

Clinical Case

Severe gout complicated by *Staphylococcus Aureus* abscesses

Running title: *Staphylococcus aureus* abscesses in gout

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Abstract

This clinical report describes a case of a 60-year old patient with a past history of gout treated with colchicine and self-administered betamethasone, who was presented with a severe arthritis, fever, leukocytosis, elevated uric acid levels and inflammation markers associated with bacteremia caused by *Staphylococcus aureus*. Casting abscesses containing both monosodium-urate crystals and *Staphylococcus aureus* were demonstrated flowing from cervical-atlas axis causing odontoid fracture to popliteal regions. Prolonged therapy with multiple antibiotics and hypouricemics successfully treated the infection and prevented further gouty flares.

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Keywords- Abscess; Antibiotics; Allopurinol; Bacteremia; Gout; Infection; *Staphylococcus*

I. INTRODUCTION

A 60-year old patient was hospitalized in 2010 in poor general conditions for severe arthritis involving hands, wrists, elbows, knees and ankles experienced for several weeks. He had history of gout treated with colchicine (low dosage, i.e. 0.5 mg/day due to gastro-intestinal side effects) and self-administered weekly intra-muscular injections of betamethasone 4 mg/day. Clinical examination revealed multiple tophi on the hands, feet, elbows and knees, and

massive swelling of the wrists, elbows, knees and popliteal regions. He had fever with chills up to 38°C, neutrophilic leukocytosis with thrombocytosis (WBC 32,460/mcl, PLT 1,026,000/mcl), markedly elevated ESR (96 mm/h), CRP (43.1 mg/dL) and serum uric acid levels (13.4 mg/dl, normal value <7 mg/dl). Blood cultures revealed the presence of *Staphylococcus aureus*.

A surgical aspiration of the material was performed at both legs with the drainage of 400 cc from the right leg and 300 cc from the left leg of a white/yellowish hemorrhagic chalky material containing monosodium-urate crystals. The cultures confirmed the presence of *Staphylococcus aureus*. The patient started experiencing stiff neck and dorsal-lumbar back pain.

Magnetic resonance was performed and revealed diffuse casting abscesses extending from the cervical atlas-axis region to C3-C4 and C5 (Image 1), flowing to the subscapular area, shoulders, elbows and wrists. Other flowing abscesses were found flowing from the hips to knees, gastrocnemial region to the ankles. Multifocal extrinsic bone erosions caused by soft tissue masses were observed in all these regions. Computed tomography (CT) showed a fracture of the odontoid-process that appeared dislocated (Image 2), with conglomerated osteolytic lesions with a sclerotic rim in the atlas-axis-C3 and C4 vertebral bodies.

Prolonged therapy with multiple antibiotics (tigecycline, rifampicin, linezolid, doxycycline) successfully treated the infection. In particular, doxycycline 200 mg/day and rifampicin 600 mg/day were prescribed for 6 months.

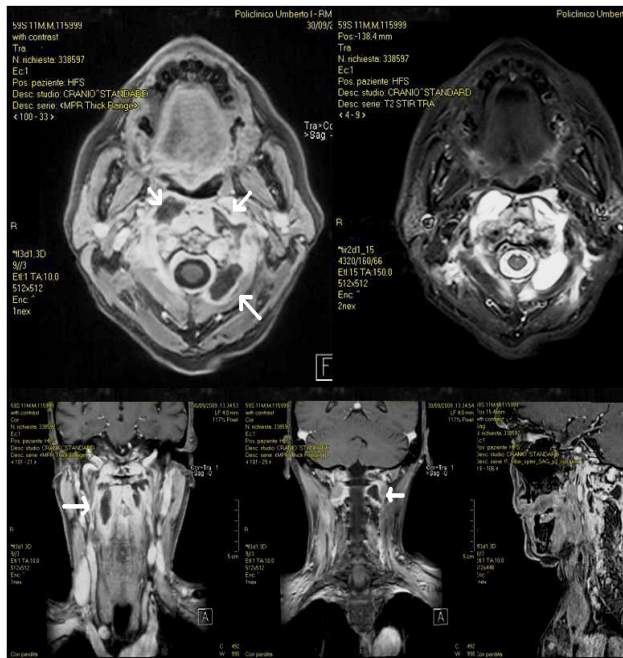


Image 1. Magnetic resonance reveals diffuse casting abscesses extending from the cervical atlas-axis region to C3-C4 and C5.

Colchicine was discontinued and intravenous corticosteroids plus etoricoxib improved the flares of arthritis, but uric acid levels were persistently over 12 mg/dl. Hypouricemic therapy with allopurinol 300 mg/day and losartan were started. To improve the tophaceous lesions and to obtain the prompt lowering of uric acid levels, intravenous rasburicase 7.5 mg was given every two weeks for 4 administrations (1).

Follow-up CT scanning 6-months later showed improvement of the odontoid-process fracture, a marked decrease in the size of the tophaceous masses, stabilization of the bone erosions with marginal sclerosis and periosteal bone formation. Besides general improvement, the disease hesitated in immobilization due to complete ankylosis of knees and ankles bilaterally. Uric acid levels returned into normal (4 mg/dl).

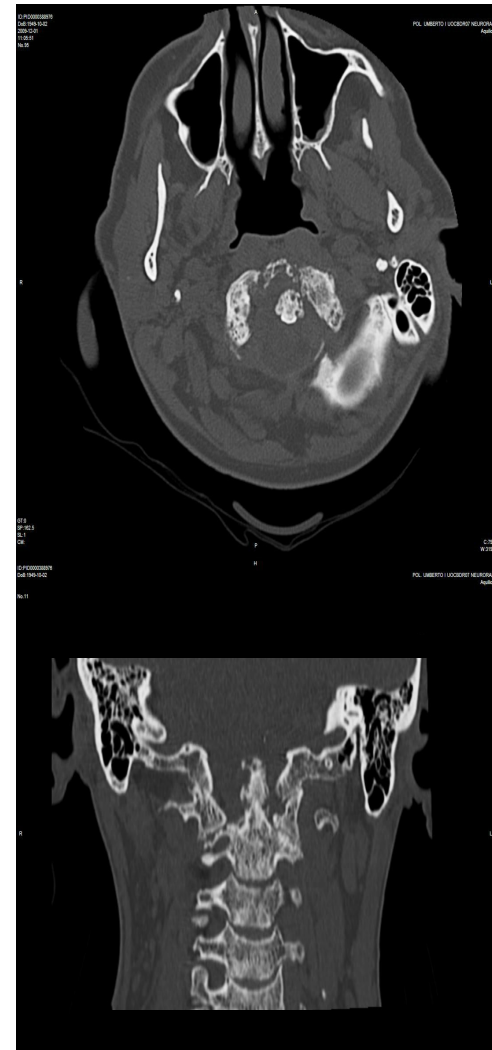


Image 2. Computed tomography shows a fracture of the odontoid-process that appeared dislocated, with conglomerated osteolytic lesions with a sclerotic rim in the atlas-axis-C3 and C4 vertebral bodies.

CONCLUSIONS

It is likely that intra-muscular injections of betamethasone were the access site of the infection and that glucocorticoid (2) had a marked immunosuppressive effect in this patient in which hypouricemic and antibiotic treatments were used in combination to contain the infection and limit the bone damage.

AUTHORS CONTRIBUTION

CP conceptualized and wrote the manuscript. FC revised the manuscript. All authors approved the final version of the manuscript.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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