



## Case report

## Synchronous ovarian epidermoid cyst torsion with appendicitis in a 2.5-year-old girl: Case report

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## ABSTRACT

**Introduction and importance:** Acute appendicitis associated with ovarian epidermoid cyst torsion is extremely rare. To our knowledge, there are about 7 cases that have been reported in English literature, and there was no epidermoid cyst in any of them.

**Case presentation:** Herein, we present the case of a 2.5-year-old girl with a history of vomiting, fever, and abdominal pain. She was prepared for the operation following the clinical and radiological assessment. At laparotomy, appendicitis and left ovarian lesion torsion were found. An appendectomy and salpingo-oophorectomy were performed with no complications occurring during surgery or the follow-up period. The results of the histology analysis showed that the appendix was inflamed and that there was an epidermoid cyst with a wide infarction.

**Clinical discussion:** Epidermoid cysts of the ovary are uncommon and often discovered by accident, and histological investigation is required for a definitive diagnosis. In our case, the signs and symptoms before surgery suggested appendicitis. Acute appendicitis in young children is also uncommon. Ovarian lesion torsion associated with acute appendicitis is extremely rare. The treatment is surgery and often requires appendectomy and salpingo-oophorectomy as in our case.

**Conclusion:** Such cases should be considered in the differential diagnosis of abdominal pain at any age, and early diagnosis and surgery are always required.

## 1. Introduction

Appendicitis is the most frequent surgical abdominal emergency in children, but it rarely occurs in those under 3 years old [1]. Early diagnosis and surgical intervention can reduce the morbidity and mortality rates related to complicated appendicitis [2].

Ovarian epidermoid cysts are extremely rare benign tumors that are lined by mature, stratified, squamous epithelium and contain flakes of keratin in their interior [3].

Ovarian lesion torsion concomitant with acute appendicitis is extremely rare and an indication for surgery [4]. Patients with both appendicitis and ovarian lesion torsion are at risk of sepsis and increased mortality rates, so early diagnosis and management are required. This article discusses the relation between two rare diseases and the importance of early diagnosis in order to avoid ovarian excision. The surgery was performed at Tishreen University Hospital by a pediatric surgeon (specialist). This work has been reported in line with the SCARE criteria

[5].

## 2. Case presentation

A 2.5-year-old girl presented to the emergency room complaining of 6 days of abdomen pain, fever (39 °C), and recurrent vomiting. An abdominal exam revealed lower abdominal pain and palpable muscle guarding. There was no significant medical or surgical history. The white cell count was  $11 \times 10^9/l$ , C-reactive protein 60 mg/l, and hemoglobin 8 g/dl. The other tests were normal. Ultrasonography of the pelvis and the abdomen revealed a cystic lesion in the right iliac fossa, filled with fluid and measuring  $7.5 \times 5.5 \times 6$  cm with a cystic wall measuring 1 cm (Fig. 1).

During a laparotomy examination, a twisted ovarian cyst (Fig. 2) and an inflamed appendix were found. The patient underwent appendectomy and left salpingo-oophorectomy. She was discharged 3 days after surgery with no problems during surgery or the follow-up period. The

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**Fig. 1.** Ultrasound scan of the pelvis shows a cystic structure measuring  $7.5 \times 5.5 \times 6$  cm.



**Fig. 2.** Appearance of the ovarian lesion during surgery.

microscope investigation revealed an epidermoid cyst, which was coated in squamous epithelium that contained keratin and showed no signs of malignancy (Fig. 3).

Additionally, the appendix showed signs of inflammation (Fig. 4).

### 3. Discussion

Adnexal torsion is a surgical emergency that is more common in women of reproductive age but can occur at any age [6]. Torsion is most frequently in ovaries with masses, such as functional cysts and neoplasms. Torsion is often more common on the right side. This could be due to either the sigmoid colon on the left restricting movement or a hypermobile cecum on the right that allows for increased mobility [7]. In our case, the cause of the torsion was a large epidermoid cyst of the left ovary extending to the right side near the appendix.

