Medical Image of the Week: Necrotizing Soft Tissue Infection

Figure 1. Axial view showing extensive gluteal and perineal soft tissue inflammation with gas formation (arrow).

Figure 2. Saggital view showing gas formation (arrow).

A 70-year-old man with a history of coronary artery disease, chronic back pain, and general debilitation presented to the emergency department with complaints of fever, weakness and right buttock discomfort. Physical exam was remarkable for a temperature of 101.7° F, and for moderate erythema of the skin of the right inguinal area and right buttock, with associated tenderness. Laboratory exam was significant for a WBC of 22.7 K/uL, erythrocyte sedimentation rate of 82 mm, and serum creatinine phosphokinase of 2856 U/L. CAT of the abdomen and pelvis demonstrated extensive gluteal and perineal soft tissue inflammation with gas formation, consistent with a necrotizing soft tissue infection (Figures 1 and 2).

Three basic subsets of necrotizing soft tissue infections (NSTIs) have been described. Type I infections are the most common form and are characterized by a polymicrobial process typically involving gram positive cocci, gram negative rods, and anaerobes. Type I infections occur most commonly in diabetics, in patients with severe peripheral vascular disease, or in the presence of other immune compromising conditions. Type II infections involve Group A *Streptococcus*, either alone or in combination with *Staphylococcus aureus*. Type II NSTI's occur most commonly in immunocompetent hosts. Type III NSTI's, caused by *Vibrio vulnificus*, are found in patients with exposure to warm sea water, with liver disease being the most common predisposing condition (1-3). Fournier's gangrene is a NSTI that involves the perineum (2).

Physical examination often reveals fever and local erythema or tenderness. Gas formation may be present on imaging studies, with CAT scans more sensitive than plain films (1). Treatment relies on early antibiotic therapy with anaerobic coverage, fluid resuscitation, and aggressive debridement. Hyperbaric oxygen therapy may have a role as well (1). Mortality is high, in the range of 40%, and recovery is often prolonged (1,3).

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References

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