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Case Report

Fallopian Tube Leiomyoma: A Unique Cause of Fallopian Tubal Torsion and its Successful Management

Sujjanna AL Manuel* and **Zahra Alamooti**

Department of Obstetrics and Gynecology, Al Ahli Hospital, Doha, Qatar

***Corresponding Author:** Sujjanna AL Manuel, Department of Obstetrics and Gynecology, Al Ahli Hospital, Doha, Qatar.

Received: April 05, 2019; **Published:** July 01, 2019

Abstract

The authors report a rare and uncommon cause of isolated fallopian tube torsion in a young woman presenting to the Emergency Department of our hospital as acute abdomen. On radiological imaging, patient was diagnosed to have a right adnexal mass with features suggestive of torsion and underwent Emergency Laparoscopy, which revealed isolated right fallopian tube torsion secondary to a subserous tubal myoma of 6 cm located in the ampullary region of the tube. The opposite adnexae and the ipsilateral ovary were normal.

The problem was successfully resolved by 1) detorting the tube 2) enucleating the subserous myoma with minimal use of diathermy and salvaging the tube. This case reiterated the fact that prompt surgical intervention in tubal torsion can result in conserving the fallopian tube and preservation of fertility.

Keywords: *Acute Abdomen; Adnexal Torsion; Isolated Fallopian Tube Torsion; Fallopian Tube Leiomyoma*

Introduction

Acute abdominal pain accounts for 4 - 10 percent of emergency department visits and is one of the challenging clinical problems to assess. In women of reproductive age right lower quadrant abdominal pain can be quite a puzzling symptom as etiologies can range from minor ailments to potentially life-threatening conditions which may present with nonspecific symptoms, in a patient with stable vital signs. Adnexal torsion is an acute gynecological emergency that most commonly occurs in women of reproductive age. While torsion of the adnexa is quite a common cause of acute abdomen, isolated fallopian tube torsion is extremely unusual with an incidence of 1 in 1.5 million [1].

There are no pathognomonic clinical signs and symptoms nor sine quanon radiological features to alert the clinician of this uncommon malady which often leads to delay in the timely intervention, by which time the fallopian tube undergoes irreversible ischemic damage and is nonviable [2]. Prompt surgical intervention in the form of operative laparoscopy is mandatory not only to elucidate the diagnosis but also for timely treatment that would result in salvaging the tube.

Leiomyomas are the most common benign tumors of the female genital tract and most frequently arise from the smooth muscles cells of the uterus. Fallopian tube leiomyomas are extremely rare and arise from the myosalpinx or the cells of the blood vessels supplying the fallopian tube. Most cases of fallopian tube leiomyomas are asymptomatic and are found incidentally during unrelated surgical procedures or at autopsy; however, they have been implicated in causing tubal torsion [3-5]. We report a case of isolated tubal torsion secondary to subserous tubal leiomyoma where timely intervention resulted in salvaging the tube and conserving fertility.

