Visual Case Discussion

Rapid Fournier's gangrene diagnosis by ultrasound

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67 yo M presented to ED with groin pain / weakness; duration 2–3 days. Triage vitals: 37 °C, BP 81/59, HR 102. PMH of CAD, OSA, Obesity, HTN. On exam, edema was noted without blisters or other skin abnormalities of the penis and scrotum. Edema isolated to penis and scrotum without surrounding involvement. Given delay with CT, bedside US was utilized and displayed dirty shadowing artifact consistent with air in the tissue (Fig. 1) concerning for necrotizing infection. In contrast, Fig. 2 displays normal soft tissue appearance of R scrotal tissue. Broad-spectrum antibiotics were started and specialist consulted. CT obtained for operative planning as patient transported to OR, confirming US diagnosis. US resulted in rapid diagnosis that greatly expedited definitive management.
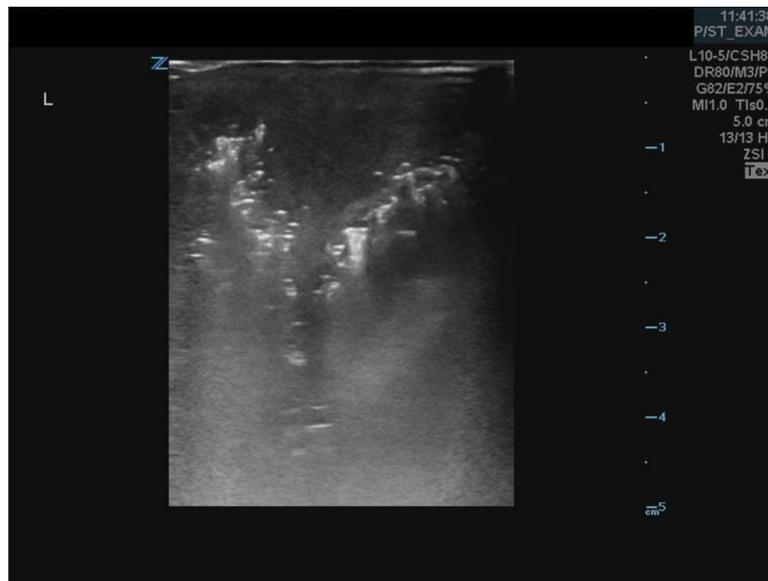

Fig. 1. Left scrotum. Multiple echogenic foci representative of air within the tissue identified with classic dirty shadowing artifact.
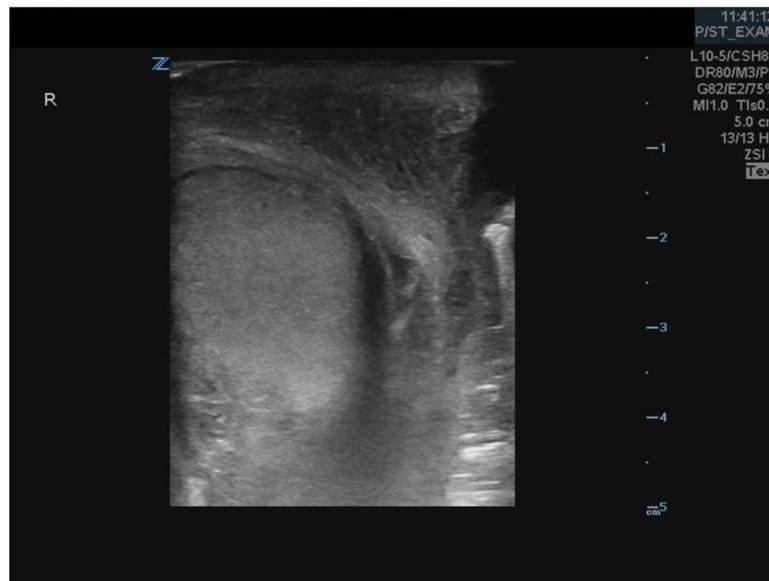
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Fig. 2. Normal appearance of right scrotum. Able to visualize right testicle secondary to normal soft tissue of scrotum that doesn't contain air.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.visj.2019.100572.

References

1. Stevens DL, Bryant AE. Necrotizing soft-tissue infections. *N Engl J Med.* 2017;377:2253–2265.
2. Wong CH, Khin LW, Heng KS, Tan KC, Low CO. The LRINEC (Laboratory risk indicator for necrotizing fasciitis) score: a tool for distinguishing necrotizing fasciitis from other soft tissue infections. *Crit Care Med.* 2004;32(Jul (7)):1535–1541.

Questions

1 Necrotizing infection/Fournier's requires the identification of air to confirm diagnosis. True/False?
  a True
  b False

2 Necrotizing fasciitis is broken down into how many classifications?
  a 1
  b 2
  c 3
  d 4
  e 5

3 What is the name of the decision tool that can aid in the suspicion of necrotizing fasciitis?
  a MRSA
  b VRE
  c LRINEC
  d SSTI
  e NECST

Answers

1 False. Explanation: Necrotizing fasciitis is a surgical diagnosis; characterized by friability of fascia, dishwater-gray exudate, and absence of pus. History and physical should make one concerned, and rapid surgical consultation is needed in these cases. An over-reliance on imaging is a potential pitfall for two reasons: delay and potential misdiagnosis. Plain films to identify air will miss the majority of cases. Advanced imaging will identify air yet not all cases of necrotizing infection are attributed to gas producers.[1]

2 3. Explanation: There are three classifications for necrotizing fasciitis. Type I necrotizing fasciitis is a polymicrobial infection involving aerobic and anaerobic organisms. Type II necrotizing fasciitis is monomicrobial infection; group A streptococcus is the most common organism. Type III is the final type and usually attributed to wounds obtained in water with vibrio or aeromonas organisms as the etiology.[1]

3 LRINEC. Explanation: The Laboratory Risk Indicator for Necrotizing Fasciitis (LRINEC) score can be used as a tool to assist in the evaluation of suspected necrotizing infection. The score utilizes six laboratory values: glucose, creatinine, sodium, CRP, WBC, hemoglobin. The initial study documented a sensitivity of approximately 90%, yet validation studies have not performed as well. The score can be used as an aid, yet caution should be used as a sole frame of reference.[2]