ACEP Simulation Case Template

SIMULATION CASE TITLE: Testicular Torsion
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PATIENT NAME: Jacob Smith
PATIENT AGE: 15
CHIEF COMPLAINT: Abdominal pain

Brief narrative description of case *Include the presenting patient chief complaint and overall learner goals for this case*	You are working overnight in a single coverage ED when a 15-year-old male presents with his mom for lower abdominal pain. The patient was playing basketball 3 hours ago and suddenly felt severe lower abdominal pain. No trauma to the abdomen. No history of STIs. No dysuria or hematuria. Sexually active with one female partner and does not use condoms. No drugs or alcohol. No prior surgeries. Tylenol and Motrin did not work at home. The pain has now been persistent for the past 5 hours, and progressively worsening. Learners are expected to obtain a social and sexual history from the teen and identify testicular torsion on exam and using ultrasound. Learners must perform manual detorsion techniques and consult urology for definitive management.
Primary Learning Objectives *What should the learners gain in terms of knowledge and skill from this case? Use action verbs and utilize Bloom's Taxonomy as a conceptual guide*	- Define the ultrasonographic features of testicular torsion - Identify the characteristic history and physical findings of testicular torsion - Demonstrate the proper detorsion technique - Differentiate between GU/GI complaints in a child with abdominal pain - Develop a strategy for asking difficult/invasive questions to a minor seen with parents
Critical Actions *List which steps the participants should take to successfully manage the simulated patient. These should be listed as concrete actions that are distinct from the overall learning objectives of the case.*	- Obtain social/sexual history from teenager without parents in the room - Perform GU exam to identify lack of cremasteric reflex - Identify signs of testicular torsion on ultrasound - Perform detorsion technique - Consult urology emergently for definitive management

Learner Preparation *What information should the learners be given prior to initiation of the case?*	The patient is a 15-year-old male presenting overnight to a single coverage ED with abdominal pain.
Required Equipment *What equipment is necessary for the case?*	Cardiac monitor, ultrasound machine, human patient manikin

INITIAL PRESENTATION			
Initial vital signs	HR: 110 BP: 110/60 RR: 24 O_2SAT: 100 T: 37^{o}C		
Overall Appearance *What do learners see when they first enter the room?*	Crying, retching repeatedly and in distress		
Actors and roles in the room at case start *Who is present at the beginning and what is their role? Who may play them?*	Mother – "He hasn't let go of his genitals this entire time. Son, is there something you're not telling me?" if the learner does not correctly identify the issue in the first 5 minutes. Nurse – provide support and help learners to progress the case		
HPI *Please specify what info here and below must be asked vs what is volunteered by patient or other participants*	I was playing basketball with my brother in the backyard and suddenly I had so much abdominal pain and I kept throwing up. My mom came home from her shift an hour ago and she brought me here because pain medication did not do anything. Pain location (asked): LLQ pain Pain level (asked): 10/10 Pain radiation (asked): towards inguinal region Has anything like this has happened before (asked): "I have felt pain like this before but never as severe and it went away on its own" Last meal (asked): 2 hours ago Social Hx (asked; only answers truthfully if mother not in room) – sexually active with one female partner, uses barrier contraception (condoms), no drug/etoh use, no prior history of STD's		
Past Medical/Surg History	**Medications**	**Allergies**	**Family History**

Mild intermittent asthma	Albuterol (as needed)	NKDA	N/A
Physical Examination			
General	Uncomfortable appearing, grimacing in pain, in moderate distress		
HEENT	Normal		
Neck	Normal		
Lungs	Normal		
Cardiovascular	Tachycardia		
Abdomen	Voluntary guarding in the LLQ and suprapubic region. Minimal tenderness over McBurney's point, no rebound, negative psoas or obturator sign.		
Neurological	Normal		
Skin	Normal		
GU	Uncircumcised, high riding left testicle in transverse lie without cremasteric reflex (if asked), tender to palpation.		
Psychiatric	Normal		

1) **SCENARIO STATES, MODIFIERS AND TRIGGERS**
2) *This section should be a list with a detailed description of each step that may happen during the case. If medications are given, what is the response? Do changes occur at certain time points? Should the nurse or other participant prompt the learners at given points? Should new actors or participants enter, and when? Are there specific things the patient will say or do at given times?*

