



Torsion of the Ovary in Infancy, a Rare Emergency; A Case Report

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Case Report

ABSTRACT

Torsion of the ovary is a rare condition whose diagnosis remains difficult given the non-specificity of the clinical picture as well as the difficulty of clinical evaluation, especially in young girls. It is a surgical emergency because it involves the vital prognosis by the hemorrhagic risk, and functional prognosis by the risk of infertility. The clinical picture is dominated by acute abdominal pain. Our work reports the case of a 2-year-old girl in whom the diagnosis of ovarian torsion was made in front of an atypical clinical picture. Laparoscopy is the method of choice for making a positive diagnosis and performing a conservative procedure as described in this work.

Keywords: Torsion; ovary; laparoscopy; ultrasonography; abdominal pain.

1. INTRODUCTION

Torsion of the ovary is a rare condition that can occur at any age, from the fetal period to

adulthood [1,2]. The clinical picture is most often dominated by acute abdominal pain. It is a surgical emergency whose diagnosis remains difficult given the non-specificity of the clinical

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picture as well as the difficulty of clinical evaluation, especially in small children. The data from radiological exploration remain very variable, leaving room for surgical exploration, which is the key to the diagnosis [3]. We report the case of a patient diagnosed in our training whose clinical picture is atypical.

2. CASE REPORT AND RESULTS

I, a girl aged 2 years and 2 months, with no personal or family pathological history, consulted in our training for painful perianal swelling evolving 15 days before her admission, associated with the appearance of abdomino-pelvic pain, dysuria, diarrhea, and low abundance of rectal bleeding outside the stool, evolving in a context of apyrexia and maintenance of general condition. The admission examination found a conscious, restless child of normal weight and height, hemodynamically and respiratory stable. Abdominal examination revealed a painless, supple abdomen without HSMG or mass; Examination of the perineal region showed a hard painful swelling in the

anogenital line with a pre-rectal mass visible to the touch; the remainder of the physical examination was normal. Abdomino-pelvic ultrasound showed the presence of a right ovarian mass with regular contours, heterogeneous tissue echostructure pushing back and rolling the uterus forward (Fig. 1). The Abdomino-pelvic scanner objectified a median intervesico-rectal tumor process of tissue density with contrast enhancement with a central necrotic area measuring approximately $49 \times 42 \times 2$ mm, associated with bilateral pelvic ureteral dilation (Fig. 2). Abdomino-pelvic MRI revealed the presence of a pre-rectal mass of a hemorrhagic nature (Fig. 3). Biologically, the child had PNN hyperleukocytosis at $16,200 / \text{mm}^3$, thrombocytosis at $612,000 / \text{mm}^3$, AFP was normal at $3.88 \text{ ng} / \text{ml}$, and βHCG less than $1.20 \text{ mIU} / \text{ml}$. Exploration by laparotomy revealed a right ovarian torsion, requiring a right oophorectomy (Fig. 4). An anatomopathological study of the operative specimen confirmed the diagnosis of ovarian torsion, objectifying an aspect of total ischemic hemorrhagic necrosis.

