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Clinical Review

MYTHS IN THE EVALUATION AND MANAGEMENT OF OVARIAN TORSION

Jennifer J. Robertson, MD, MSED,* Brit Long, MD,† and Alex Koyfman, MD‡

*Current Affiliation: Emory University School of Medicine, Atlanta, Georgia, †San Antonio Military Medical Center, Fort Sam Houston, and ‡University of Texas-Southwestern, Parkland Hospital, Dallas, Texas

Reprint Address: Jennifer J. Robertson, MD, MSED, Emory University School of Medicine, 3645 Habersham Rd NE, Apartment T19, Atlanta, GA 30305

Abstract—Background: Ovarian torsion is a rare but serious cause of pelvic pain in females. Making the diagnosis is important because misdiagnosis can lead to an ischemic ovary and subsequent infertility. **Objective:** Although all emergency physicians are aware of ovarian torsion, there are several myths regarding its epidemiology, diagnosis, and treatment. This article attempts to review some of these myths to improve emergency diagnosis and evaluation. **Discussion:** Ovarian torsion is not an easy diagnosis to make and it is commonly missed. Signs and symptoms often mimic other disorders such as appendicitis, pyelonephritis, and nephrolithiasis. The diagnosis becomes more challenging in that torsion can occur in female patients of all ages, including infants and the elderly. Normal arterial blood flow on ultrasound does not rule out ovarian torsion and not every patient will have a mass on imaging or a palpable mass on examination. Patients may have symptoms for several hours or days, and thus, ovarian torsion may be present even with a longer duration of symptoms. Surgery is the definitive treatment and may still be effective after several hours of symptoms. **Conclusions:** Although ovarian torsion is a challenging diagnosis, understanding myths surrounding the disorder may help emergency physicians consider it in unusual populations. If there is any clinical concern for ovarian torsion, a gynecologic consult may be helpful, even if imaging findings are not conclusive. Surgery remains the standard method for definitive diagnosis and treatment. © 2016 Elsevier Inc. All rights reserved.

Keywords—ovarian torsion; abdominal pain; pelvic pain; ultrasound; pelvic examination; myth

INTRODUCTION

Pelvic and abdominal pain are common chief complaints that present to the emergency department (ED). Although there are many causes of abdominal and pelvic pain in females, ovarian torsion is one diagnosis that emergency physicians commonly consider because missing it can lead to poor outcomes. Overall, ovarian torsion is quite rare, but a missed diagnosis can lead to ovarian necrosis and potential infertility. Unfortunately, it is a difficult diagnosis to make because not every patient will present with the same symptoms and not all will have the classic symptoms that may have been previously taught. In addition, not every patient with torsion is of reproductive age and not every patient will have an abnormal pelvic examination.

Although emergency physicians are aware of ovarian torsion and the need to evaluate for it, there are some prevailing myths surrounding ovarian torsion that may be useful to discuss so that missing the diagnosis can be avoided in future patient encounters.

MYTH: OVARIAN TORSION OCCURS ONLY IN WOMEN OF REPRODUCTIVE AGE

Ovarian torsion is reported to be the fifth most common acute gynecologic disease, but overall it is quite rare (1,2). According to one recent cohort study, the

estimated average incidence of ovarian torsion in all women over a 1-year period was 5.9/100,000 (3). Although it is true that ovarian torsion most commonly occurs in women of reproductive age at an average age of 30 years, ovarian torsion can occur in children, postmenopausal women, and in those who have had partial hysterectomies (1,3–10).

