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The Ovary that Fooled the Hip: A Twisted Dermoid Tale - A Case Report

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Abstract: ***Background**: Ovarian torsion is a time-sensitive gynecological emergency that commonly presents with acute lower abdominal pain but may exhibit atypical clinical features, leading to diagnostic challenges. It is most commonly linked to adnexal masses, especially dermoid cysts (mature cystic teratomas), which, because of their size and weight, put the ovary at risk for torsion. In order to maintain fertility and avoid irreparable ovarian damage, early detection is essential. Atypical presentations, such as referred hip or thigh pain, might, however, be mistaken for non-gynecological disorders and postpone proper treatment. **Case Presentation**: We report the case of a 35-year-old female who presented with acute onset severe right lower abdominal pain radiating to the right hip for 4 hours. There were no associated symptoms such as fever, nausea, or vomiting, and her last menstrual period was 15 days prior. Clinical examination revealed localized right iliac fossa tenderness. Ultrasonography demonstrated a well-defined right adnexal solid cystic lesion measuring approximately 7 cm with echogenic components and posterior acoustic shadowing, with right ovary not seen separately from it, suggestive of a dermoid cyst. The right ovary appeared enlarged and edematous with minimal to absent vascularity on Doppler, and a twisted vascular pedicle (whirlpool sign) was identified. Additionally, moderate free fluid in the pouch of Douglas was noted. The uterus was normal with a trilaminar endometrium. Based on these findings, a diagnosis of right ovarian torsion secondary to a dermoid cyst was established, and the patient was referred for urgent surgical management.*

Keywords: dermoid cyst; ovarian torsion; acute abdominal pain; Doppler ultrasound; gynecological emergency

1. Introduction

Ovarian torsion is a time-sensitive gynecological emergency and an important cause of acute abdomen in women, accounting for approximately 2.7–3% of all gynecological emergencies [1]. It happens when the ovary, frequently with the fallopian tube, bends around its vascular pedicle, impairing lymphatic and venous outflow and then compromising the arteries. If this is not detected and treated promptly, it may result in ischemia, infarction, and eventually ovarian tissue necrosis [2]. The sickness mainly affects women who are of reproductive age, however it can occur at any stage of life. Benign ovarian tumors are the most common underlying cause of an adnexal mass, which is a significant risk factor for ovarian torsion. Among them, dermoid cysts- also referred to as mature cystic teratomas- are particularly noteworthy since they can make up as much as 20% of all ovarian neoplasms in women who are fertile. [1].

These tumors are composed of components that come from different germ cell layers, including fat, hair, and calcified components; they have a distinctive ultrasonographic appearance. Their relatively large size and increased weight provide a mechanical inclination for adnexal twisting, which significantly increases the risk of torsion.

Clinical diagnosis of ovarian torsion is challenging due to its ambiguous and varied symptomatology. The usual manifestation is unilateral lower abdominal pain that appears quickly and is often accompanied by nausea and vomiting. On the other hand, atypical presentations are common and might include pain radiating to the hip, thigh, or groin, which can mimic musculoskeletal or neurological problems and possibly result in a delayed or incorrect diagnosis [3].This diversity emphasizes the need to maintain a high index of suspicion, particularly in women of reproductive age who report experiencing acute abdominal or referred pain.

Since timely surgical intervention significantly enhances the probability of ovarian salvage and delays may result in irreversible damage, early and accurate detection is crucial. [4]. Imaging modalities, especially ultrasonography with Doppler, are very helpful in early detection.