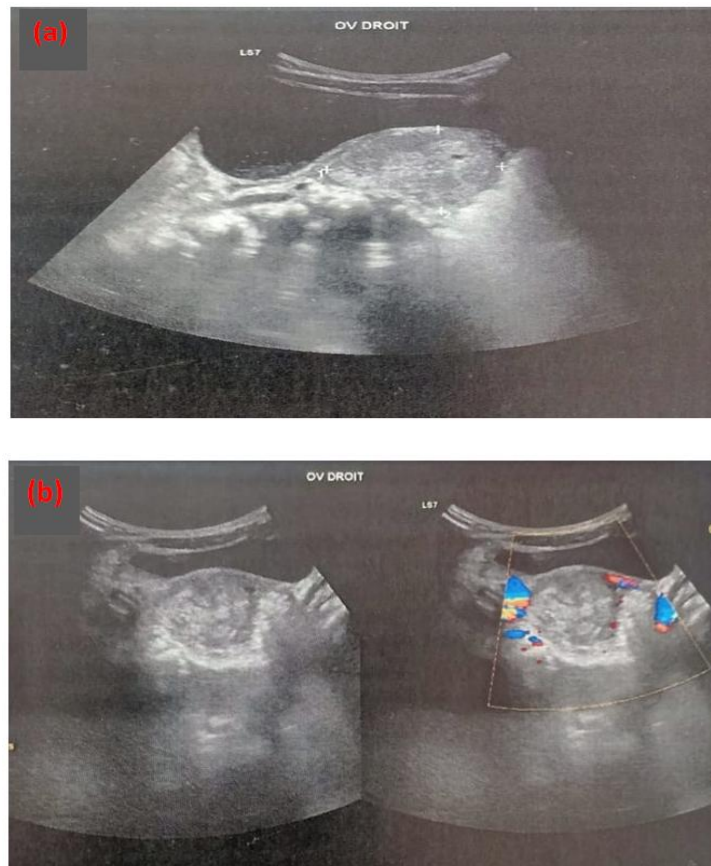


Fig. 1. Abdominopelvic ultrasound (a) and Doppler ultrasound appearance (b) showing a heterogeneous ovarian mass

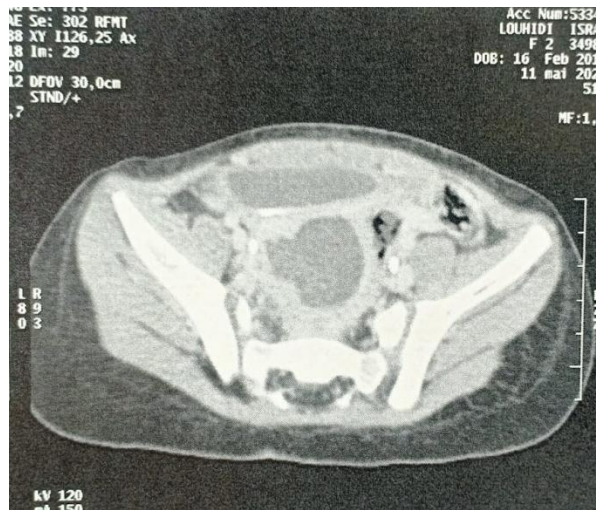


Fig. 2. CT image in cross section showing an intervesico-rectal tumor process of tissue density with contrast enhancement

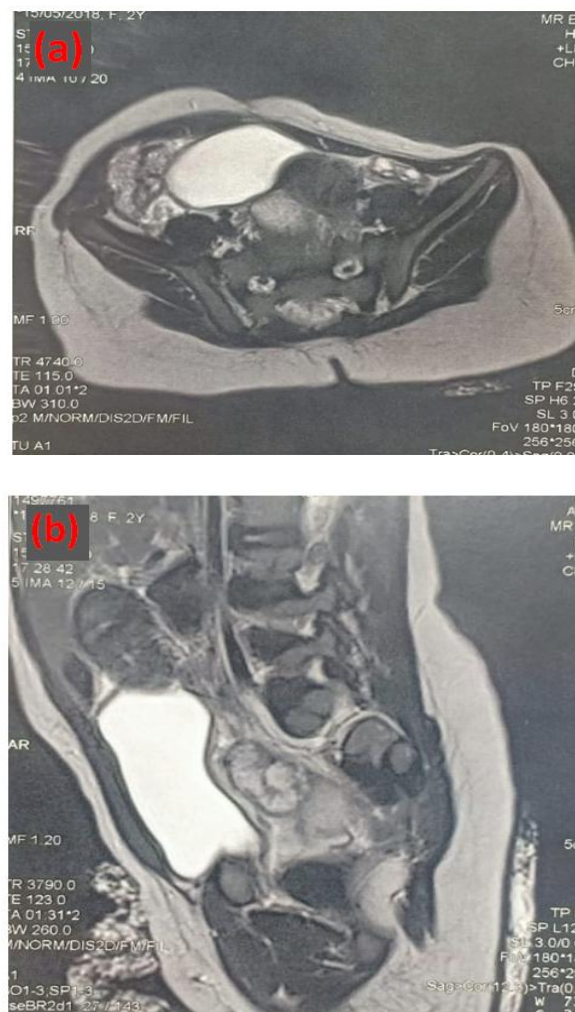


Fig. 3. Transverse (a) and sagittal (b) abdominopelvic MRI image showing a pre-rectal mass of a hemorrhagic nature

3. DISCUSSION

Adnexal torsion in pediatric age is a rare condition; it results from a spontaneous, total or partial rotation of the vascular and lymphatic pedicle of the appendix around its vascular axis [4,5] most often to the right without really knowing why [4], this torsion results in first an alteration of lymphatic circulation, then a decrease in the venous circulation of the ovary leading to an ovarian infarction [5].

