



# **POGS**

## **PRACTICE BULLETIN**

**NUMBER 5. DECEMBER 2021**

***Management of Women with  
Adnexal Torsion***



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## Management of Women with Adnexal Torsion

*The POGS Clinical Consensus Committee is tasked with developing Clinical Consensus documents, which provide up to date clinical guidance on emerging issues in Obstetrics and Gynecology. A careful examination of the best available scientific data on the topic is done. When evidence is limited, the consensus will be sought from the experts.*

This Practice Bulletin is a consensus among the Board Members of the Philippine Obstetrical and Gynecological Society (POGS), the Society of Gynecologic Oncologists of the Philippines, the Philippine Society for Reproductive Medicine and the POGS Committee on Clinical Consensus. This Practice Bulletin is intended to provide clarification and guidance with regard to management of women with adnexal torsion.

This Practice Bulletin will be updated as additional information becomes available.

### INTRODUCTION:

Adnexal torsion is most commonly found in women of reproductive age but may also be seen in women of any age. In 46% of cases in the pediatric and adolescents, there is no associated mass or cyst.<sup>1</sup>

In most women, cysts commonly associated with torsion are corpus luteum, benign cystic teratomas, follicular cysts, and cystadenomas. Malignant lesions and endometriomas that are associated with adhesions are relatively rare causes of torsion, with malignant lesions accounting for approximately 2% of torsion cases.<sup>2</sup>

Torsion occurs more commonly on the right than the left, with an incidence of approximately 3:2. This is likely due to the proximity of the left ovary to the relatively fixed sigmoid colon compared with the hypermobility of the cecum and ileum on the right.<sup>2</sup> hypermobility of the cecum and ileum on the right.<sup>2</sup>

### DEFINITION OF TERMS:

**Adnexal torsion** - is the twisting of the ovary and fallopian tube around its own pedicle, the utero-ovarian and infundibulopelvic ligaments, which lead to obstruction of its blood supply and subsequent ischemic necrosis. It usually involves both structures, but may also involve solely the ovary and in rare instances only the fallopian tube. It most commonly occurs in women of reproductive age.

**Detorsion** - consists of untwisting the torted ovary and any other torted structure which could be performed either through laparoscopy or laparotomy

**Non-viable ovary** - is a necrotic ovary that appears gelatinous or a poorly defined structure that "falls apart" when manipulated

**Oophoropexy** - Oophoropexy is a surgical procedure that fixes the ovary in position limiting its range of movement.

### Question 1: What are the risk factors for adnexal torsion?

#### 1. Size of the ovary

There are conflicting evidences as to what size of the ovary is more likely to torse. Torsion generally occurs in women with moderately enlarged ovaries, often in association with an ovarian cyst. It occurs less commonly in markedly enlarged ovaries because they tend to weigh down the ovary, thus, preventing it from twisting.

In retrospective cohort studies, Huchon and Fauconnier<sup>3</sup> and Huchon et al<sup>4</sup> found that ovaries with cysts >5 cm were at greater risk for torsion, whereas a comparative study by Warner et al<sup>5</sup> found that cysts > 5 cm were unlikely to torse.

## 2. Pre-existing adnexal conditions

Dermoid, polycystic ovary, previous surgery, previous torsion, tubal sterilization and pregnancy are the known risk factors of torsion<sup>6</sup>.

## 3. Morphologically normal-appearing ovary with history of torsion

Pansky et. al demonstrated in a retrospective study, that women who experienced a first episode of torsion with a morphologically normal-appearing ovary, were more likely to experience another episode of torsion (60%) than those with pathologic adnexa (8%).<sup>7</sup>

### Question 2: How is adnexal torsion diagnosed?

#### 1. Clinical

**Adnexal torsion is diagnosed clinically by a high index of suspicion coupled with a thorough history and comprehensive physical examination.**

Patients with adnexal torsion present with acute, severe, unilateral, lower abdominal and pelvic pain. Often the patient relates the onset of the severe pain to an abrupt change of position. A unilateral, extremely tender adnexal mass is found in more than 90% of patients. Approximately two-thirds of patients have associated nausea and vomiting.<sup>8</sup>