PATIENT STATUS	**LEARNER ACTIONS, MODIFIERS & TRIGGERS TO MOVE TO THE NEXT STATE**	
1. Baseline State Rhythm: sinus tachycardia HR: 110 BP: 110/60 RR: 24 O_2SAT: 100% T: 37^{o}C	Learner Actions ● Request IV access ● Take a history and physical exam ● Give pain medications ● Ask for labs and imaging ● Perform bedside testicular US	Modifiers • IV pain medication – improvement in pain but no change in VS • 5 minutes in mom will point out pt guarding genitals if no GU questions/exam • If team decides to wait for US technician to come from home (30 min away) to do ultrasound, nurse will prompt, "can anyone else do the ultrasound? The machine is right here"

		Triggers ● Clockwise direction (“open book”) detorsion will prompt VS #2 ● Initial trial of counterclockwise (“closed book”) detorsion will prompt VS #3 with increased pain
2. Rhythm: sinus rhythm HR: 80 BP: 100/60 RR: 18 O_2SAT: 100% T: 37 ^oC	Learner Actions ● Call urology for orchiopexy	Modifiers • If the learner does not call urology, the mother will ask “how can we stop this from happening again?” Triggers ● Case will end once urology accepts the patient
3. Rhythm: sinus rhythm HR: 130 BP: 130/90 RR: 26 O_2SAT: 100% T: 37^oC	Learner Actions ● Identify the error in detorsion technique. ● Re-attempt detorsion in clockwise (“open book”) fashion ● Call urology for orchiopexy	Modifiers • If learners do not try detorsion, the patient has increased pain and screams “is there anything you can do for this?” Triggers ● END OF CASE – perform manual detorsion technique and calling urology for consult

SUPPORTING DOCUMENTS, LAB RESULTS AND MULTIMEDIA	
Lab Results	CBC wnl CMP wnl Coags wnl Lipase wnl Lactate 3
EKG	Sinus tachycardia

CXR	CXR – normal
Ultrasound Video Files	Swirl sign of the spermatic cord and absent doppler signal of the left testis, consistent with torsion.

SAMPLE QUESTIONS FOR DEBRIEFING
1) What is the differential diagnosis for abdominal pain in sexually active male? **2) What are the steps to perform a GU exam in a male?** **3) What are the steps for manual detorsion technique?** **4) How to perform ultrasound to evaluate for testicular torsion?** **5) What are some strategies to obtain sensitive information, such as a sexual history in a minor who presents with parents?**

Ideal Scenario Flow
Provide a detailed narrative description of the way this case should flow if participants perform in the ideal fashion.

The participants should obtain a full history from the mother and patient. The patient will hesitate to answer all GU/Social history questions while the mother is in the room, and if she is not asked to leave, the patient will deny sexual activity and drug and alcohol use. If labs are requested, they will all be normal outside of an elevated lactic acid. Morphine or other IV pain medications will diminish pain slightly and allow for a manual detorsion to be performed. If a CT is ordered, the machine is broken, and will not be working again until the next business day. If the team consults surgery, they will evaluate the patient and say there are no signs of peritonitis and will recommend for disposition to be decided per the ED team. If the team requests testicular ultrasound, they will be told that the ultrasound technician needs to be called in from home and they will arrive in 30 minutes, but the ultrasound machine is available for ED Point of Care Ultrasound (POCUS). Scrotal ultrasound will show swirl sign of the spermatic cord and absent doppler signal of the left testis, consistent with torsion. Only clockwise manual detorsion of the left testis will improve the patient's symptoms. The appropriate disposition is transfer to a local hospital under the urology service for orchiopexy.

Ideal Management: Team will attempt to control the patient's pain and vomiting while obtaining a thorough history and physical exam, with attention to patient privacy by removing the mother from the room. A full abdominal and GU exam should be performed at which time testicular torsion should be identified as the most likely differential. Manual detorsion of the left testis should be attempted after

confirming positive findings for testicular torsion on POCUS. The team should not delay POCUS or manual detorsion for the ultrasound technician to arrive.

Anticipated Management Mistakes

Provide a list of management errors or difficulties that are commonly encountered when using this simulation case.

1. *Difficulty with examination on mannequin: It will be hard to obtain an accurate physical exam finding on mannequin to suggest testicular torsion. The nurse/facilitator in the room will have to provide the findings verbally to the learners when they go to perform the exam.*