



## **Annexial Torsion, Laparoscopic Management: Review of 2 Cases**

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**Abstract**

*Adnexal torsion is a rare pathology, known as one of the few gynecological emergencies, in which the surgeon's expertise and skill are required to preserve the ovary. Many years ago it was thought that adnexal torsion was the same as salpingo-oophorectomy due to the risk of pulmonary embolism that could occur in these patients. However, studies showed that the incidence of this pathology is very low, 0.2%, so at the same time Eliminate this myth: detorsion began its rise as a conservative treatment.*

**Introduction**

Adnexal torsion is considered the fifth cause of gynecological emergency, with an incidence of 2.7%. Its clinical presentation is more frequent on the right side than on the left because the latter is fixed by the sigmoid colon and in turn limits its movement. <sup>1</sup> An early and timely diagnosis is important to preserve the annex and therefore fertility, the Gold standard for diagnosis continues to be surgery, however, ultrasonography and Doppler are studies with high diagnostic value for this pathology. <sup>2</sup>

**Clinical case number 1**

The case of a 13-year-old patient is presented, with a clinical picture of 2 days of evolution consisting of pain in the hypogastrium and left iliac fossa of sudden onset, which progressively worsened, was not accompanied by other symptoms. Within the history, a premenarchal patient, without any underlying pathology or surgical history. On physical examination, he was afebrile, without tachycardia, with a soft, depressible abdomen, with pain on palpation in the left iliac fossa. No gynecological examination or rectal examination was performed as this was a prepubertal patient with Tanner III.

The gynecological pelvic ultrasound (fig. 1) as a diagnostic aid showed a uterus in AVF measuring 63\*45\*36 mm, with a mass of avascular isoechoic content measuring 53\*48\*76 mm compatible with ovarian torsion.

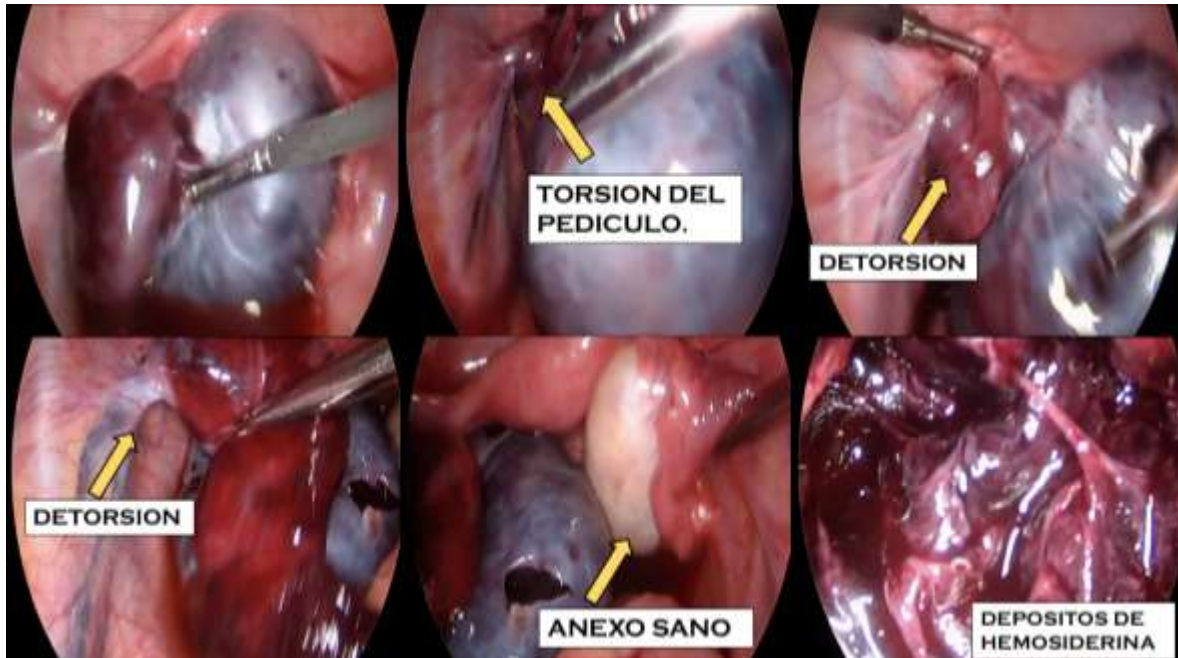
Given the ultrasound diagnosis along with the clinical findings, the patient was taken to laparoscopy which confirmed the clinical and imaging suspicion.