Case Presentation

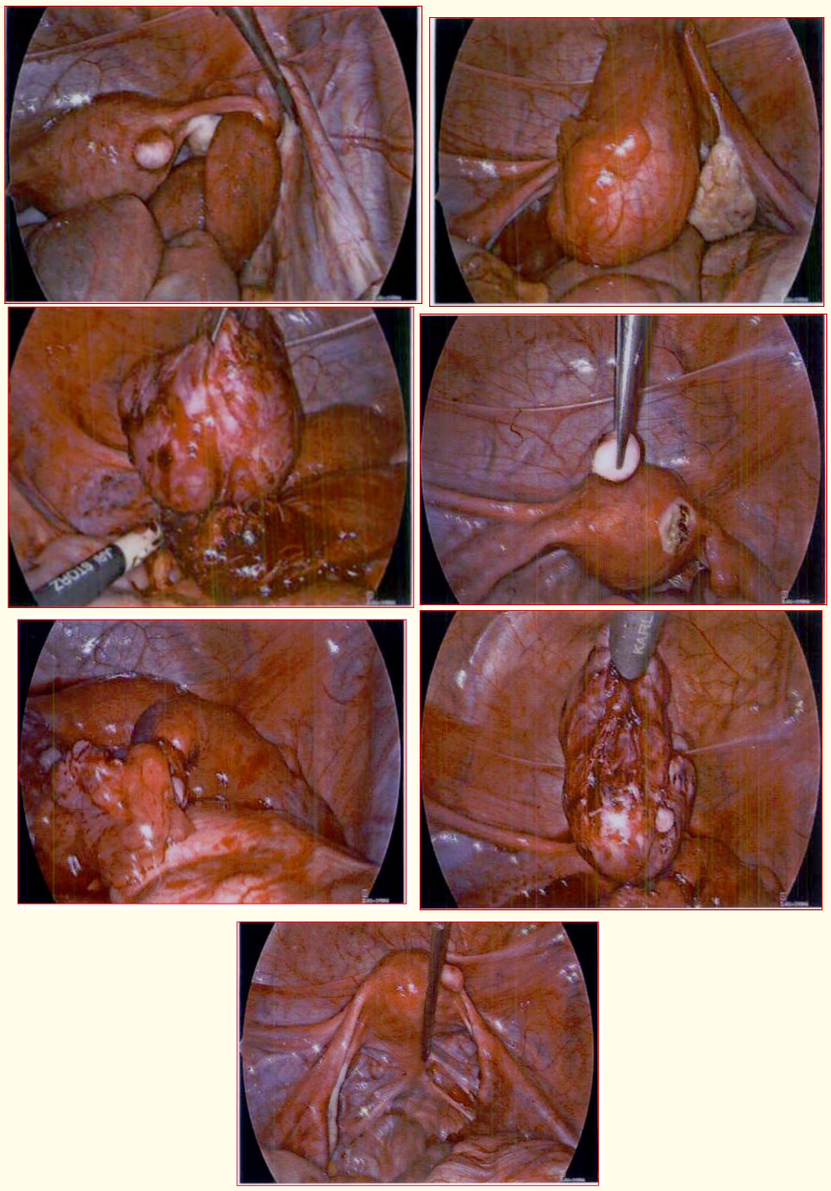
28-year-old lady presented to the emergency department of our hospital complaining of acute abdominal pain in the right iliac fossa and loss of appetite for one day. The pain was dull aching and constant, increasing in severity, localized to the right iliac fossa and not associated with fever with rigors, gastrointestinal or genitourinary symptoms, like urinary tract infection or abnormal leucorrhea. There were no known aggravating or relieving factors for the pain.

Her menstrual history was unremarkable. Cycles were regular not associated with dysmenorrhea or menorrhagia and her last menstrual period was on 02 December 2018.

Her medical and surgical history were normal. She had no known ovarian pathology.

Personal history: Was a virgin not into strenuous physical activity or history of substance abuse.

On examination her vitals were stable. She was afebrile and apart from tenderness in the right iliac fossa, there were no other clinical signs. A tentative diagnosis of acute appendicitis was made and complete blood counts [CBC, C-reactive protein, CRP, urine analysis and CT abdomen with pelvis without contrast were done].



Results

CBC - Hemoglobin and platelet counts were normal. There was no leukocytosis nor neutrophilia. CRP normal < 3, urine analysis normal. CT revealed normal appendix, no cholelithiasis, pancreatitis, urolithiasis but bulky right adnexa with high density free fluid around suggesting the possibility of hemorrhagic fluid.

In view of the above report a transabdominal ultrasound of the pelvis was done which showed an enlarged right ovary of 5.5 x 4.6 cm with mixed echogenicity and without vascularity on color Doppler suggesting right ovarian torsion. The uterus and left ovary were normal and there was minimal fluid in the Pouch of Douglas. Emergency operative laparoscopy was done after informed consent from the patient.

Operative laparoscopy was done after an uneventful pneumoperitoneum with 3 ports - 1 - 10 mm umbilical port, 2 - 5 mm ports, one suprapubic and the third port in the mid clavicular line on the left side.

