Detroit SonoWAR 2024

#6 Penetration Station

A pivotal battle of the War of 1812 took place in these waters. Detroit was under bombardment and was faring poorly, and the entire Northwest Territory was surrendered to the British. However, in 1813 the cannons near this objective were used aboard ships in the Battle of Lake Erie, which paved the way for the capture of an entire British fleet and was a key turning point in the war.

These cannons include a 24-pound gun that was deadly at distances up to a quarter mile, and a 32-pound carronade which was more effective at close range.

You and your team find yourself caring for wounded sailors from the Battle of Lake Erie, armed with modern ultrasound equipment. There are a variety of penetrating trauma injuries before you.

References to kick around en route to this station:

1. Taylor, et al. *Ultrasound-guided thoracostomy site identification in healthy volunteers*. Critical Ultrasound Journal, 2018
2. ATLS 10th Edition
3. *Thoracic Trauma*, STATPearls. Accessed 2021. https://www.statpearls.com/ArticleLibrary/viewarticle/30078
4. Inaba, K. *Radiologic evaluation of alternative sites for needle decompression of tension pneumothorax*. The Archives of Surgery, JAMA, 2012.

Title Page References

1. The War of 1812 Cannons, Dossin Great Lakes Museum signage
2. *The War of 1812: Bombs over Detroit*, by The Detroit News (http://blogs.detroitnews.com/history/2012/08/05/the-war-of-1812-bombs-over-detroit/)

1 Point Discover this station and complete it within 10 minutes

1 Point [redacted]

1 Point A 2012 study suggests that needle decompression through the 5th intercostal space in the anterior axillary line correlates with a lower chance of failure (16.7%) due to body habitus compared to 2nd intercostal space midclavicular line placement (42.5% failure).[3,4] On a teammate, measure the depth from skin to pleura at these locations to compare which requires a shorter needle path

1 Point Recent publications have endorsed using ultrasound to identify the diaphragm and count rib spaces prior to tube thoracostomy insertion rather than rely on blind/landmark techniques.[1] Identify on a teammate where you would insert a chest tube via blind technique.

1 Point [redacted]

1 Point How much initial blood output from the chest tube would convince you to convert to an open thoracotomy?

1 Point You suspect one of your patients has developed pericardial tamponade. What is the ultrasound equivalent of pulsus paradoxus? (i.e. one of the earliest indications on ultrasound of tamponade)

1 Point [redacted]

1 Point Acutely, less than ___ mL blood in the pericardial space can cause tamponade

1 Point You suspect your teammate's RV is showing collapse consistent with tamponade. Demonstrate on your teammate how you can tell if the collapse is systolic (i.e. normal) vs diastolic (i.e. tamponade)