



# Primary Health Care Program Practice Learning Summary

Critical Incidence Reporting  
Summary Quarter 4 – Fiscal  
2017/2018

## Summary - What happened?

A 20 year old male patient complaint of pain in left testicle for 10 days and progressively getting worse and swollen. Patient was seen at Clinic and was diagnosed with "fluid buildup" and was advised that testicle would return to normal. Patient continued to experience pain and swelling. Patient presented to ED, was treated but would eventually need orchiectomy.

## Case Analysis

*(From interviews with healthcare staff and patient medical records)*

- January 31, 2017 12:08: Patient visited the clinic. He indicated he had experienced pain in left testicle and enlargement of the testicle when he woke up the previous day. He explained that the pain was not as severe now but still present and he was not feeling well; patient exhibited no fever or penile discharge. The left testicle was moderately swollen; no colour changes; testicle still feels round and smooth; no abnormally shaped masses fixed on testicle. Query: hydrocele testis; plan: ultrasound to determine if he has a hydrocele or r/o other pathology. Reference in documentation to "urgent testicle ultrasound has been faxed to first available site".
- February 1, 2017 16:23: Patient visited the ED indicating pain in the left testicle. EPR documentation is of two days of left scrotal swelling and no fever, although there is a reference in the nursing assessment to the patient indicating pain in the left testicle starting 10 days earlier and progressively getting worse. Pain described as constant burning, dull ache, throbbing, radiating in to the left groin, and precipitated by moving/walking; nonverbal evidence included bracing and facial grimaces; left testicle red, swollen approximately 10 cm in diameter and tender, no cremasteric reflex<sup>1</sup>, no discharge; no lymphadenopathy; the assessment was of left scrotal cellulitis and epidymo-orchitis; plan IV antibiotics and an outpatient scrotal ultrasound (US) ordered and scheduled for February 2nd.
- February 2, 2017: US performed: "findings are concerning for a missed testicular torsion, urology consultation advised".

13:45: Findings verbally communicated to the ordering physician. The patient was admitted to hospital and underwent an exploration left testicle, and an orchiectomy (left testicle) the same day.

<sup>1</sup>Assessment is by stroking or pinching the skin of the upper thigh while observing the ipsilateral testis for reactive elevation which is usually absent in patients with testicular torsion. (The importance of the cremasteric reflex in acute scrotal swelling in children. Rabinowitz R SOJ Urol. 1984;132(1):89. [https://www.uptodate.com/contents/evaluation-of-the-acute-scrotum-in-adults?source=search\\_result&search=acute%20scrotum%20in%20adults&selectedTitle=1~36](https://www.uptodate.com/contents/evaluation-of-the-acute-scrotum-in-adults?source=search_result&search=acute%20scrotum%20in%20adults&selectedTitle=1~36) )

## What were the review findings?

- The patient was attended to by a Primary Care Provider at the Primary Care Clinic January 31, 2017 and ED February 1, 2017.
- According to the Primary Care Provider who attended to the patient at the clinic January 31, 2017, the patient was not in substantial pain or severe discomfort at the time of the appointment and the left testicle was not red when examined. For this reason, testicular torsion was not seriously considered as a possible diagnosis. The testicles were palpated and the left testicle was moderately enlarged, and fluid in the scrotum was detected. The cremasteric reflex was not assessed.

- According to the Provider who attended to the patient at ED February 1, 2017, there were indications at that time that the window of opportunity already had passed to potentially save the testicle; they include the absence of a cremasteric reflex and the size of the testicle (more swelling), the patient's indication that his pain although constant was decreasing, and information obtained at the ED nursing assessment that the condition had existed for "10 days". For these reasons, an ultrasound was ordered on an urgent, but not emergent, basis.
- The care provided to the patient at ED February 1 and 2, 2017 subsequently was reviewed by the site Medical Director who provided the following summary to the CIRC: this patient's pain started 10 days ago prior to the Feb 1 ED. WBC was 13 along with clinical finding of warm/tender scrotum. This is consistent with common finding of orchitis/epididymitis. It was reasonable to start antibiotics and wait for the ultrasound the next day. The ultrasound next day confirmed torsion, but also presence of gas which indicated infection which likely had been present for days. The torsion occurred days before the Feb 1 visit and earlier ultrasound would not have changed the outcome.
- According to the Surgical Pathology Report (February 28, 2017) of the left testis, "the features are in keeping with the clinical history of torsion. A neoplastic process is not identified in the tissue examined".
- **KEY PRACTICE LEARNING POINT:** According to the Urologist, who performed the orchiectomy, all acute pain in the scrotum should be considered as potentially torsion until proven otherwise in males under the age of 35 years; and, the decision to treat this (condition) conservatively was not correct. The urologist recommended the learning from this case is that both visits by the patient (clinic January 31st and hospital February 1st) should have resulted in a suspect torsion diagnosis as opposed to the diagnoses that were presented. It is for this reason it was decided to share this learning; to raise awareness and to support a culture of safety so that others could learn with and from each other.