#### 2. Ultrasonography

**Ultrasonography is the preferred first-line diagnostic test for suspected adnexal torsion due to its safety, availability and affordability. However, its accuracy is limited by operator experience, machine quality, pregnancy and presence of complex ovarian morphology.**

A systematic review showed that the use of ultrasound in diagnosing adnexal torsion has a pooled sensitivity of 0.79 and specificity of 0.76 with a negative and positive likelihood ratio of 0.29 and 4.35 respectively.<sup>9</sup>

### 3. Doppler Studies

**Doppler studies is often used to highlight the compromised vascular supply to the adnexa, however, its added diagnostic value is not established, as the presence of Doppler arterial flow does not uniformly rule out torsion.**

In the same systematic review, the use of doppler with ultrasound yielded similar sensitivity of 0.80% and specificity of 0.88%.<sup>9</sup>

Sonologic findings suggestive of ovarian torsion include unilateral ovarian enlargement, ovarian edema characterized by the presence of a hyperechogenic ovary with peripherally displaced follicles and echogenic stroma, free fluid, and a coiled vascular pedicle (referred to as the “whirlpool sign”).<sup>10</sup>

#### 4. CT SCAN/MRI

**Both Computerized Tomography (CT) and Magnetic Resonance Imaging (MRI) could offer improved specificity to investigate complex ovarian morphology, but more evidence is needed to recommend its use in the diagnosis of adnexal torsion.**

A meta-analysis for CT was not possible with one cohort and two case control studies only. However, its sensitivity range was 0.74-0.95, and specificity was 0.80-0.90.<sup>9</sup>

In a meta-analysis involving 3 studies including 99 women, the pooled sensitivity for MRI was 0.81 and specificity was 0.91.<sup>9</sup>

### Question 3: What are the management options in adnexal torsion?

#### 1. DETORSION ALONE

**Conservative approach through untwisting the adnexa (detorsion) is the recommended management even in seemingly necrotic adnexa as most often these are salvageable.**

The appearance of the ovary at the time of surgery is not a reliable indicator of ovarian viability. A false notion contributing to unnecessary oophorectomy is that a black or blue ovary suggests necrosis and thus should be removed.<sup>1</sup> Even if the ovary appears blue and dusky on initial inspection, most ovaries (90%) demonstrate normal follicular development on ultrasound, normal Doppler flow, and normal gross appearance on second look after only 6 weeks.<sup>2</sup>

Two retrospective studies suggest that a sharp decrease in ovarian function occurs 72 hours after the onset of symptoms.<sup>16,12</sup> 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, and the exact duration of vascular interruption needed to cause irreversible damage to the ovary is unknown.<sup>12, 13–15</sup>

There is no evidence to support that embolic phenomenon will occur after untwisting. In a review of 1000 torsion cases, McGovern et al demonstrated a similar pulmonary emboli risk of 0.2% in groups managed with both removal of the adnexa without untwisting and with untwisting the adnexa.<sup>17</sup>

## 2. DETORSION WITH CYSTECTOMY

**In cases where a cyst is present in a torsed adnexa, and cystectomy is possible with minimal risk of bleeding, detorsion followed by cystectomy should be performed.**

One difficulty in performing a cystectomy at the time of detorsion is the loss of tissue planes; however, the patient must be counseled that if the cyst is not removed, there is a risk of retorsion and possible reoperation. Pansky et al demonstrated that the torsion recurrence rates were 63.6% in the twisted normal adnexa group and 8.7% in the twisted abnormal adnexa group ( $P < 0.001$ ). The retorsion risk of the pathologic adnexa was especially low after cystectomy 5.3% or salpingo-oophorectomy (0%).<sup>7</sup>

## 3. DETORSION WITH CYST ASPIRATION

**In cases where a cyst is present with adnexal torsion, and cystectomy is not possible due to extensive edema, cyst aspiration following detorsion may be done.**

