

Radiologic Features of Acne Fulminans

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A 17 year old male, previously healthy, was diagnosed with acne and treated with isotretinoin 60 mg/day. He did not receive any other medications. During the following 2 months he became bedridden due to progressive weakness, fever, weight loss, night sweats and severe arthralgia. His physical examination was remarkable for severe nodulocystic acne [Figure 1], fever, and diffuse skeletal and joint pain on passive motion, especially involving the hip and sacroiliac joints, with pronounced tenderness over both

clavicles. Laboratory evaluation revealed leukocytosis, increased C-reactive protein and mildly disturbed liver function tests. Plain X-rays disclosed irregular cortical erosions of the right humeral mid-shaft with peri-osteal reaction [Figure 2A] and obliteration of the sacro-iliac joints [Figure 2B]. Technetium-99 bone scan [Figure 2C] revealed scattered enhanced uptake, most intense at the right mid-shaft humerus, median head of the right clavicle, left acromion and mid-sternum. Computed tomography showed bilateral axial lymphadenopathy and several osteolytic lesions, most prominent at the proximal humerus, with medullary involvement, cortical erosions and periosteal response, which on magnetic resonance imaging appeared with intense T2 and reduced T1 signals, undergoing enhancement with gadolinium [Figure 2D]. Repeated biopsies excluded bacterial infection and malignancies, leading to a diagnosis of acne fulminans.

Acne fulminans is a rare form of acne vulgaris associated with systemic symptoms such as fever, malaise, arthralgia and elevated erythrocyte sedimentation rate and C-reactive protein [1]. Aseptic osteolytic bone lesions such as those described here have been reported. The predominant locations are in the clavicle, sternum and long bones of the extremities [2]. It may also be a part of the spectrum of SAPHO syndrome (synovitis, acne, pustulosis, hyperostosis, osteitis) [3]. Its pathogenesis remains speculative and may be an immunologically mediated type III or IV hypersensitivity reaction to *Propionibacterium acnes* antigens [4]. Isotretinoin has been suspected to precipitate acne fulminans by neutrophil pro-inflammatory priming [5] or by increasing the pilosebaceous duct epithelium fragility and thereby increasing immune response and neutrophil contact with *P. acnes* antigens. Elevated blood levels of testosterone may also play a role in

Figure 1. Severe nodulocystic acne



Figure 2. Radiologic findings in acne fulminans, evident on plain X-rays [A,B], by bone scan [C], and with MRI [D]



this disease which primarily affects male adolescents [1].

Treatment options based on uncontrolled series include high dose non-steroidal anti-inflammatory drugs, steroids alone or in combination with isotretinoin, antibiotics or anti-tumor necrosis factor-alpha interventions. Our patient was treated with NSAIDs, steroids and tetracycline with prompt resolution of symptoms and normalization of inflammatory indices, but was lost to follow-up.

NSAIDs = non-steroidal anti-inflammatory drugs

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