2. History

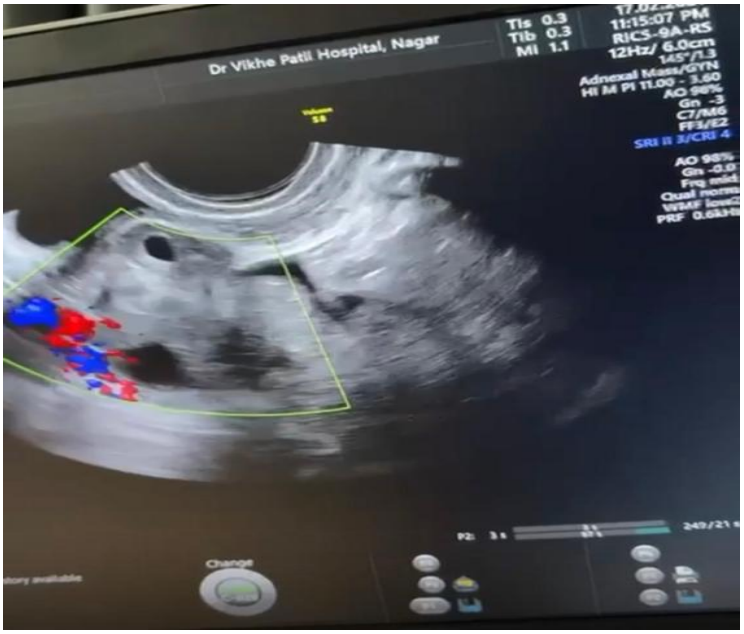
A 35-year-old female presented to the emergency department with complaints of acute onset severe abdominal pain since 4 hours mainly in the right lower abdomen which was observed to spread to the right hip. The pain was acute in onset and got worse over time. There was no history of concomitant symptoms such fever, nausea, vomiting, or problems with the bowels or urine. No recent trauma or physical activity that could have caused the discomfort was mentioned by the patient. Her menstrual history revealed that her last menstrual period occurred 15 days prior to presentation, corresponding to the mid-cycle phase. She had a regular menstrual cycle with no history of dysmenorrhea or abnormal uterine bleeding. The patient had no prior surgical history and no known comorbid illnesses. In her obstetric history she had a full term normal vaginal delivery, with no history of infertility or gynaecological disorders. The absence of systemic symptoms along with the acute unilateral lower abdominal pain radiating to the hip posed a diagnostic challenge, necessitating further evaluation to differentiate between gynecological, gastrointestinal, and musculoskeletal causes.

3. Case Presentation

A 35-year-old female presented to the emergency department with complaints of acute onset severe abdominal pain for the past 4 hours. At first, a potential musculoskeletal etiology was suspected due to the pain's abrupt onset, extreme intensity, and predominant localization to the right lower abdomen with radiation to the right hip. Infectious or gastrointestinal causes were less likely because there was no history of fever, nausea, vomiting, diarrhea, abnormal bowel habits or urinary symptoms. The patient denied any strenuous physical activity or trauma. Her previous menstrual cycle was 15 days ago, and her menstrual history was uneventful. There was one full-term, vaginal birth in the obstetric history, and no history of infertility or gynecological issues. She had no known concomitant illnesses and no past surgical history. On clinical examination, the patient appeared distressed due to pain but was hemodynamically stable. Abdominal examination revealed localized tenderness in the right iliac fossa, without guarding, rigidity, or rebound tenderness. No palpable masses were appreciated, and bowel sounds were present. Acute appendicitis, ureteric calculus, diverticulitis, ovarian torsion, ruptured ovarian cyst, and ectopic pregnancy were among the differential diagnoses taken into consideration based on the clinical presentation, requiring an immediate imaging scan.

Image 1: Complex solid cystic lesion with multiple linear echogenic strands likely representing hair- dermoid cyst

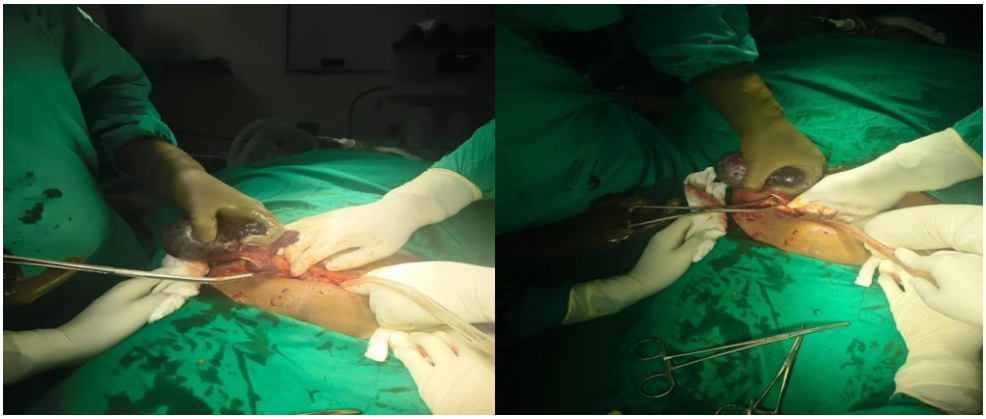
Dermoid cyst – solid component giving posterior acoustic shadowing



Right ovary and fluid in POD

Normal uterus with trilaminar ET

Twisted pedicle



Intraoperative images showing the dermoid cyst

4. Investigations

An ultrasonography of the abdomen and pelvis was performed as the initial imaging modality. The liver, gallbladder, pancreas, spleen, and bilateral kidneys were found to be normal in size and echotexture, with no focal lesions or calculi. The urinary bladder was empty at the time of examination.

