"Doctor! Help me, I can't walk!"

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John, a 78-year-old male with a long history of rheumatoid arthritis, developed a callus followed by a painful ulcer overlying his fifth metatarsal bone (Figure 1).

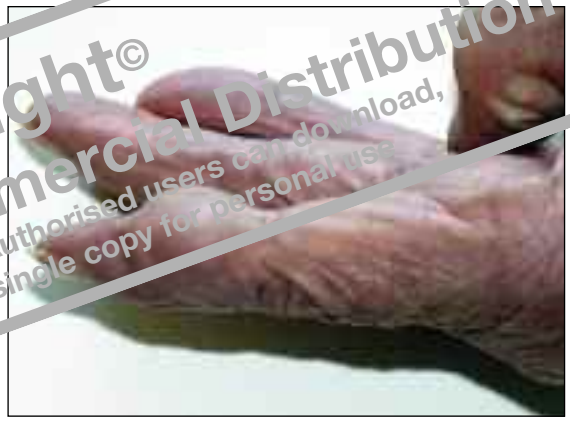
Medical history

John's medical history reveals that he was diagnosed with rheumatoid arthritis > 40 years ago and he smoked 35 packs of cigarettes per year but stopped at age 52. He is borderline diabetic and his family history is unremarkable. He does not have any allergies and his medications include 5 mg q.d. prednisone, diclofenac and misoprostol 75 mg q.d. and acetaminophen with codeine 30 mg for pain as needed.

Physical examination

Upon examination, the following is noted:

- Ulcer overlying fifth metatarsal bone of his right foot (Figure 1)
- Right hand deformity with visible rheumatoid nodule over palmer aspect of his index finger (Figure 2)
- His BP is 115/76 mmHg
- His heart rate is 72 bpm and regular



Clinical investigation

John's clinical investigations show:

- Hemoglobin: 126 g/L
- White blood cells: 12.5 x 10.9/L
- Fasting glucose: 6.9 mmol/L
- Glycated hemoglobin (Hgb): 7.2% of the total Hgb
- Rheumatoid factor: 40 IU/mL
- Sedimentation rate: 50 mm/hr

X-ray of right foot showed severe narrowing and sclerotic changes are seen involving the talonavicular joint (Figure 3). There is dislocation of the proximal phalanx of the fifth toe dorsally. There is also an ulcer overlying the fifth metatarsal head and some lucency is also

Figure 3. X-ray of foot.

seen in the metatarsal head. Some demineralization of the fifth metatarsal head is seen.

What's your diagnosis?

a. Septic arthritis involving talonavicular joint only with ulcer formation overlying the fifth metatarsal head
b. Gout involving talonavicular joint
c. Charcot's arthropathy involving talonavicular and probably talocalcaneal joints with early changes of osteomyelitis and ulcer formation overlying the fifth metatarsal head
d. Post-traumatic osteoarthritis

Answer: Charcot's arthropathy

About Charcot's arthropathy

Charcot's arthropathy is a progressive condition of the musculoskeletal system that is characterized by joint dislocations, pathologic fractures and debilitating deformities. This disorder results in progressive destruction of bone and soft tissues at weight-bearing joints; in its most severe form, it may cause significant disruption of the bony architecture. Charcot's arthropathy can occur at any joint; however, it occurs most commonly in the lower extremity, at the foot and ankle.

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Charcot's arthropathy occurs as a complication of:

- diabetes,
- use of steroids,
- alcoholism,
- trauma,
- infection,
- amyloidosis,
- pernicious anemia,
- syphilis,
- syringomyelia,
- *spina bifida*,
- myelomeningocele,
- leprosy,
- multiple sclerosis,
- congenital vascular disease,
- Charcot-Marie-Tooth disease,
- cord compression,
- rheumatoid arthritis,
- scleroderma,
- Ehlers-Danlos syndrome,
- Raynaud's disease,
- adrenal hypercorticism,

- congenital arthropathy,
- paraneoplastic sensory neuropathy and
- cauda equina lipoma.

Diabetes is considered to be the most common cause of Charcot's arthropathy. The actual etiology of Charcot's arthropathy may lie somewhere between these neurovascular and neurotraumatic theories. The exact nature of Charcot's arthropathy remains unknown. Approximately 40% of patients with acute Charcot's arthropathy have concomitant ulceration, which complicates the diagnosis and raises concerns that osteomyelitis is present. Management of Charcot's foot arthropathy includes both non-surgical and surgical treatment options. Non-surgical treatment consists of immobilization of the foot in a weight-bearing total contact cast during the acute active phase of the disease until the foot is sufficiently stable to be managed in therapeutic footwear. Surgical interventions for patients with non-plantigrade feet include:

- Osteotomy, with or without arthrodesis
- Debridement
- Simple exostectomy
- Amputation

The most effective treatment course should be determined through individual evaluation of each patient. Dx

Resources
1. Khan, AN: Neuropathic Arthropathy (Charcot Joint). eMedicine Specialties. Updated: May 27, 2008.
2. Mrugeshkumar Shah: Charcot Arthropathy, eMedicine, Updated: Aug 29, 2008.

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