Findings

There was isolated torsion of the right tube without involving the ipsilateral ovary. The tube was congested but not necrotic. On untwisting the tube, it revealed a 6 cm subserous leiomyoma in the ampullary region of the right tube occupying the distal 2/3rd of the tube. Both the fallopian tube and the leiomyoma had undergone torsion. The tube was morphologically normal. There was a small subserous leiomyoma in the fundus towards the right. The rest of the uterus and the left adnexae, and the right ovary were all normal. No foci of endometriosis or peritoneal adhesions were present.

Procedure

1. The torted fallopian tube was detorted which relieved the congestion and restored normal circulation.
2. The subserous leiomyoma of the tube was enucleated by opening the tubal serosa with bipolar diathermy and the fibroid shelled with spoon after identifying the plane of cleavage.
3. Restricted cauterization was done for achieving hemostasis to preserve tubal viability.
4. The subserous fundal leiomyoma was removed in a similar manner.
5. After excision the specimens were morcellated and removed via the suprapubic port.

Intraoperative blood loss was minimal and the patient had an uneventful postoperative recovery. Histopathological evaluation of the specimen confirmed them to be benign leiomyomata.

Discussion

Acute abdominal pain accounts for 4 - 10 percent of all emergency department visits and is one of the challenging clinical problems to assess [6]. In women of reproductive age, the etiology of right lower quadrant abdominal pain can range from minor ailments to potentially life-threatening conditions which may present with nonspecific and subtle symptoms in a clinically stable patient [7].

Adnexal torsion is a gynecological emergency that can affect woman of all ages [8] but most commonly in the reproductive age group 20 - 50 years [9-11]. Torsions more commonly involve both the ovary and fallopian tube; however, there are infrequent cases of isolated torsion involving the tube alone occurring in [one in 1.5 million women] [1,10].

The etiology of tubal torsion is attributed to various intrinsic and extrinsic causes [2,11-13].

Intrinsic

1. Hydrosalpinx.
2. Hematosalpinx.
3. Tubal neoplasms like leiomyoma.
4. Prior tubal surgeries e.g. tubal ligation.
5. Congenital abnormalities like distal mesosalpinx, long fallopian tubes, spiral tubes, prominent hydatids of Morgagni.
6. Physiological abnormalities like hypermotility, tubal spasms, abnormal peristalsis [14].

Extrinsic

1. Ovarian/paraovarian mass
2. Peritubal adhesions
3. Laxity of supporting ligaments as in pregnancy
4. Venous congestion of the mesosalpinx
5. Selheim theory - sudden movement triggering tubal torsion.

Our patient had a subserous leiomyoma involving the distal 2/3rd of the fallopian tube which probably was the triggering factor for torsion.

Leiomyomas are the most common benign tumors of the female genital tract and most commonly arise from the uterus. The incidence of fallopian tube myomas are extremely rare [3,17] and it is difficult to evaluate their frequency of occurrence [5,18]. Fallopian tube myomas arise from the mesosalpinx or the smooth muscle cells of the blood vessels supplying the tube [5]. Leiomyomas of the tube are generally small and located unilaterally [19] although there are case reports of tubal myomas as large as 13 x 9 cm [20]. The most common site of tubal leiomyomas is the isthmus followed by the ampulla, as in our patient where the leiomyoma was located. Tubal leiomyomas maybe subserous, intramural or submucous [5] and large myomas can undergo torsion or degeneration [3,4,17,21,22]. Most cases of tubal leiomyomas however are asymptomatic and are found incidentally during unrelated surgical procedures or at autopsy [17,23]. Fallopian tube torsion most commonly occurs in women of reproductive age [20 - 45 years as in our patient] although it has been reported in women of all ages. Tubal torsion can occur in pregnancy [15] due to laxity of its supporting ligaments. The site of torsion may either be the mid tubal segment or around it's ligamentous supports [16].

