Low attenuation areas in necrotizing soft tissue infection

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Key clinical message

Necrotizing Soft Tissue Infection can be challenging to differentiate from abscesses based on computed tomography imaging findings only, so it is crucial to perform surgical debridement as early as possible.

Case report

A 72-year-old male presented to our hospital with left hip joint pain and general fatigue for four days. He had a medical history of erythroderma and was taking prednisolone 5 mg. The examination revealed pain in the left hip joint during passive movement. Contrast-enhanced computed tomography (CT) showed low attenuation in the left adductor muscle group. No fluid retention or increased fat tissue density was observed (Figure 1). Intramuscular abscess was suspected, and surgical debridement was performed. Surgical debridement revealed cloudy exudate in the superficial fascia and synovial sac. The diagnosis of Necrotizing Soft Tissue Infection (NSTI) was subsequently confirmed.

NSTI on CT show typically gas along the fascia plane, fat stranding, increased density, edema and thickening of the fascia, obscure appearance of the fascial surface, non-enhancement of fascia, and fluid retention. Meanwhile, CT findings of muscle necrosis show low attenuation and are also associated with muscle edema[1].

In the abscess, fluid attenuation on CT is a collection circumscribed by an enhanced, irregular, thin wall. Moreover, the surrounding tissue can develop edema and a low-density area[1]. Therefore, it is difficult to distinguish an NSTI from an abscess based on CT imaging findings alone when the findings are not typical.

Source control improves mortality in NSTI[2], and surgical findings can confirm the diagnosis[3]. Conducting a surgical consultation as early as possible is critical if the imaging findings are not typical. In this case,

Methicillin-resistant *Staphylococcus aureus* was detected in joint fluid and tissue cultures. Antibiotic therapy was continued for approximately 12 weeks, and he was transferred to another hospital for rehabilitation.

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Ethics approval and consent to participate

Appropriate written informed consent was obtained from the patient for the publication of this case report and images. The consent form signed by the patient is held at our institution. The institutional review board approved this study.

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Conflicts of interest

None declared.

Author contributions

M. Kawataki (Writing – original draft), Y. Oda (Writing – review & editing)

(Data availability)

All data relevant to the study are included in the article.