## Testicular Torsion<sup>1</sup>

Testicular torsion refers to the torsion of the spermatic cord structures and subsequent loss of the blood supply to the ipsilateral testicle. This is a urological emergency; early diagnosis and treatment are vital to saving the testicle and preserving future fertility. The rate of testicular viability decreases significantly after 6 hours from onset of symptoms. Testicular torsion is primarily a disease of adolescents and neonates. It is the most common cause of testicular loss in these age groups. However, torsion may occasionally occur in men 40-50 years old. Surgical treatment may prevent further ischemic damage to the testis. Rarely, observation is appropriate, depending on the pathology. Diagnosis of testicular torsion is clinical, and diagnostic testing should not delay treatment. It is generally felt that the testis suffers irreversible damage after 12 hours of ischemia due to testicular torsion. Infertility may result, even with a normal contralateral testis, because the disruption of the immunologic "blood-testis" barrier may expose antigens from germ cells and sperm to the general circulation and lead to the development of anti-sperm antibodies.<sup>2</sup>

## Symptoms of Testicular Torsion<sup>3</sup>

Signs and symptoms of testicular torsion include:

- Sudden, severe pain in the scrotum
- Swelling of the scrotum
- Abdominal pain
- Nausea and vomiting
- A testicle that's positioned higher than normal or at an unusual angle
- Painful urination
- Fever

## Complications<sup>4</sup>

Testicular torsion can cause the following complications:

- Damage to or death of the testicle. When testicular torsion is not treated for several hours, blocked blood flow can cause permanent damage to the testicle. If the testicle is badly damaged, it has to be surgically removed.
- In some cases, damage or loss of a testicle affects a man's ability to father children.

## Treatment<sup>4</sup>

Surgery is required to correct testicular torsion. In some cases, the doctor might be able to untwist the testicle by pushing on the scrotum (manual detorsion). But surgery will still be needed to prevent torsion from occurring again. The sooner the testicle is untwisted, the greater the chance it can be saved. The risk of testicle removal is 5 percent when treatment

occurs within six hours of the start of pain and increases to 90 percent when treatment occurs more than 48 hours after pain begins.

## Patient Perspective

According to the patient, the testicular pain began on Monday, January 30, 2017 (he cannot recall ever stating that the pain had started ten days earlier). He explained that he had experienced similar pain in the past but it resolved without any medical assistance. He was not aware during the earlier experiences or at the time of his visit to the Primary Care Clinic January 31 that the problem may have been testicular torsion. He recalled that the left testicle was slightly swollen January 31st when he attended the clinic and was examined, that the suspicion as explained to him at the time was hydrocele, and that he was scheduled for an ultrasound.

The patient was in substantially more pain the following day (February 1st) to the point he was having difficulty walking and the testicle was very swollen, and for these reasons he went to hospital. He recalled that he was given oral antibiotics and scheduled for IV antibiotics the next day (February 2nd) for orchitis, and for an ultrasound. His understanding at the time was that an ultrasound February 1st was not an option due to lack of availability of the service. He went for the ultrasound at the Hospital after receiving the IV antibiotics at another facility February 2nd. The emergency physician at ED advised him the same day that that he would need emergency surgery to remove the testicle.

The primary suspicion January 31, 2017 of the cause of the patient's symptoms was either hydrocele testis or an infection (scrotal cellulitis and epidymo-orchitis). Although an ultrasound was ordered, the documented reason was to rule out pathology – a mass or lesion, and not suspicion of testicular torsion. Testicular torsion was not seriously considered as a possible diagnosis at the time because the patient was not in significant pain or severe discomfort although the left testicle was moderately enlarged.

Similarly, there is no specific reference in the documentation concerning the patient's visit at ED February 1, 2017 (the next day) to testicular torsion, although there is notation of the absence of a cremasteric reflex. The orders for the outpatient scrotal ultrasound February 2nd and IV antibiotics were based on the assessment of scrotal cellulitis and epidymo-orchitis according to the documentation. According to information from CIRC interviews, however, the symptoms of the patient and condition of the testicle February 1st were indicative that the window of opportunity to treat the condition and potentially save the testicle had passed, an assessment supported by a subsequent review by the site Medical Director of the care received by the patient at ED February 1st and February 2nd, 2017.