A cystectomy need not be performed at the time of detorsion because it may cause additional trauma to the ovarian tissues. If a cystectomy is not feasible, a surgeon may consider incision and drainage for large cysts (cysts larger than 10 cm). Ultrasonography to reevaluate the cyst at 6–12 weeks post-operatively is recommended when only aspiration was performed.<sup>18, 19</sup>

## 4. SALPINGO-OOPHORECTOMY

INDICATIONS:

### A. Non-viable ovary

A torsed ovary may only be removed if oophorectomy is unavoidable, such as in instances of a severely necrotic, friable and/or gelatinous ovary with loss of all normal anatomic structures.<sup>1</sup>

### B. Suspicion of malignancy

Only if there is clear clinical evidence of a malignancy should an upfront oophorectomy be considered. However, the risk of missing an occult malignancy should not be used to justify an outright oophorectomy given the low incidence of malignancy. A frozen section when available, may be done to justify the procedure. Ovaries with a malignant lesion are frequently evident during the operation.<sup>20</sup>

### C. Postmenopausal patient

The decision to proceed with salpingo-oophorectomy is fairly straightforward in a postmenopausal patient with adnexal torsion.<sup>21</sup>

## 5. OOPHOROPEXY POST-DETORSION

**Oophoropexy is defined as the fixation of the ovary to a position that will limit its range of movement. There is insufficient evidence to support performing this procedure in cases of repeat adnexal torsion to prevent future recurrences. There is no evidence of a difference in outcomes between those who underwent oophoropexy and those who didn't .**

**Question 4: What is the best approach in the management of adnexal torsion?**

**Laparoscopy is the preferred approach in the surgical management of adnexal torsion.**

On the basis of current evidence in the literature, we recommend a laparoscopic approach over laparotomy. The benefits of which include shorter recovery time, decreased narcotic analgesic requirement, and less risk of wound complications or venous thromboembolism.<sup>2</sup> While it is preferred, we should not negate or disallow the use of exploratory laparotomy as the alternative approach.

**Question 5: What are the benefits of detorsion?**

**1. Allows preservation of ovarian function particularly in reproductive age women**

Successful pregnancies and live births have been noted following ovarian detorsion and preservation in adults. Ovarian conservation should be an operative priority as folliculogenesis has been well documented following ovarian detorsion.<sup>20</sup>

**2. Decreased risk for perioperative complications**

In a retrospective study examining the US Nationwide Inpatient Sample (NIS) database between January 2001 and September 2015, in reproductive-aged women (women ages 15-49), as well as pediatric patients less than age 15, who had a diagnosis of ovarian torsion, conservative surgery was associated with a lower risk of perioperative complications (10% versus 13.6% OR 0.70, 95% CI 0.61-0.82. P<0.001).<sup>22</sup>

**Question 6: Is there a risk of thromboembolic event of adnexal detorsion?**

**There is no significant difference in the risk for thromboembolic events between adnexal detorsion versus oophorectomy.**

In a retrospective study involving 89,177 women, it was noted that conservative surgery was not associated with venous thromboembolism (0.2% versus 0.3%).<sup>22</sup>

**Question 7: How is ovarian torsion monitored post-operatively?**

**1. Ultrasound is the most common imaging modality used to monitor the following:**

**a. Recurrence of the cyst and exclude underlying mass or malignancy if only detorsion with or without aspiration of the cyst is done.**

Several studies proposed imaging patients between 1 and 8 weeks after the primary torsion event, particularly if there was a concern for neoplasm. Normal blood flow by duplex ultrasound can take 2-6 months to develop after detorsion. Imaging should be considered sooner if there is a concern for presence neoplasm.<sup>20</sup>

**b. Evidence of ovarian function**

Majority of the published case series have shown follicular development by ultrasound at 3 months following detorsion. However, if no follicular development is found at 3 months it is not absolute that the ovary is nonfunctional.<sup>20</sup>

Ultrasound should be considered after a detorsion procedure to document the presence of ovarian follicles and is most commonly performed after 3 months to confirm ovarian function.<sup>20</sup>

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