

# Laparoscopic Management of a Large Ovarian Cyst Twist in a 14-Year Old Young Girl in Emergency: A Case Report

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## Abstract

The diagnosis and the treatment of twisted ovarian tumors are still challenging, especially in adolescent girls. We describe an adolescent girl with a twisted ovarian cyst, in whom emergent laparoscopic surgery was successful. She visited us due to severe abdominal pain. Ultrasound revealed a large cystic mass, indicative of an ovarian cyst. Laparoscopy revealed a large left ovarian cyst twisted on its axis. We punctured the cyst and detorsed it. The lessons learned here are: sudden-onset abdominal pain of adolescent associated with nausea and vomiting is strongly suggestive of a ovarian cyst torsion; ultrasound should be performed immediately, if ovarian cyst torsion is suspected, timely intervention with diagnostic laparoscopy is indicated, a minimally invasive surgical approach is recommended to preserve the adnexal structures and ovarian function.

## Keywords

Torsion, Ovarian Cyst, Teenager, Laparoscopy

## 1. Introduction

Adnexal torsion, including torsion of a normal or pathologic ovary, torsion of fallopian tube, paratubal cyst, or a combination of these conditions, is the fifth most common gynecologic emergency. They can be complicated by torsion

which can occur at any age from the fetal period to adulthood [1]. It's secondary to the ovary's rotation and/or fallopian tube around the tubo-ovarian axis. It may involve a healthy adnexa or one with a cystic mass. The compression of the vascular pedicle leads to venous and lymphatic stasis with congestion of the adnexa, followed by hemorrhagic infarction and arterial thrombosis [2]. Adnexal torsion represents the most imperative emergency because the preservation of the ovary depends on the time between the onset of symptoms and the realization of the detorsion. The diagnosis should be considered in the presence of any abdominal syndrome in pre- or pubescent girls [3]. Ultrasound remains the best imaging technique for studying the pelvis of children, from birth to puberty. Surgical exploration by laparoscopy remains the key to resolving diagnostic doubt. Early diagnosis and surgical management can reduce ischemic lesions of the ovary [4]. Patients should therefore be operated on as soon as possible. We report the case of a large ovarian cyst twist in a 14-year-old girl.

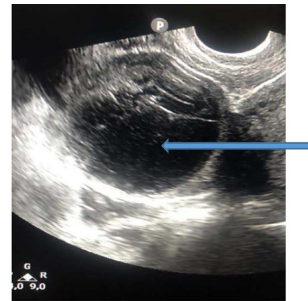
## 2. Presentation of the Case

She is a 14-year-old girl, a virgin, whose first period occurred at the age of 11, complaining of dysmenorrhea, with no notion of chronic diseases detected in childhood. She comes to consult for diffuse abdominal pain of progressive installation, intermittent, colicky and evolving for a week without diarrhea or constipation. This motivates the taking of 400 mg of albendazole thus reducing the intensity of the pain. The evolution is marked 24 hours before the said consultation, with pelvic pain of sudden onset in the left iliac fossa, of increasing intensity, without triggering factors but yielding to analgesics, associated with three episodes of vomiting without fever.

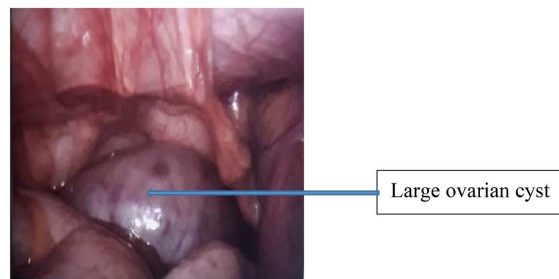
The physical examination reveals a good general state, the patient was conscious with a good spatio-temporal orientation. Vital parameters were satisfactory: temperature = 37.8°C; blood pressure: 112/60mmHg; pulse: 87 beats/min, respiratory rate: 22 cycles per min. The abdomen is distended, we note the presence of a mass going from the left iliac fossa to the renitent left flank. Secondary sexual characteristics were consistent with age, no signs of virilization were observed. Deep palpation of the mass is very painful radiating into the periumbilical region. The digital rectal examination was not done because the patient was agitated and in pain. An emergency pelvic ultrasound found a homogeneous anechoic rounded mass with more or less regular outlines with thin walls measuring 11.3 cm on its long axis and 9.3 cm (**Figure 1**).

Faced with this clinical picture, ten hours after admission to the service, we performed surgical treatment by laparoscopy under general anesthesia with orotracheal intubation. The intraoperative findings were a voluminous left ovarian cyst (**Figure 2**) twisted on its axis (three turns) (**Figure 3**) 15 cm long axis, with thin walls, saffron yellow intra-cystic content, without signs of tubal ischemia. The contralateral ovary and fallopian tube were macroscopically normal, as well as the appendix. We noted the presence of a sero-haematic effusion in the pouches of Douglas taken for cytological analysis. No endometriosis deposits observed. The