Epidemiologically, ovarian torsion can occur at any age, but it predominates in the peri-puberty and in adolescents with an average age of onset between 9 and 12.5 years and 15% of all ovarian torsions occur in the pediatric population [2,6,7,8,9]; the age of our patient who was 2 years and 2 months at the time of diagnosis did not correspond to the data in the literature.

In children as in adults, ovarian torsion generally occurs in a pathological ovary as part of an adnexal mass or cyst, the most frequently encountered of which is a mature cystic teratoma, a follicular cyst and a cystadenoma [6,10]. but can also occur in healthy ovaries following increased mobility and tortuosity of the appendages in girls, which facilitates ligament torsion; it occurs preferentially on the right as it is the case for our patient but there are cases of bilateral torsions [8,9,10,11].

In practice, ovarian torsion can occur in completely different situations depending on the age: perinatal or peri-pubertal [12]. In the antenatal period, torsion seems to occur most often in a functional cyst [13]; in fact, several studies have shown that the majority of torsions appear antenatal indicating the puncture of very large ovarian cysts in the fetus [10,13,14,15]. In the neonatal period if the mass is sometimes palpable, it is never painful, even in the event of torsion, and there is therefore no alarming clinical sign so that the diagnosis of torsion is still based only on ultrasound signs [16,17]. It is therefore a fairly frequent accident, clinically silent and unpredictable [18].

Clinically, ovarian torsion causes acute pelvic pain with a very sudden onset, low localization, progressing by paroxysms, intense expressed by incessant cries in small children, unilateral more to the right than to the left, associated to signs of peritoneal irritation (nausea, vomiting), fever or dysuria and tachycardia, as described in our patient [6,8,19]. In addition, the pain may be

intermittent in connection with episodes of sub-torsion; as it can disappear, reflecting either a spontaneously resolving sub-torsion, or an infarction of the twisted adnexa [20]. Clinical examination using digital rectal examination will find a latero-uterine mass in more than half of cases [19]. In our patient, the torsion was revealed by a hard painful swelling in the anogenital line with a pre-rectal abdominal mass perceptible to the touch.

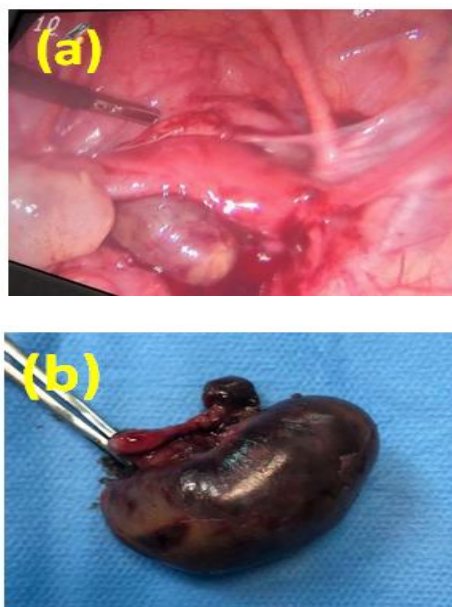


Fig. 4. Pe-roperative images of laparoscopy in our patient; (a): hemorrhagic aspect of the right ovary in torsion (b): Oophorectomy with necrotic appearance

From a radiological standpoint, ultrasound is the main exploration accessible in emergency, especially when pain prevents clinical examination; The radiological appearance of ovarian torsion is highly variable, related to the degree of internal bleeding, stromal edema, infarction and necrosis occurring at the time of diagnosis, but most often it is an unilateral enlargement of the ovary in the form of a hyperechoic solid structure frequently associated with cysts at peripheral arrangement achieving the so-called pearl necklace appearance [11,8,9], associated with an intraperitoneal effusion which is a late manifestation frequently associated with hemorrhagic rearrangement and / or a necrotic ovary, but often the appearance is nonspecific, which may appear as a heterogeneous complex mass with or without peripheral cystic contingent, or may appear as a purely necrotic mass [21,22].

In 19% of cases, ovarian torsion occurs on benign lesions, with mature cystic teratoma being the most frequently observed [10]. Teratomas appear as heterogeneous, triple-contingent, cystic, solid and calcium masses. The solid echogenic components can represent fat, sebaceous material, hair and / or calcification of teeth or bones. The presence of an adnexal mass increases the volume of the ovary and therefore theoretically predisposes it to torsion [22]. Cystic, follicular and para-tubal lesions, particularly simple, were the adnexal lesions most frequently encountered in ovarian torsions [19,23]. In our patient, ultrasound exploration showed an aspect of torsion on the ovarian cyst.