In addition to having a trilaminar endometrial pattern that was compatible with the patient's mid-cycle phase, the uterus seemed normal in size (70x40x30mm). The left ovary was normal. In the right adnexal region, a complex well circumscribed solid cystic lesion of size approximately 7.1 × 6.9 × 5.5 cm was seen with the solid component giving posterior acoustic shadowing and multiple linear echogenic foci within likely representing hair suggesting possibility of a dermoid cyst. (Image1). The right ovary was edematous and bulky with little to no vascularity on color Doppler.

A twisted vascular pedicle (whirlpool sign), a very specific marker of ovarian torsion, was clearly apparent next to the ovary. The presence of moderate free fluid in the pouch of Douglas (POD) further supported the diagnosis of torsion. Overall, the imaging data, which included the presence of a dermoid cyst, an enlarged edematous ovary with little to no vascularity, the visibility of a twisted pedicle, and associated free fluid, substantially supported the diagnosis of right ovarian torsion caused by a dermoid cyst. The lack of concomitant intrauterine diseases was confirmed by the documentation of the normal uterine morphology with trilaminar endometrium.

5. Discussion

Ovarian torsion is a time-sensitive gynecological emergency, predominantly affecting women of reproductive age. If treatment is not received, the ovary's twisting around its vascular pedicle may result in ovarian necrosis, arterial impairment, and initial venous and lymphatic occlusion. [5, 6]. In order to preserve ovarian viability, early identification is crucial.

The presence of an adnexal mass is the most significant risk factor for torsion; studies show that the majority of cases are associated with ovarian tumors or cysts. [7]. Because of their size and weight, dermoid cysts (mature cystic teratomas) are frequently linked to rotational instability in the ovary. [8]. The adnexal mass in this case was around 7 cm, which is consistent with studies showing that ovarian masses larger than 5 cm significantly increase the risk of torsion [9].

Clinically, ovarian torsion presents as abrupt, unilateral lower abdominal pain with nausea and vomiting [10]. In this case, the diagnosis was challenging because of the unusual radiation of pain to the right hip and the absence of gastrointestinal symptoms. Such aberrant patterns might be caused by referred pain via pelvic nerves, such as the obturator and femoral nerves, which can resemble musculoskeletal problems. [7]. This highlights the need for physicians to maintain a high index of suspicion for gynaecological etiology even in atypical presentations.

Ultrasound with Doppler evaluation is the first-line imaging method for suspected ovarian torsion. [11]. Characteristic findings that are highly specific for torsion include an enlarged edematous ovary, decreased or absent vascularity, and the presence of a twisted vascular pedicle—often referred to as the "whirlpool sign" [12]. In this case, the presence of all the above mentioned imaging features and a considerable quantity of free fluid in the Pouch of Douglas further supported the diagnosis. The identification of a dermoid cyst with echogenic components and posterior acoustic shadowing confirmed the underlying etiology.

Timely surgical intervention is the cornerstone of therapy. Current evidence supports conservative surgical techniques, such as detorsion and cystectomy, even when the ovary seems to be ischemic since functional recovery is often possible. [2]. Ovarian damage may become irreversible if treatment is postponed, necessitating an oophorectomy. This case emphasizes the importance of early imaging, clinical monitoring, and examination of ovarian torsion in patients presenting with unique pain patterns, such as hip discomfort, in order to reduce diagnostic delays and improve outcomes.

6. Conclusion

This case highlights an unusual presentation of ovarian torsion secondary to a dermoid cyst, where pain radiated to the hip, mimicking a non-gynaecological condition. It highlights how important it is to consider ovarian torsion in the differential diagnosis of acute lower abdominal pain accompanied with atypical presentation of radiating pain.

Timely surgery is required to prevent ovarian loss, and Doppler ultrasonography is essential for early diagnosis.

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