The actual prevalence of pediatric torsion is unknown, but according to one author, up to 15% of adnexal torsion cases occur during infancy or childhood (11). Several cohort studies and case review series have found an average prevalence of torsion in children presenting to any one particular hospital to be of 0.3 to 3.2 cases per year (11–15). Another larger cohort study found an annual incidence of ovarian torsion to be 4.9 per 100,000 female patients aged 1–20 years (16). Not every study distinguishes between premenarchal and postmenarchal patients. This is an important caveat, as torsion is indeed more common in the postmenarchal pediatric population (3,5). This is thought to be due to the increased prevalence of ovarian cysts in postmenarchal pediatric females (5). A 16-year retrospective cohort study of 249 pediatric patients with surgically verified torsion demonstrated a prevalence of premenarchal torsion of 16.4%, whereas the rest were postmenarchal pediatric patients (5). That being said, there have been several case reports and studies of ovarian torsion in premenarchal patients, and even in infants and fetuses in utero (7,17–20). Consequently, ovarian torsion may still remain a potential diagnosis in both pre- and postmenarchal pediatric patients.

Postmenopausal women also experience ovarian torsion. Research on postmenopausal women is mainly via descriptive studies, and retrospective chart reviews, so the data are limited (21–25). In a retrospective chart review of 58 cases of proven torsion, nearly one-quarter of patients were postmenopausal (23). Another retrospective chart review found 19 of 301 postmenopausal patients with ovarian neoplasms to also have concurrent ovarian torsion (22). On a similar note, another review of 58 surgically proven torsion cases over a 16-year period found 14 of these to be in postmenopausal women (23). Thus, although torsion in postmenopausal women seems rare based on limited data, it still can occur.

In studies conducted on postmenopausal women and ovarian torsion, nearly all had enlarged ovaries or pelvic masses, or both (8–10,22,24,25). The majority of patients had some lower abdominal discomfort or a known mass (8–10). Thus, although torsion in postmenopausal women is much less common than in women of reproductive age, it may be a consideration in older women who have lower abdominal pain, nausea, or vomiting and a known ovarian mass (1).

Clinical Bottom Line: Ovarian torsion affects women of all ages.

MYTH: MY PATIENT'S PAIN IS MILD, AND SHE HAS HAD IT OFF AND ON FOR A FEW DAYS. THIS CANNOT CERTAINLY BE TORSION, RIGHT?

Any pain due to torsion is typically due to occlusion of the vascular pedicle, with resulting ischemia (26). The classic presentation of torsion is an abrupt onset of pain in the pelvic region with radiation to the flank or groin. However, only about half of patients may present with this type of pain (1). The pain can present more insidiously, especially in those patients who have a history of ovarian cysts, polycystic ovarian syndrome, or other pelvic conditions (27,28). Occasionally, these pain episodes can occur for several days to months before the diagnosis is determined (26).

Symptoms can also be very vague and may range from mild to severe pelvic or abdominal pain, abdominal bloating, nausea, or vomiting (1,27,29,30). The pain may be constant or intermittent because the ovary can torse and then de-torse with changes in activity (26). Patients may also present with fever, hypertension, and sinus tachycardia (23,26,27). Symptoms can also mimic other etiologies of pain, including appendicitis, renal colic, pyelonephritis, ectopic pregnancy, and even colitis (26,31). Due to the wide variety of presentations, ovarian torsion may be the diagnosis in some suspicious cases. If initial laboratory and imaging studies are unrevealing and the patient's pain has continued, an evaluation for ovarian torsion can be considered.

Clinical Bottom Line: The classic presentation of ovarian torsion is not always present. Patients may have gradual onset pain, intermittent pain, or very mild pain.

MYTH: MY PATIENT IS MINIMALLY TENDER AND NO MASS CAN BE PALPATED ON BIMANUAL EXAMINATION. THEREFORE, TORSION CANNOT BE POSSIBLE

Up to 30% of patients with torsion may have no tenderness on examination and this may falsely reassure the physician (1). Even with tenderness, the bimanual examination has not been demonstrated to be particularly useful to rule in or rule out pelvic pathology. In a prospective study of 186 female patients with acute abdominal pain, emergency physicians were evaluated based on their agreement between various findings on bimanual examination. These included the presence or absence of palpable cervical motion tenderness, uterine tenderness,

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