During the procedure, a hemorrhagic cyst of approximately 6 cm in diameter was observed, with a twist of the right adnexa on its axis (3 turns) (Fig. 2.). Detorsion was performed, followed by drainage and controlled suction, and then revascularization of the adnex was observed. The uterus and contralateral annex had a normal morphological appearance and a complete inspection of the internal walls of the cyst was completed in search of papillary vegetations or solid portions, but only hemosiderin deposits were evident

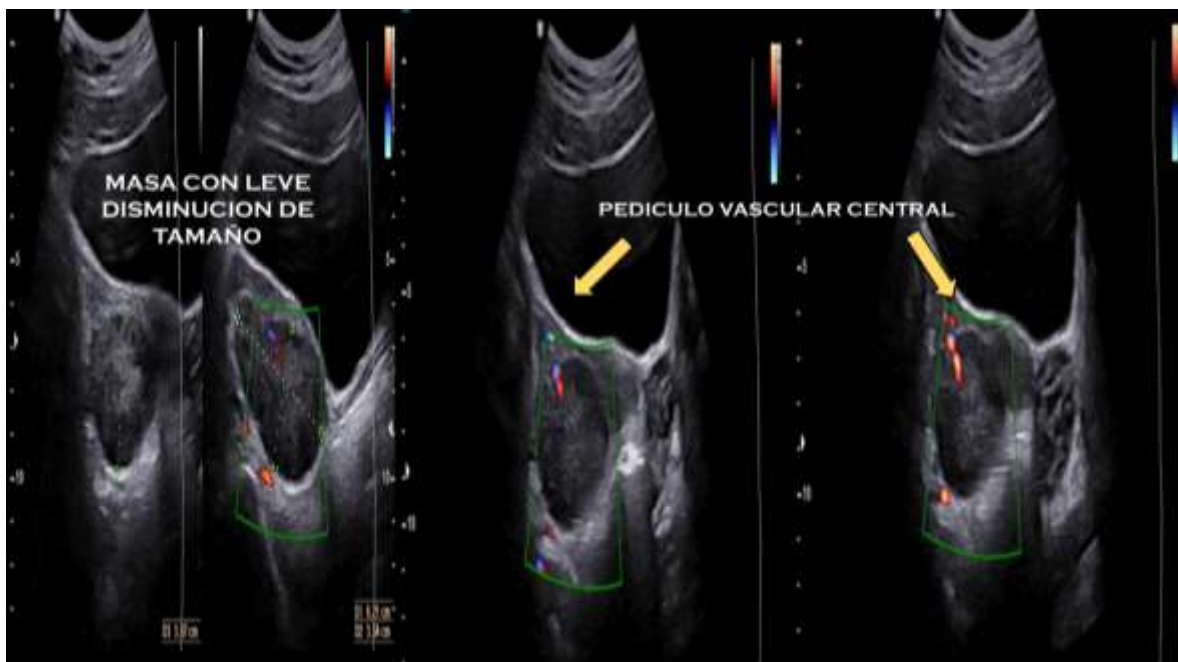
Eight days after surgery, an ultrasound control was performed, finding an adnexa that remained enlarged, however, with a central irrigation pedicle. (Fig. 3)



**Figure 1.** Ultrasound with evidence of an isoechogenic mass, with an enlarged, avascular ovary.



**Figure.2.** Laparoscopy: adnexal torsion (3 turns), with healthy contralateral adnexa, and hemosiderin deposits in cystoscopy.



