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Soft tissue chondroma of the thumb mimicking a glomus tumor

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The case

A 28-year-old man presented with a 12-year history of a right thumbnail deformity and a two-year history of pain. Clinical examination revealed an 8×8 mm pale reddish, tender mass beneath the posterior nail fold. The overlying nail plate was flattened. Magnetic resonance imaging (MRI) showed a well-defined lesion with homogeneous low signal intensity on T1-weighted images and high signal intensity on T2-weighted images, with marginal enhancement (Figure 1). Based on Carroll's classic triad – pain, localized tenderness, and cold sensitivity – and the subungual location, a glomus tumor was clinically suspected.

Our choice

Given the symptomatic nature of the lesion and the high clinical suspicion of a glomus tumor, we opted for a complete excisional biopsy. This approach was chosen to provide both definitive histopathological diagnosis and symptomatic relief.

Procedure

Under digital nerve block, the nail plate was removed and the posterior nail fold incised (Figure 2 a,b). A longitudinal incision through the nail bed revealed a soft, osseous-like mass that was easily cut. The tumor was meticulously dissected from the nail bed and its deep attachment to the distal phalanx was removed using a chisel (Figure 2c). No bone invasion was observed. The nail bed was repaired with 6-0 absorbable sutures, and the original nail plate was repositioned. The excised specimen consisted of a soft, solid mass (Figure 2d).

Comment

Soft tissue chondromas are rare benign tumors, accounting for 1.5% of soft tissue neoplasms,[1] predominantly occurring in the digits.[2] While 60% show calcification on imaging,[3] this case lacked clear preoperative radiologic evidence of ossification, closely mimicking the MRI characteristics of a glomus tumor.[4-6] Histopathologically, the presence of irregular bone trabeculae and a cartilaginous matrix confirmed the diagnosis (Figure 3). Unlike subperiosteal chondromas, soft tissue chondromas frequently exhibit ossification and lack cortical erosion.[2] Soft tissue chondromas tumors have a relatively high recurrence rate (approximately 17%) after marginal excision.[7] If soft tissue chondromas are suspected intraoperatively based on the tumor's appearance, careful excision, including the capsule, is recommended to minimize the risk of recurrence. This case is unique as the location beneath the posterior nail fold perfectly mimicked a glomus tumor's presentation. Clinicians should consider soft tissue chondroma in the differential diagnosis of digital masses causing nail

deformity.

The outcome

Although a mild nail deformity persisted (Figure 2e), the patient's pain was completely resolved. At the 6-month follow-up, there was no evidence of local recurrence.

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Figure 1. Preoperative MRI. **a**) T1-weighted image; **b**) fat-suppressed T2-weighted image; **c**) gadolinium-enhanced fat-suppressed T1-weighted image. The tumor had a smooth, well-defined margin and showed heterogeneous low signal intensity on T1-weighted imaging and high signal intensity on T2-weighted imaging. Contrast enhancement was observed at the tumor margin, and no bone invasion was detected.

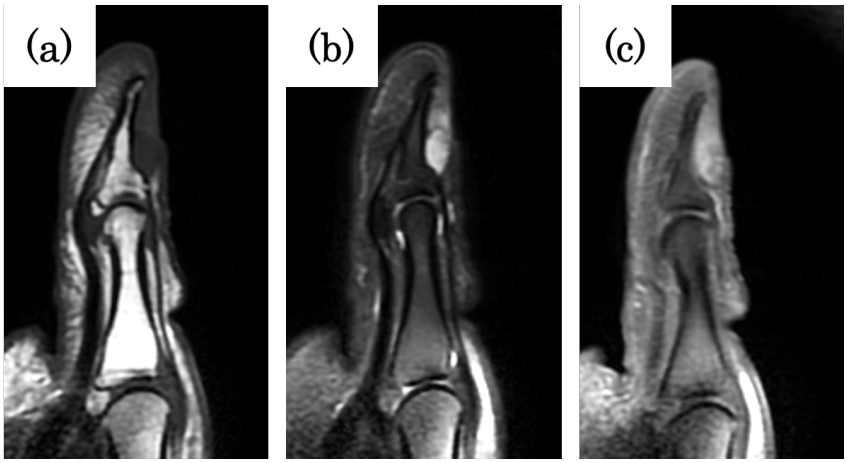

Figure 2. a) Preoperative clinical photograph; **b**) intraoperative view showing identification of the tumor after incision of the nail bed; **c**) post-excision view demonstrating no cortical bone invasion; **d**) excised specimen showing osseous tissue (white arrowhead) and a soft tissue tumor component (black arrowhead) within it; **e**) clinical photograph at six months postoperatively.

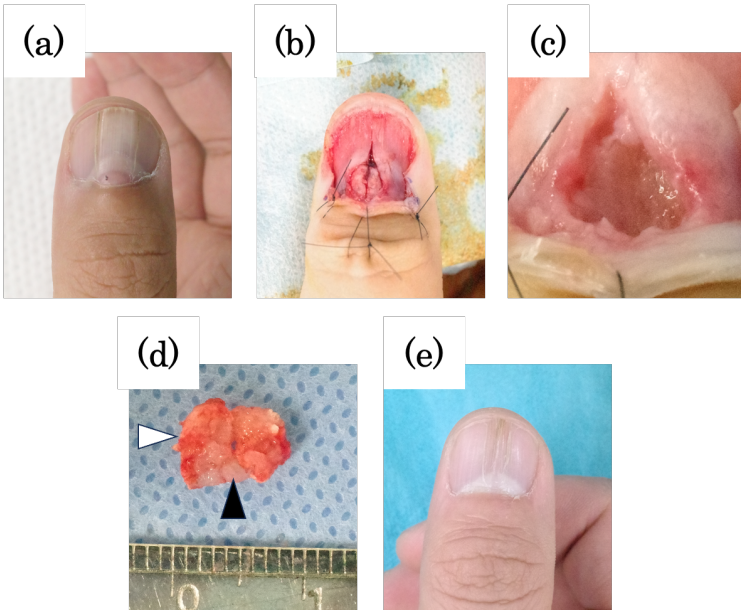

Figure 3. a) Histopathological findings showing a nodule of cartilaginous tissue within irregular bone trabeculae that were extremely thin compared with normal cortical bone (H&E stain, ×200); **b**) higher magnification showing numerous chondrocytes slightly larger than normal, with nuclear irregularities, consistent with tumorous chondrocytes (H&E stain, ×400).