

*Images*

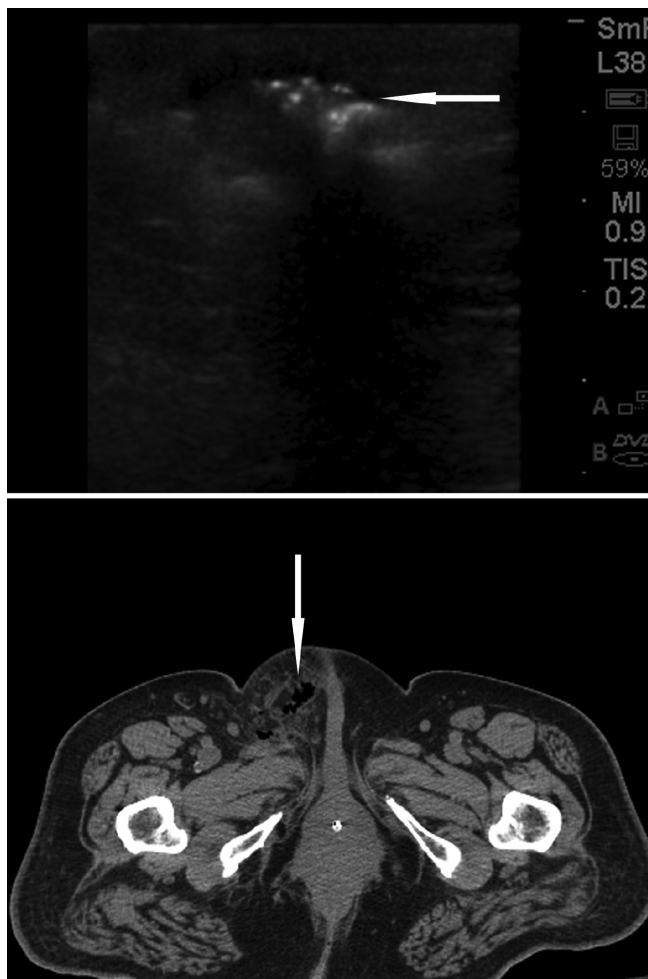
# Fournier gangrene: rapid diagnosis with bedside ultrasonography

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**A** 57-year-old woman with diabetes presented to the emergency department (ED) with a 3-day history of fever. Her blood pressure was 100/67 mm Hg, her heart rate was 99 beats/min and her temperature was 38.5°C. Physical examination revealed tender, mildly erythematous skin extending from the mons pubis to the right labia majora without fluctuance or crepitus. Bedside ultrasonography revealed subcutaneous air (Fig. 1A) compatible with Fournier gangrene. The patient was given clindamycin, gentamicin and vancomycin, and was transported to the operating room within 1 hour of bedside ultrasonography. A CT scan requested for operative planning was obtained en route to the operating room (Fig. 1B).

Fournier gangrene is a necrotizing fasciitis of the perineum and genital areas typically caused by a polymicrobial mix of anaerobic and aerobic organisms. Predisposing risk factors include diabetes, alcohol abuse, renal failure, advancing age, malignancy and other immunocompromised states. Causes include anorectal, urinary and cutaneous sources.<sup>1</sup> The pathognomonic “gas gangrene” with associated crepitus may spread at a rate of 2–3 cm per hour, leading to rapid tissue necrosis and significant morbidity and mortality.<sup>2</sup> Prompt treatment including resuscitation, aggressive antibiotic therapy and extensive surgical débridement are critical.<sup>1</sup>

Whereas CT is now considered the gold standard for diagnosis and for evaluating the extent of the disease, bedside ultrasonography offers the possibility of earlier initiation of antibiotics as well as providing a diagnosis in less obvious cases. Typical findings on ultrasonography are marked tissue thickening and focal hyperechoic



**Fig. 1.** (A) Bedside ultrasonography image of a 57-year-old woman showing gas as hyperechoic (white) regions that produce scatter. (B) CT scan showing gas as hypodense (black) areas.

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The views expressed herein are solely those of the authors and do not represent the official views of the US Department of Defense or the US Army Medical Department.

Submitted Dec. 14, 2009; Accepted Mar. 14, 2010

This article has been peer reviewed.

CJEM 2010;12(6):528-9

areas with acoustic shadowing that scatter ultrasound and are indicative of subcutaneous air.<sup>3</sup> Ultrasonography has been shown to diagnose subcutaneous air before crepitus is present on physical examination, and can aid in distinguishing Fournier gangrene from a more benign cellulitis.<sup>3</sup> Prompt diagnosis by bedside ultrasonography may lead to more rapid interventions and decreased mortality from this threatening disease.

**Competing interests:** None declared.

**Keywords:** Fournier gangrene, ultrasonography, diagnosis

## REFERENCES

1. Norton KS, Johnson LW, Perry T, et al. Management of Fournier's gangrene: an eleven year retrospective analysis of early recognition, diagnosis and treatment. *Am Surg* 2002;68:709-13.
2. Levenson RB, Singh AK, Novelline RA. Fournier gangrene: role of imaging. *Radiographics* 2008;28:519-28.
3. Kane CJ, Nash P, McAninch JW. Ultrasonographic appearance of necrotizing gangrene: aid in early diagnosis. *Urology* 1996;48:142-4.

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