non - specific clinical features, diagnosis of adnexal torsion is a difficult task which requires high degree of clinical suspicion. We report a case of pediatric ovarian torsion in a thirteen year old, where diagnosis was difficult on initial presentation to the hospital due to various factors, which inevitably led to delayed resolution and increased morbidity. To improve diagnosis and shorten time to treatment, the use of laparoscopy for diagnosis of ovarian torsion if indicated by clinical suspicion and supplemental imaging studies will help in prompt diagnosis and timely management, hence preventing irreversible damage to adnexa. Conservative surgery should be preferred to preserve the future reproductive function.***

Keywords: ovary, torsion, pain, laparoscopy, imaging.

1. Introduction

Adnexal torsion is one of the most common gynecological emergency conditions to be misdiagnosed by the clinicians. It consists of spectrum of pathologies including ovarian torsion, ovarian torsion with tubal torsion and isolated fallopian tube torsion (IFTT). It accounts for 3% of all gynecologic emergencies. [1] It is most commonly seen in women of reproductive age group. However, no age is exempt from this pathology and cases have been reported in both prepubertal girls and postmenopausal women.

Torsion usually occurs unilaterally with 70% of cases seen on the right side. The reasons for more common occurrence on right side are longer utero - ovarian ligament on right side and limited space on left side due to presence of the sigmoid colon. [2]

The normal mobility of the fallopian tube can lead to rotation of the ovary with cysts, along with its vasculature. This leads to the obstruction of venous outflow, infarction, necrosis, infection, peritonitis or loss of the adnexa. This is especially dangerous in young children, as the entity can go unrecognized because of its rarity and the non - specificity of its presentation. This can delay surgical intervention and lead to a greater risk of complications. [3]

2. Case Report

11 year old premenarchal girl came to the emergency department with complaints of right sided lower abdominal pain since one week with increasing intensity for one day with 7 episodes of vomiting. No history of fever or loose stools. No significant medical and surgical history.
On arrival her vitals were stable with PR 90 bpm, BP 100/60 mm Hg.

On examination her abdomen was soft with tenderness in right iliac fossa. There was no guarding or rigidity.

Basic blood investigations showed increase in total count to 12500 cells/cu mm and differential counts with rise in Polymorphs and lymphocytes. Other immunological markers were normal.

Her urine analysis showed 1 - 2 white blood cells and 5 - 10 red blood cells. There were micro - organisms present. Renal function, liver profiles, serum electrolytes, and other basic biochemical investigation results were within normal limits.

Ultrasound showed a large right adnexal mass of 7.1 x 5 cm size, ? Right ovarian origin. (Fig.1)

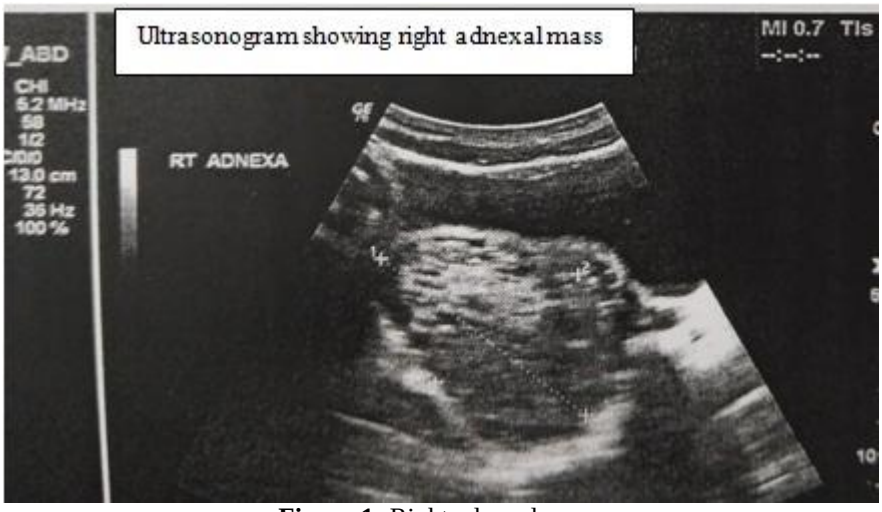

Figure 1: Right adnexal mass

She was sent for MRI for further evaluation of mass. MRI was done which suggested right ovary grossly enlarged in size 70 x 66 x 50 mm with peripherally displaced follicles and diffusely hyper intense thickened, twisted pedicle leading upto the enlarged right ovary. Suggestive of acute torsion of right ovary.

Tumor markers were also done to rule out malignancy, which were within normal limits. LDH: 167 U/l, B - HCG < 2.39, CA - 125: 14.1, CEA - 9.4, AFP - < 1.7 IU/ml. Urine culture did not grow any organisms.

Emergency laparotomy was done. Intraoperative findings showed, minimal blood tinged peritoneal fluid. Right ovary - enlarged of size 6x7cms, blackened and appeared gangrenous. Right tube was edematous and gangrenous. Right ovary and tube were twisted on the elongated ovarian pedicle by about 3 ½ times. (Fig.2) Uterus, left tube and ovary normal. Appendix was normal.