Epidermoid cysts of the ovary are extremely rare, with only about 40 cases described in the English literature. They account for less than 1 % of gonadal tumors, and their origin is unknown [8]. The absence of hair follicles and sebaceous glands distinguishes them from mature cystic teratomas of the ovary [3]. These cysts are often discovered by accident, and histological investigation is required for a definitive diagnosis [9].

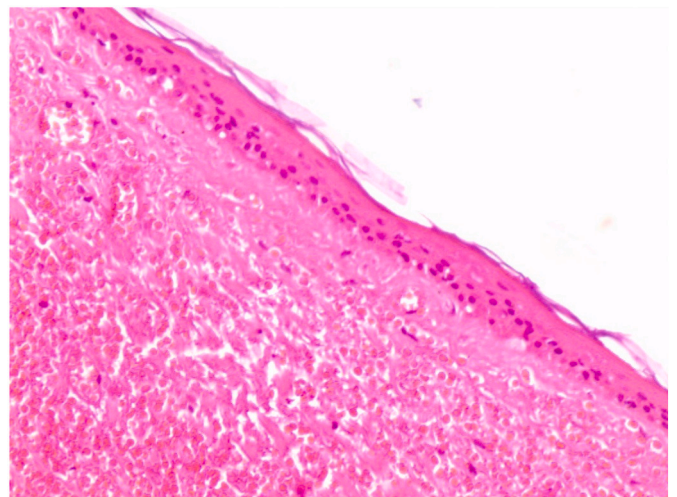
In our case, the signs and symptoms before surgery suggested appendicitis, but an ultrasound scan revealed a cyst lesion in the right iliac fossa and the cyst was diagnosed by histopathology.

Acute appendicitis in young children is uncommon, and prediagnosis is challenging [1]. The patient in our case was 2.5 years old, and a few cases of appendicitis at this age have been reported in the medical literature [1,2].

Ovarian lesion torsion associated with acute appendicitis is extremely rare. To our knowledge, about 7 cases have been described in English literature, and none of them had an epidermoid cyst [4]. The treatment is surgery and often requires appendectomy and salpingo-oophorectomy [4], as in our case.

### 4. Conclusion

Despite the rarity of appendicitis in young children, as well as appendicitis associated with torsion of ovarian lesions such as an epidermoid cyst, it should be included in the differential diagnosis of abdominal pain at any age. Early diagnosis and surgery are always required.



**Fig. 3.** Microscopic examination shows squamous epithelium that contains keratin and hemorrhage.

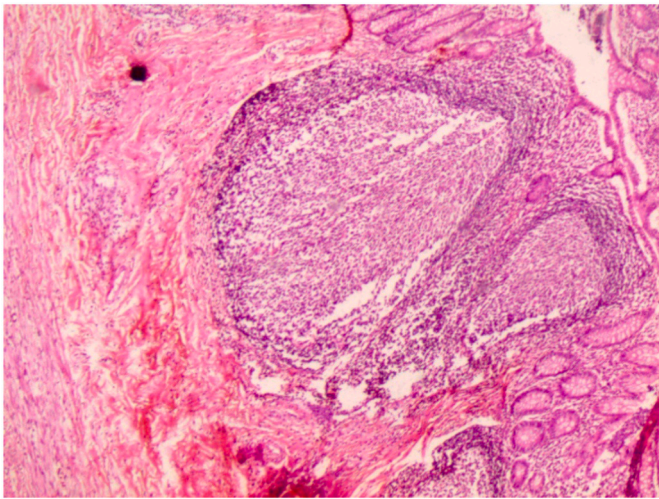


Fig. 4. Microscopic appearance of infiltrated neutrophils in the appendix.

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#### Consent for publication

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None.

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Gulan Maree

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#### CRediT authorship contribution statement

Gulan Maree contributed to the management of this case, acquisition and analysis of data, drafting of the case report.

Ferhad Hemi contributed to management of this case.

Alaa Ghuzlan contributed to the management of this case.

Hanna Kassab contributed to management of this case.

Rana Issa contributed to the diagnosis of this case.

Ammar Omran contributed to the management of this case.

All authors approved the final article to be submitted.

#### Declaration of competing interest

Authors declare that they have no competing interests.

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