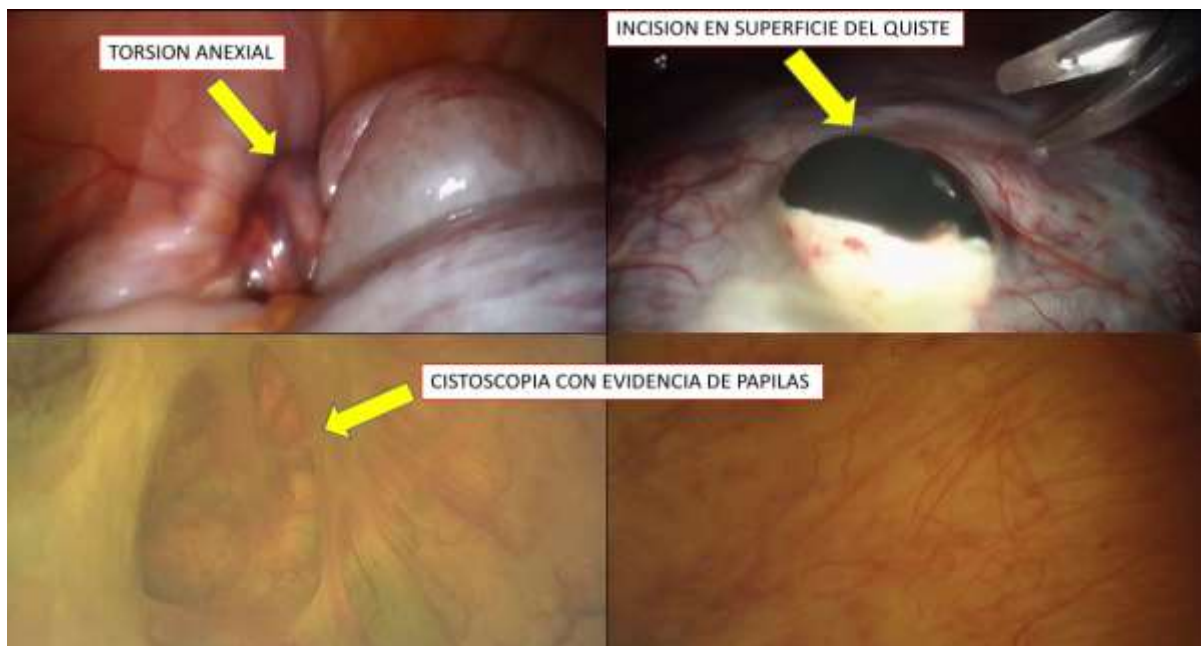
**Figure. 3.** Ultrasound control with central ovarian pedicle.

**Clinical case number 2**

41-year-old patient, G1P1C1, in follow-up for 1 year of evolution for left paraovarian cyst with initial size of 4-6 cm and negative tumor markers. He consulted for a 1-day history of colicky pain in the left iliac fossa of sudden onset, moderate intensity, with no other associated symptoms. A transvaginal gynecological ultrasound was performed, which showed a uterus in AVF of normal shape and contours, secretory endometrium, right ovary replaced by a cystic image measuring 136\*100\*95 mm (volume 680cc), hypoechoic, cloudy content, with the presence of a septum of 3.9 mm, without papillae and low vascularization to the Doppler effect.

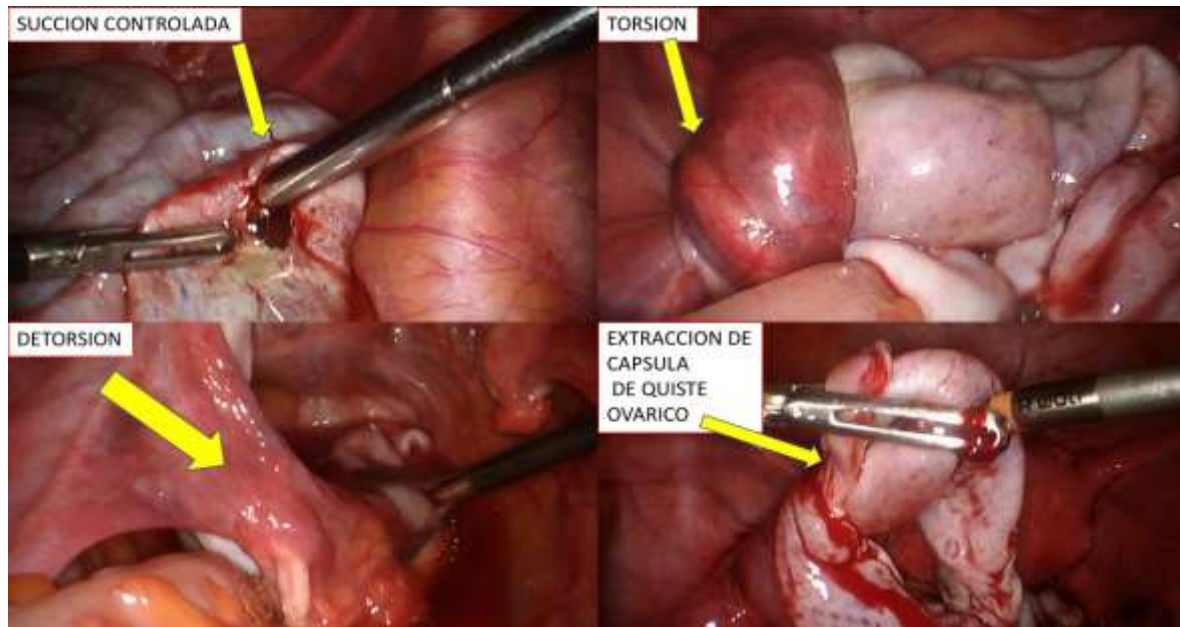
It was decided to perform emergency laparoscopic ovarian cystectomy, with findings of a left ovarian cyst of approximately 14 cm, with 3-turn twisting of the pedicle (figure 4), sallow content, regular edges, smooth surface. Cystoscopy showed smooth walls and a 3 mm papilla with thin septa inside, the contralateral annex with normal characteristics.