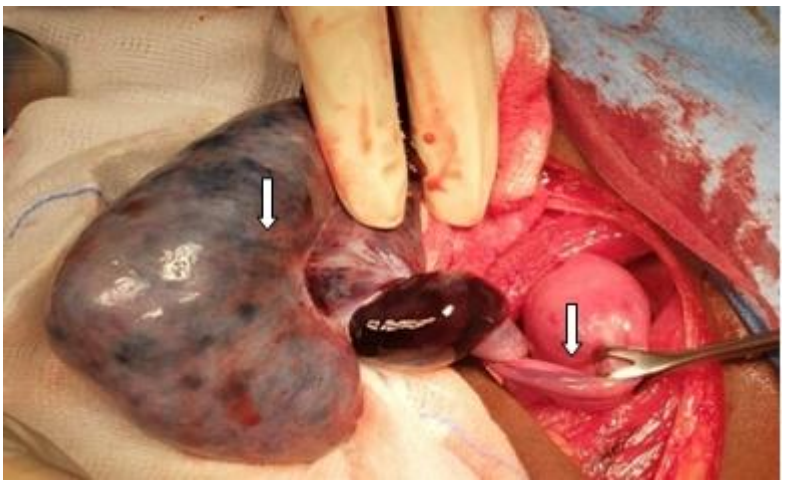

Figure 2: Intra operative picture showing Torsion of right ovary and tube

We proceeded with right salpingo - oophorectomy in view of gangrenous right ovary and tube and sent for histopathological examination. (fig.3) Histopathology reported as: Right ovary and tubeshows hemorrhage, hemorrhagic necrosis possibly secondary to torsion.

Figure 3: Gangrenous right ovary and tube

3. Discussion

Ovarian torsion (OT) is the fifth most common problem requiring emergency surgery in gynaecology. It is defined as the twisting of the ovary on its vascular pedicle. If remains undiagnosed, blood supply becomes compromised resulting in tissue necrosis and thus loss of ovarian function. Hence, a quick and confident diagnosis is required to save the adnexal structures from infarction.

It has a prevalence of 2.7% and an incidence of 4.7 per 100, 000 patients in women less than 20 years old [4, 5]. The highest prevalence is in women of reproductive age [6]. Pediatric and adolescent cases of ovarian torsion account for about 15% of the total cases. About 52% of pediatric and adolescent cases of OT occur between 9 and 14 years of age with a mean age of about 11 years. Cases in infants is rare with only 16% of cases occurring in girls under 1 year old [7, 8].

The most common presenting features are acute onset of lower abdominal pain which may be fluctuating or radiating to loin, with nausea and vomiting. Low - grade pyrexia may also be present. Signs include tachycardia, rebound tenderness and adnexal mass.

Children with ovarian torsion usually present with nonspecific lower abdominal pain, which may be constant or intermittent, non - radiating or radiating, mild or intense and with a variable duration from a few hours to days. Other symptoms like vomiting and nausea may mimic the common presentation of acute gastroenteritis, constipation, urinary tract infection, appendicitis and intussusception. Examination findings such as lower abdominal tenderness and fever will also be nonspecific. [9, 10, 11]

Aseptic pyuria has been reported in adolescent cases, as seen in our patient where urine routine showed signs of infection but culture had no growth. This shows the importance for need to investigate younger patients further for the possibility of ovarian torsion, especially when the patient's symptoms persist or worsen. [12]

Ultrasound is usually the first imaging modality to be done in case of acute abdominal pain. The features of ovarian torsion on ultrasound include heterogeneous ovarian stroma, string of pearls sign, and free fluid in the cul de sac. Ovarian enlargement of more than 4 cm is the most consistent ultrasound feature in ovarian torsion. Doppler analysis of the ovarian arterial and venous waveforms is considered as an accurate tool for the evaluation of ovarian torsion. Doppler findings in torsion can be widely variable ranging from little or no intraovarian venous flow to absent arterial flow and absent or reversed diastolic flow. [13]

However, studies of Doppler flow patterns in torsion are conflicting. The presence of flow at colour Doppler imaging does not exclude torsion but instead suggests that the ovary may be viable, especially if flow is present centrally. Absence of flow in the twisted vascular pedicle may indicate that the ovary is not viable. [14]

Magnetic resonance imaging and computed tomography are more sensitive options in diagnosing and ruling out the other differentials, but it is not feasible in a resource - poor setup. Full blood count, inflammatory markers, renal function tests, liver function tests, and urinary analysis are done in most of the suspected cases of OT, mainly to exclude other differential diagnoses [15, 16].

4. Conclusion

High clinical suspicion with prompt timely investigations and emergent surgical intervention is the key to salvage ovarian function with minimum morbidity. Young children may present with more advanced or more rapidly progressive disease and require a high index of suspicion. Ultrasound with Doppler is helpful in its diagnosis. Laparoscopy is the gold standard for evaluation and management of adnexal torsion. Conservative management including detorsion with or without cystectomy is the preferred treatment. A complete resection of tube/ovary/both is performed when the tissue is gangrenous or when malignancy is suspected or woman has completed her family. Early diagnosis and timely management of adnexal torsion should be done to preserve the reproductive function.

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