Color Doppler ultrasound does not appear to be superior and remains an unreliable examination to confirm or exclude ovarian torsion [8,9] Indeed, the presence of an arterial Doppler signal within the mass does not exclude diagnosis, and its absence is not a specific sign of ovarian torsion but increases the specificity of the diagnosis, based on clinical and ultrasound data [24].

Computed tomography (CT) and magnetic resonance imaging (MRI) are not standard radiological examinations in the first line, but can provide additional information in disputed cases where there is still a diagnostic doubt, provided they can be performed. emergency. The CT signs of ovarian torsion include adnexal enlargement which is the most frequently found CT sign, thickening of the fallopian tube, the presence of cystic components with peripheral arrangements, an abnormal position of the appendix in the pelvis. , most often in retro-vesical, a uterine latero-deviation towards the side of the ovarian torsion. An absence or a slight enhancement of the adnexal mass, intra-adnexal hemorrhagic changes, infiltration of peri-adnexal fat, an intra-peritoneal effusion blade and visualization of a turn of the spiral translating the twisting of the vascular pedicle can also be observed [9,25]. In MRI, ovarian torsion is characterized by an ovary increased in size, heterogeneous hypointense in T1-weighted sequence, comprising peripheral cystic images appearing in clear T2 hypersignal, T1 hypersignal and T1 hypersignal after saturation of the fat signal in intracystic hemorrhage, thickening of the fallopian tube, and uterine deviation to the site of the torsion [25]. The T1-weighted sequences after injection of the contrast product and after saturation of the fat signal may show an absence or a slight

enhancement of the ovary suggesting its infarction and a sign of turn of the vascular pedicle [20]. In our patient, the CT and MRI appearance directed the diagnosis towards a very probable ovarian torsion.

However, the measurement of tumor markers preoperatively is necessary given the high risk of malignant tumor in young children, and which can indeed be revealed by ovarian torsion [19,26].

Among the differential diagnoses, renal colic is often mentioned. Appendicitis constitutes the main differential diagnosis in front of an upright localization, as in our patient, moreover, but several other entities can simulate a picture of ovarian torsion, namely hemorrhagic cysts, tubo-ovarian abscess and tumor lesions. ovaries. However, clinico-biological and radiological data most often make it possible to correct the diagnosis [19,20].

On the therapeutic level, the aim of urgent management of torsion is based on the preservation of ovarian function, in particular fertility. Faced with the violent pain, surgery is urgently needed. First, it will be diagnostic and then therapeutic. This technique has the following advantages: diagnostic certainty, radical treatment of the lesion at the same time, assessment of the contralateral appendix and detection of any anatomical fixation abnormalities; this will prevent recurrence or contralateral torsion by fixing gestures (torsion of the healthy appendix). This usually involves untwisting with or without oophorectomy. Salpingo-oophorectomy is generally reserved in cases of clearly necrotic ovary. The performance of ovariopexy after untwisting is controversial, some authors advocating this procedure in the pediatric population, especially after loss of the contralateral ovary or in the face of recurrent intermittent torsion [10].

The downside of laparoscopic exploration is that it is a cumbersome technique requiring general anesthesia. The iatrogenic risk must be taken into account and this type of exploration can only be carried out within a trained anesthetic and surgical team, especially if it is offered on D1 of life for large cysts detected prenatal [23].

The operative consequences are generally simple; this was the case for our patient. Long-term monitoring will be clinical and ultrasound; some authors nevertheless recommend

performing a second laparoscopy a few weeks apart if an ovary has been preserved after untwisting [27].

4. CONCLUSION

A true diagnostic and surgical emergency, ovarian torsion is a rare and serious pathology in girls that compromises fertility, although ovarian tissue is more resistant than testicular tissue to ischemia and that recovery can be hoped for up to the present time to 72 hours of ischemia. The best way to avoid diagnostic delay is to think about it in the face of sudden pelvic pain, and pelvic ultrasound allows the diagnosis to be made. Laparoscopic surgical exploration should be considered as a conservative diagnostic and therapeutic act to be performed in the slightest doubt.

CONSENT

As per international standard or university standard, patients' written consent has been collected and preserved by the authors.

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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