Case 425

2. Necrotizing soft-tissue infections

【Progress】

He was given insulin, broad type antibiotics, surgical drainage, and debridement, inducing improving general condition. Three months after, he was discharged on foot.

【Discussion】

Necrotizing soft-tissue infections are rare and life-threatening bacterial-infected diseases with poor prognosis (1, 2). Soft tissue indicates skin, subcutaneous fat tissue, fascia and muscle. It is well-known that skin necrosis is caused by peripheral occlusive disease in patients with advanced diabetes microangiopathy. Necrotic bacterial infections extend from skin surface, descending to subcutaneous fat tissue, muscle, finally to bone marrow, causing limb amputation. Meanwhile, the reversible infected process can occur in bacteremia, called ascending infections (1, 2).

Descending infections indicate the initial focus are at skin surface, extends to subcutaneous tissue, fascia and muscle, while ascending infections arise via vessels (1, 2). Bacteria adhere to fascia or muscle, proliferate in a compromised immunologic situation such as diabetes mellitus, and its infections go up upwards, via subcutaneous tissue finally to skin surface.

Necrotizing soft tissue necrosis is a rare disease and its prognosis without proper treatment is poor. The mortality rate is high, 10-30% (3-7), occurring in compromised disease such as diabetes, obesity, cardiac diseases and drug addictive. Various bacteria, irrespective of gram positive or negative, causes bacteremia or sepsis. The occurrence site is anywhere in the body; lower extremity is one of the common sites of onset (3, 4).

The speedy diagnosis, and the proper managements such as catheter drainage and broad-spectrum antibiotics are imperative for preventing active momentum of bacterial infection (5-7).

In our case, he had suffered from diabetes for long, he experienced septic shock, bacteria habits in pleural effusion, left arm and right thigh, inducing pyothorax, intramuscular abscess in various sites: left biceps brachialis, left triceps brachialis, right thigh medial gluteus lateral vastus muscle, right thigh gluteal medial vastus muscle, and right thigh abductor brevis muscle. Antiseptic-shock regime such as oxygen inhalation, epinephrine, heparin, broad spectrum antibiotics and intramuscular drainages, were served, improving septic shock, and remarkable shrinkages of intramuscular abscess. Necrotizing soft tissue necrosis was localized, impeding ascending progress of inflammation from muscles to subcutaneous tissues and skin surfaces, in each intramuscular abscess. Although the admission terms took long, speedy diagnosis and appropriate management led to discharge with a healthy condition.

In this case, septic shock does not cause septic pulmonary embolism or septic brain abscess but inflammation to pleura and upper & lower extremities. We do not explain the reason why various muscles infected and other organs are not. This is the remaining problem to be clarified.

【Summary】

We presented a sixty-seven-year-old male for motion disability due to pain. Laboratory tests revealed severe diabetes, bacteremia, and marked metabolic acidosis. Pyothorax, multiple intramuscular abscess of right brachial biceps and triceps, left medial gluteus lateral vastus muscle, left gluteal medial vastus muscle and left abductor brevis muscle, are depicted on CT and MRI. It is borne in mind that infective soft-tissue infections are two types: arise from skin surface extending downwards to subcutaneous tissue, fascia, and muscles: arising from muscle extending upwards to subcutaneous tissue and skin surface. In our case, multiple intramuscular abscess occurred and localized without extension to subcutaneous soft tissue or skin surface, probably arising from hematogenic seeding directly to muscle fascia. Speedy treatment using broad spectrum antibiotics plus drainage are imperative for speedy recovery.

【References】

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