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Osteoid osteoma in the fourth metatarsal. A previously undescribed cause of forefoot pain

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Introduction: Osteoid osteomas are small, benign, bone tumours and it is estimated that between 2% and 11% occur in the foot. However, there are no documented cases in the medical literature of isolated lesions in the fourth metatarsal. We present the case of a 26 year old man with persistent pain in his left foot. Despite previous consultation and investigation, the cause of his symptoms had remained elusive for over six years.
Methods: A magnetic resonance imaging scan (MRI) was performed. This showed oedema in the head of the fourth metatarsal which correlated closely with the origin of the pain. Following the advice of our specialist radiology colleagues, a computer tomography (CT) scan with fine slices was then undertaken which identified the 3mm lesion. The management options were duly considered. Image guided radiofrequency or cryoablation were discounted due to the risk of damage to the very proximate chondral surface. Similarly, arthroscopic resection was precluded due to the dimensions of the joint involved. The small size and superficial position of the lesion favoured an open resection.
Results: The macro and microscopic appearances of the excised lesion supported the clinical and radiological diagnosis of osteoid osteoma. This was confirmed by a complete resolution of symptoms following removal of the offending lesion.
Conclusion: We believe this to be the first case of an isolated osteoid osteoma in the fourth metatarsal ever described in the orthopaedic literature. This case highlights the importance of pursuing a diagnosis with the aid of multiple imaging modalities, and MRI has again proved its use in the resolution of orthopaedic clinical conundrums. In addition, it highlights the pros and cons of the three most commonly used surgical management options for osteoid osteoma.