

Structural Joint Damage in Gout

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KEYWORDS

• Gout • Urate crystal • Bone • Cartilage • Tendon

KEY POINTS

- Patients with chronic tophaceous gout often have structural damage in affected joints.
- Characteristic features of joint damage in gout include bone erosion, new bone formation, deposition of tophi within tendons, focal cartilage loss, and eventually complete destruction of the joint. There is a strong relationship between these structural changes and the presence of tophi at sites of joint damage.
- Increased osteoclast formation and activity and reduced osteoblast viability, function, and differentiation contribute to bone erosion in gout.
- Cartilage damage in gout is a result of reduced chondrocyte viability and matrix production and increased catabolic enzyme activity and inflammation.
- Research is needed to determine the effectiveness of urate-lowering therapy, anti-interleukin-1 treatment and antiosteoclast agents in preventing and/or repairing joint damage in gout.

INTRODUCTION

Advanced gout is associated with structural damage that can lead to joint deformity and disability.¹ Characteristic features of joint damage in chronic gout include bone erosion; new bone formation, such as spur formation and sclerosis; deposition of tophi within tendons; focal cartilage loss; and eventually complete destruction of the joint. The deposition of monosodium urate monohydrate (MSU) crystals is the central feature of gout and is likely to play a central role in the progression of bone, cartilage, and tendon damage in people with gout (Fig. 1).

This review summarizes the mechanisms of bone erosion, cartilage damage, and tendon involvement in gout, with a particular focus on the role of joint cells within this process. Understanding the mechanisms of damage in advanced gout is necessary to help identify potential therapeutic strategies for the prevention and treatment of joint damage in gout.

The authors have nothing to disclose.

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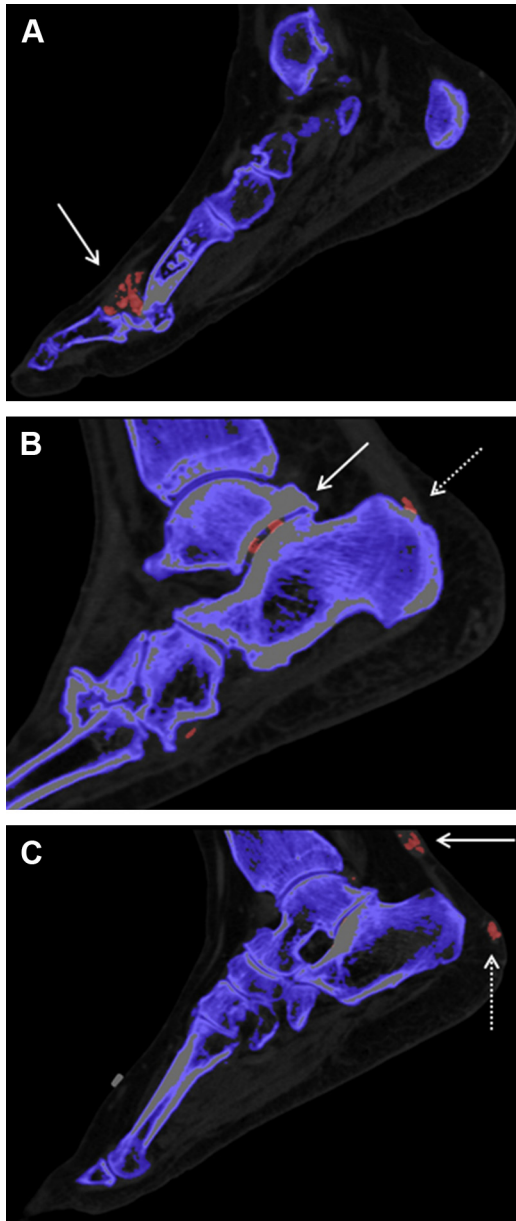


Fig. 1. Dual-energy computed tomography images of the feet from patients with tophaceous gout showing MSU crystals (red) (A) present within a bone erosion (*arrow*), (B) deposited on articular cartilage of the subtalar joint (*solid arrow*) and at the Achilles tendon enthesis (*dashed arrow*), and (C) within the Achilles tendon (*solid arrow*) and subcutaneous tissue (*dashed arrow*).

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