Tubal torsion was believed to have a predilection for the right side with right tubal torsion being more frequent than the left [11,24] as in our case, however there is a case report in which five of the six tubal torsions involved the left tube challenging this hypothesis [2,11,25]. The reasons cited for the more frequent incidence of right tubal torsions are the partial immobilization of the left tube by its proximity to the sigmoid mesentery, the relatively less venous flow on the right side, and the fact that patients are more likely to be operated when they present with right iliac fossa pain to rule out appendicitis [14]. The pathophysiology behind fallopian tubal torsion is the initial mechanical obstruction of the adnexal venous and lymphatic flow with the preservation of the arterial circulation that results in pelvic congestion, edema and enlargement of the tubal segment distal to the torsion, with the subsequent arterial flow compromise as the torsion evolves to become complete [11,26].

There is no sine quanon clinical presentation for tubal torsion. Clinical manifestations and radiological imaging are nonspecific making preoperative diagnosis of isolated tubal torsion difficult and usually made at the time of laparoscopy as in our patient. The most common symptom is acute lower abdominal pain [27] which could be acute and of increasing severity, paroxysmal and sharp or constant and dull,

and may radiate to the flank, groin or thigh [2,27,28]. Our patient had pain and tenderness over the right iliac fossa, and hence initially a clinical diagnosis of acute appendicitis made. Other presenting signs and symptoms include nausea, vomiting, vaginal bleeding, pyrexia, tachycardia and leukocytosis [2,14,25]. Our patient did not have any other symptom or sign apart from the pain and tenderness in the right iliac fossa. On pelvic examination, forniceal tenderness maybe elicited but a definite mass is not palpable [27]. [The examination could not be done in our patient as she is a virgin].

Though radiological imaging helps in discriminating causes of acute abdominal pain it is extremely rare to diagnose isolated fallopian tube torsion by Radio Imaging [29]. The most consistent finding on ultrasound or CT is a midline cystic mass either in the posterior cul de sac or superior to the uterus with a normal ipsilateral ovary and with reduced or absent vascularity on Color Doppler [27,30]. However, Doppler cannot conclusively exclude the presence of torsion [14]. Radiological imaging in our patient revealed a bulky right adnexa with high density free fluid around it on CT without contrast and an enlarged right adnexal mass of 5.5 x 4.6 cm with mixed echogenicity with absent vascularity no Color Doppler and reported as right ovarian torsion.

Differential diagnosis for fallopian tube torsion include ovarian torsion, rupture of ovarian cyst, pain of endometriosis, pelvic inflammatory disease, ectopic pregnancy [if hCG is positive], acute appendicitis or renal colic [31].

As a definitive diagnosis of this acute gynecological emergency is elusive and difficult, tubal torsion results in necrosis of the tube necessitating salpingectomy [2,11,27].

Early surgical intervention may allow the tube to be salvaged and preserve fertility [27,32-34]. Philips., *et al.* have proposed that untwisting the tube along its axis as a tube salvaging technique in torted tubes with signs of viability [2,14].

In our patient, we were able to save the tube as the patient was taken up for laparoscopy soon after the diagnosis [ovarian torsion]. Per operatively, the tube was viable and found to be torted. Untwisting of the tube along its axis then revealed a 6 cm subserous myoma which was enucleated with ease using a spoon and restricted diathermy. Thereby we were able to salvage the tube and preserve fertility.

Conclusion

Isolated fallopian tube torsion is a rare cause of acute abdomen and poses diagnostic challenges as there are no pathognomonic clinical signs or radiological findings. Fallopian tube leiomyomas are extremely rare and can cause fallopian tube torsion. Diagnosis can rarely be made before surgery and laparoscopy is mandatory to establish the diagnosis. Their subtle presentation often leads to delay in diagnosis and surgical intervention of this acute gynecological emergency that very often leads to salpingectomy. Early diagnostic laparoscopy specially in the event of inconclusive cause of an acute abdomen may allow the tube to be salvaged and conserve fertility.

Ethical Issues

The authors obtained informed consent from the patient and the institution for data collection and publication.

Conflict of Interests

We hereby declare that there are no conflict of interests.

Financial Support

None.

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Volume 8 Issue 7 July 2019