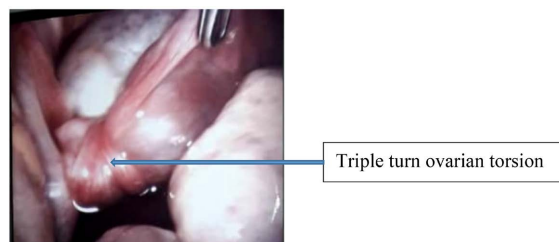
gestures during the intervention consisted of a puncture of the cyst and aspiration of its contents, then we proceeded to the detorsion of the adnexa (**Figure 4**), the homolateral utero-ovarian ligament was of normal size. Before parietal closure, we washed the peritoneal cavity with physiological serum. The hospital stay was marked by an improvement in the peri-incisional pain on the second post-operative day under analgesics and the patient was therefore discharged. It must be said that no hemorrhagic or infectious complications occurred, thus allowing the return to her establishment one week after the intervention. Histological



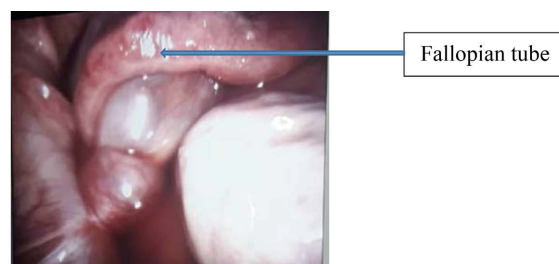
**Figure 1.** Homogeneous anechoic rounded mass.



**Figure 2.** Intraoperative finding of a large left ovarian cyst.



**Figure 3.** Large ovarian cyst twist on its axis.



**Figure 4.** Adnexal detorsion without any sign of tubal or ovarian ischemia.

analysis revealed a hemorrhagic luteal ovarian cyst. Control ultrasounds done at one month, then six months later showed normal-looking and sized ovaries. Furthermore, ovarian function was preserved and the dysmenorrhea disappeared.

### 3. Discussion

Torsion of the ovary can occur at any age, with an average age of onset between 6 and 16 years with an average of 12 years [1]. The clinical manifestations of torsion in children it can be confused with gastroenteritis, in a right fossa abdominal pain, the torsion can mimic an acute appendicitis. In addition, we can also have an acute abdomen suspicion when associated with vomiting, as is the case of our patient [5] [6]. The right ovary is most likely to undergo a torsion, this can be explained by the fact that the right utero-ovarian ligament is longer than the left one and/or the opposite the presence of the sigmoid colon in the left pelvic region helps prevent torsion of the ovary [7].

In a virgin girl, transabdominal ultrasound is carried out full bladder. It is the imaging modality of choice. It's has a sensitivity of 92% and a specificity of 96% in detecting adnexal torsion [8]. MRI is performed in addition to ultrasound or in case of doubt, for the characterization of pelvic masses, their relationship with neighboring organs, exploration [8]. In our context, MRI is not accessible in all health facilities and remains very expensive in underprivileged areas, hence the advantage of laparoscopy, which allows the exact diagnosis and treatment of the lesion at equal or lower cost. In several cases, when the number of turns is  $\leq 2$  turns, the evolution is most often favorable, a degree of torsion  $> 2$  turns of twist is associated with an unfavorable evolution [5]. This does not corroborate with our findings, despite the three turns of twist and after detorsion. It's can be explained by the fact that although the viability of an ovary declines as time elapses from the onset of pain to surgical detorsion, the ovary's dual blood supply makes it resilient to vascular injury [9]. Indeed, in 83% of cases, a viable ovary is found within a diagnostic delay  $< 24$  hours, in 50% of cases the ovary is viable when the delay is between 24 and 48 hours and beyond 48 hours the ovary is necrotic [5].

The surgical exploration by laparoscopy is the key to make a diagnosis of ovarian torsion and allows performing a conservative gesture. The goal for adolescents is to preserve ovarian function as much as possible, detorsion in most cases restores the ovarian vascularization [1] [3]. Oophoropexy is a surgical procedure that fixes the ovary in position limiting its range of movement, but it is recommended, in case of torsion of the abnormally long right utero-ovarianligament, recurrence of torsion, the appearance of contralateralovariancysts [5].

Functional cysts (follicular or luteal) are the most frequent in adolescents, they result from a dysfunction of the ovarian hormonal regulation and can exceed 5 cm [3] as is the case of our patient who presented a hemorrhagic luteal cyst of 15 cm, in whom the risk factor found was early menstruation at the age of 11 years. In the long term, there are no complications. The risk of malignancy at the time of torsion is very low in pediatric and adolescent populations [7].

## 4. Conclusion

In view of all the above, ovarian torsion predominates in peripuberty and in adolescents. Functional cysts are most common at this age due to ovarian hormonal dysfunction and risk factors such as early menstruation, long and irregular cycles. Pelvic ultrasound is the reference diagnostic examination, especially in our context where magnetic resonance imaging is not easily accessible and expensive. Laparoscopy is the treatment of choice with many advantages: reduction of the hospital stay, minimal blood losses, early rehabilitation and reduction of significant aesthetic damage in adolescent girls.

## Author Contributions

All authors contributed to the writing of this work. The authors declare to have read and approved the final version of this work.

Michèle Florence Mendoua: writing and literature review;  
Serge Nyada and Marcel Gérardin Mbarga: proofreading;  
Basile Essola: surgeon;  
Dominique Noah Noah: supervision.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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