That all acute pain in the scrotum should be considered as potentially torsion until proven otherwise in males under the age of 35 years, and a urological emergency, are clear from both the medical literature and expert opinion. Unfortunately, this did not occur in this case leading to a delay in diagnosis and consequent orchiectomy (left testicle). Expert opinion was that both visits (clinic January 31st and hospital February 1st) should have resulted in a suspect torsion diagnosis.

**Post Critical Incident:** At the time this Learning Summary was being prepared there was a suspicion the EMR file had been altered as the January 31st appointment details indicated “?Testical distortion”. As well, the clinical note indicated Chief Complaint states “ Testicle Distortion?” and the clinical note was not locked. However, the Patient Safety Consultant indicated there was no documentation related to Torsion. To rule out suspicion, an EMR audit was completed and findings concluded the documentation was not altered.

## Current Status:

- It is up to users to lock their own notes or someone else within your own office or within an office you have permission using the right click function. This is not practical, realistic or a reliable method for users of the application.
- Auto locking of Clinical Notes: The EMR has functionality to auto lock clinical notes (not forms or appointment details) but currently there is no defined timeline in place. Therefore, any user can alter notes at any time within our shared instance if they are not locked. The EMR application can be set to auto lock. For example, the EMR auto lock can be set. For example, every twenty four hours, every 2 days etc. the application will automatically lock all clinical notes. This will impact all users of the C-EMR shared instance.

## Identified areas for system improvement and recommended actions?

1. The severity of the patient's condition and need for an emergent response were not recognized leading to a delay in diagnosis and consequent orchiectomy. None of the documentation of the assessment identified the suspicion of testicular torsion.

2. Develop and distribute a reminder alert for education purposes that all acute pain in the scrotum should be considered unless proven otherwise as potentially testicular torsion and a urological emergency for which prompt diagnosis and treatment are vital.
3. Prevent premature diagnostic closure see strategies as below:

Premature diagnostic closure		161
<b>Table 1 Strategies for preventing the premature closure of the diagnosis.</b>		
Proposed activity	Method to bring it to practice	
Training in metacognition	– Learn to keep one’s distance from the specific problem so as to examine and reflect on the thinking process.	
Consider alternatives	– Always analyze alternative diagnoses (routinely follow a differential diagnosis process).	
Consider diagnostic comorbidity	– Always ask “What else could it be?”, “What is the worst it could be?”	
Use the help of patients and their family members	– Consider that reaching a diagnosis does not preclude the possibility of reaching another one simultaneously.	
Recognize the difficulty of the diagnosis	– Encourage a detailed account of current and past history.	
Coordinate clinical follow-up between internists and family doctors.	– Elicit questions from the patient about fears and questions that may direct the doctor’s attention toward options not previously considered.	
Practice feedback and systematic reflection	– Recognize (to oneself and to the patient) the difficulty, in some cases, of reaching an accurate diagnosis.	
“Affective autopsy”	– Establish proper coordination that provides appropriate patient follow-up.	
	– Promote mechanisms of reflection and feedback, individual and team, to increase both awareness and understanding of one’s own errors (in order to learn from them).	
	– As soon as possible, analyze the dominant emotions during the diagnostic process prior to an error.	

4. The faxing of the original consult is not acceptable care as the radiologist on call at the major center should have been called and the scan arranged ASAP as this is a true emergency. As provider to provider communication is essential even after hours for this type of emergency. The numbers for the Ultrasonographer on call should be easily accessible and information on who and where to call should be part of the EMR so that delays are prevented. The Primary Care Program will work with CSIS to add the Ultrasonographer on call numbers to be readily available by adding to the DI referral and the EMR addressograph section.
5. Development of an EMR Clinical Note Template Acute Scrotal pain should be considered as potentially torsion until proven otherwise and a urological emergency that supports specific historical or physical findings. Do not include the cremasteric reflex as it could be falsely reassuring in an acute scrotal emergency. Emergent ultrasound is needed to rule out Testicular Torsion.

[AccessEmergency Medicine >](#)

**Tintinalli’s Emergency Medicine: A Comprehensive Study Guide, 8e, 2016 > Male Genital Problems**

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TABLE 93-1  
Differential Diagnosis of Acute Scrotal Pain