Detorsion of the pedicle was performed, followed by an incision on the surface of the cyst with controlled drainage and suction and finally blunt and sharp dissection of the cyst capsule (figure 5) and hemostasis was verified with bipolar energy. No ovarian raffia was performed, ending the procedure without complications.



**Figure.4.** Laparoscopy: adnexal torsion (3 turns), with incision on the surface of the cyst, with cystoscopy that shows smooth walls, thin septa inside and a 3 mm papilla.





**Figure 5.** Laparoscopy: with controlled suction, with subsequent detorsion and extraction of the ovarian cyst capsule for pathological study.

## Discussion

Adnexal torsion is defined as the rotation on its axis of the adnex or ovary or, less frequently, of the fallopian tube at the level of the infundilopelvic and uteroovarian ligaments.<sup>3</sup>

Ischemia is the direct consequence of torsion, with lymphatic flow being initially interrupted, followed by venous and finally arterial flow; It is important to remember that circulation is maintained by the ovarian and uterine arteries, which form the infraovary and infratubal arches where the ovarian and tubal branches arise.

<sup>4</sup> If surgical treatment is not performed in time, it is possible that ischemia leads to necrosis and a complete loss of the adnexa, ultimately leading to impaired fertility.<sup>5</sup>

### Among the risk factors are:

1. Right uterus-ovarian ligament is physiologically longer than the left one, as well as the presence of the sigmoid colon on the left side, which reduces mobility, generates stability and therefore reduces the space for torsion.<sup>6</sup>

2. Ovarian masses: benign or malignant. <sup>6</sup>
3. Para-ovarian masses, usually for isolated torsion of the fallopian tube such as hemato-salpinx, hydrosalpinx. <sup>6</sup>
4. Pregnancy; most frequently cysts of the corpus luteum, being the main complication of adnexal masses during pregnancy and their highest frequency in the first trimester, representing 25% of these complications. <sup>6</sup>
5. Ovarian hyperstimulation syndrome. <sup>6</sup>

The clinical picture consists of sudden onset hypogastric pain radiating to the flanks or lumbar region associated with nausea, vomiting, rarely fever, and a palpable mass on physical examination. <sup>7</sup>

Useful ultrasound findings that have been described include the appearance of a solid or complex cystic mass, with or without pelvic fluid, wall thickening, and cystic hemorrhage, however the swirl sign is seen as a hypoechoic band representing the vessels. that involve the central axis and the diagnosis of ovarian torsion is made only when this swirling sign is observed. <sup>8</sup> Computed axial tomography (CT) or magnetic resonance imaging (MRI) are not superior to Doppler ultrasound images. <sup>9</sup>

Differential diagnoses include appendicitis, ruptured ovarian cyst, pelvic inflammatory disease, nephrolithiasis, pyelonephritis, ectopic pregnancy, and necrosis of a leiomyoma. <sup>10</sup>

The treatment is surgical either by laparotomy or laparoscopy. There is conservative management such as detorsion, puncture of a cyst or cystectomy and the radical treatment which is salpingo-oophorectomy. <sup>11</sup>

The goal is to preserve fertility, however, this depends on intraoperative findings. In the past, detorsion was not routinely performed due to the risk of thromboembolism, but the literature states that the probability of its occurrence is very low, with the incidence of pulmonary embolism being 0.2%. <sup>12</sup>

No study has examined the long-term risks of ovariopexy, nor its fixation to the lateral pelvic wall, round ligaments and/or utero-sacral ligaments; since it has been seen that performing them only reduces the recurrence of a new torsion by 10 % , <sup>8</sup> and generates irreversible damage in the preservation of fertility, since by interrupting blood flow at the level of the ovarian tube ligament, it causes gonadal injury. and with it the decrease in ovarian reserve. <sup>14</sup>

In both cases, surgical management was given laparoscopically; However, conservative management was performed, because the importance of treatment is to preserve fertility in patients of fertile age and with benign characteristics of the mass.

### Conclusion

Adnexal torsion is a true gynecological emergency where clinical suspicion prevails, in addition to imaging aids such as color Doppler and diagnostic confirmation with surgery. The challenge of surgical treatment is not radicality but on the contrary to preserve the annex to preserve fertility.

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