	Testicular Torsion	Epididymitis	Appendage Torsion
<b>Historical Features</b>			
Peak incidence	Neonates, adolescents	Adolescents, young adults	Prepubertal
Risk factors	Undescended testicle (neonate), rapid increase in testicular size (adolescent), failure of prior orchiopexy	Sexual activity/promiscuity, GU anomalies, GU instrumentation	Presence of appendages
Pain onset	<b>Sudden</b>	Gradual, progressive	Variable
Nausea/vomiting	<b>More likely</b>	Less likely	Less likely
Dysuria	Less likely	<b>More likely</b>	Less likely
<b>Physical Findings</b>			
Fever	Less likely	<b>More likely</b> , particularly in advanced disease (epididymo-orchitis)	Less likely
Location of swelling/tenderness (early)	Testicle, progressing to diffuse hemiscrotal involvement	Epididymis, progressing to diffuse hemiscrotal involvement	Localized to head of affected testicle or epididymis
Cremasteric reflex	Testicular torsion less likely if present	May be present or absent	May be present or absent
Testicle position	High riding, transverse alignment	Normal position, vertical alignment	Normal position, vertical alignment

6. Update Family Medicine and Nurse Practitioner U of M Library sections to provide clinical guidance of urological emergencies with either (or use another peer reviewed practice source):
  - a. Davis, Jonathan E. "Male Genital Problems." *Tintinalli’s Emergency Medicine: A Comprehensive Study Guide, 8e* Eds. Judith E. Tintinalli, et al. New York, NY: McGraw-Hill, 2016  
<http://accessemergencymedicine.mhmedical.com.uml.idm.oclc.org/content.aspx?bookid=1658&sectionid=109433740><sup>6</sup>

- b. Scrotal Emergencies <https://www-clinicalkey-com.uml.idm.oclc.org/#!/content/playContent/1-s2.0-S0733862711000459?returnurl=null&referrer=null> Jonathan E. Davis MD and Micheal Silverman MD Emergency Medicine Clinics of North America, 2011, Vol.29(3), pp.469-484 [Peer Reviewed Journal]<sup>7</sup>
  - c. Urological Emergencies A Practical Approach Hunter Wessells, Editor; SpringerLink (Online service) 2013 [Urological Emergencies](#) pp 207-217 Part of the [Current Clinical Urology](#) book series (CCU) Chad M. Gridley, Hiep T. Nguyen (Accessed July 2017)<sup>8</sup>
7. Patient information [Visiting the ER for Urological Problems: When to go and what to expect](#) <sup>9</sup>
8. Auto locking of clinical notes in EMR – this issue was raised at Clinical Advisory Group for recommendations to the Primary Health Care Program on what should be the defined timeframe set within the EMR application. The recommendation from Clinical Advisory Group will inform Primary Health Care Program Leadership, Health Information Management and WRHA Legal to define a set time as to when clinical notes are to auto lock.

## REFERENCES:

1. Medscape: <http://emedicine.medscape.com/article/2036003-overview> Accessed March 27, 2017
2. Risk factors for male partner antisperm antibodies. AUJarow JP, Sanzone JJ SOJ Urol. 1992;148(6):1805. [https://www.uptodate.com/contents/evaluation-of-the-acute-scrotum-in-adults?source=search\\_result&search=acute%20scrotum%20in%20adults&selectedTitle=1~36](https://www.uptodate.com/contents/evaluation-of-the-acute-scrotum-in-adults?source=search_result&search=acute%20scrotum%20in%20adults&selectedTitle=1~36)
3. <http://www.mayoclinic.org/diseases-conditions/testicular-torsion/basics/definition/con-20033130> Accessed March 27, 2017
4. <http://www.mayoclinic.org/diseases-conditions/testicular-torsion/basics/definition/con-20033130> Accessed March 27, 2017
5. M.Vázquez-Costa and A.M.Costa-Alcaraz, Premature diagnostic closure: An avoidable type of error Volume 213, Issue 3, April 2013, Pages 158-162 <http://www.sciencedirect.com/science/article/pii/S2254887412000070>
6. Davis, Jonathan E.. "Male Genital Problems." *Tintinalli's Emergency Medicine: A Comprehensive Study Guide, 8e* Eds. Judith E. Tintinalli, et al. New York, NY: McGraw-Hill, 2016, <http://accessemergencymedicine.mhmedical.com.uml.idm.oclc.org/content.aspx?bookid=1658&sectionid=109433740>
7. Scrotal Emergencies <https://www-clinicalkey-com.uml.idm.oclc.org/#!/content/playContent/1-s2.0-S0733862711000459?returnurl=null&referrer=null> Jonathan E. Davis MD and Micheal Silverman MD
8. Urological Emergencies A Practical Approach Hunter. Wessells Hunter Editor; SpringerLink (Online service) Content Provider Totowa, NJ : Humana Press : Imprint: Humana Press 2013 [Urological Emergencies](#) pp 207-217 Part of the [Current Clinical Urology](#) book series (CCU) Chad M. Gridley, Hiep T. Nguyen (Accessed July 2017)
9. Canadian Urological Association [Visiting the ER for Urological Problems: When to go and what to expect](#)