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Case Report
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Calcified Radioscaphocapitate Ligament Ganglion Cyst Exacerbating Carpal Tunnel Syndrome in a Patient with Bilateral Disease

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Abstract

Carpal tunnel syndrome is a common neuropathy that affects millions of Americans, at times causing symptoms or disability severe enough to mandate surgery and negatively impact the US economy. While connective tissue, endocrine, and metabolic disorders are often responsible for bilateral disease, the current study describes a case where a patient with bilateral disease was found to have a mass-occupying lesion on the more symptomatic side, a phenomenon not reported in the literature previously. While previous studies indicate that mass-occupying lesions should be considered in unilateral disease, the current study demonstrates that clinical suspicion should remain in patients with bilateral disease as well.

Introduction

Carpal Tunnel Syndrome (CTS) is a common neuropathic disorder with significant economic impacts. Prevalence of CTS is roughly 5%, [1] obligating half a million surgeries per year in the US and costing its economy over $2 billion annually [2]. Although anatomic anomaly accounts for a minority of cases of CTS, [3,4] ganglion cysts are of the most commonly implicated [4]. Ganglion cysts originating from volar musculoskeletal elements are associated with neurovascular complications including CTS due to their anatomic location, and often are of the radioscaphocapitate ligament (RSC) [4,5]. In the past, Nakamichi et al. [6] found no space-occupying lesions contributing to CTS in 108 patients with bilateral or subclinical (unilateral signs and symptoms with bilateral slowing of nerve conduction on electrodiagnostic study) disease, and concluded that suspicion and imaging for space-occupying lesions should be considered in patients with unilateral disease. We describe here a case report of an idiopathic calcified cyst, originating from the RSC, exacerbating CTS in a patient with bilateral symptoms, necessitating cyst removal and unilateral release.

Case Presentation

A 69-year-old right-hand-dominant female presented with a six-month history of progressively worsening bilateral hand pain, numbness, and tingling, significantly worse on the left. There was no history of trauma. The left hand pain was localized to the volar wrist, radiated into the radial three digits, and woke the patient up at night. The patient described decreased strength and clumsiness of the left hand, and reported that grasping exacerbated the pain. The patient attempted wrist bracing at night and NSAIDs with minimal relief.

On exam, the patient had full strength and range of motion of the bilateral hands without atrophy. However, Durkan's, Tinel's, and Phalen's provocative tests were all positive on the left and negative on the right. On palpation, there was some suggestion of a mass lesion on the left. Roentgenography demonstrated a calcified mass overlying the scaphocapitate junction and extending proximally (Figure 1). Subsequent computed tomography (CT) revealed a volar, densely calcified RSC mass measuring 1.5 x 0.9 x 0.4 cm (Figure 2). Electrodiagnostic studies demonstrated evidence of bilateral median neuropathies at the wrist, worse on the left. The patient was counseled on operative versus continued non-operative management, and elected to pursue surgical removal of the mass along with carpal tunnel release on the left.

Intra-operatively, the transverse carpal ligament was exposed with a standard incision along the thenar crease. Its proximal and distal fibers were incised, openly exposing the carpal tunnel. Significant tenosynovitis of the flexor tendons was noted. Inflamed synovium was dissected around the tendons, with portions sent to pathology. Finally, the base of the carpal tunnel was visualized

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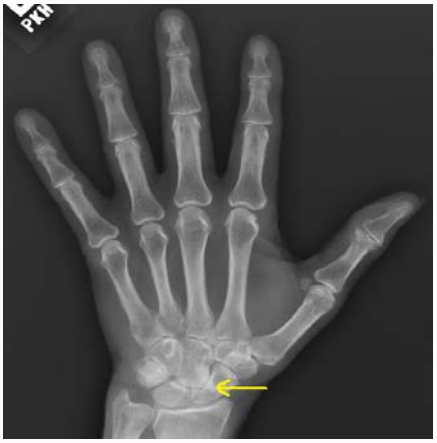

Figure 1: Roentgenography demonstrating a calcified mass emanating from the junction of the capitate and scaphoid.

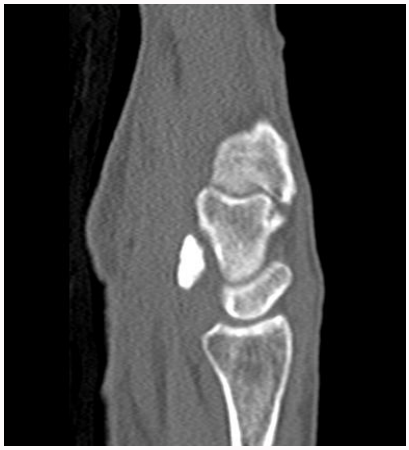

Figure 2: CT illustrating hyperintense mass volar to carpus.

and the calcified mass was noted with a chalky, gouty appearance (Figure 3). It was elevated and appeared to be originating from the volar wrist. The calcified mass was excised from its origin (Figure 4) and sent to pathology. Pathology established the calcareous material to be non-polarizable.

Discussion

Amongst calcified masses in the wrist producing CTS, gout, pseudogout, tumoral calcinosis, and idiopathic calcification have been described [7-10]. Idiopathic calcified masses in the carpal tunnel are ascribed to patients with unilateral CTS, [6-10] acute CTS, [9] or systemic disease with propensity for ectopic calcification such as chronic renal failure, collagen vascular disease, and hypercalcemia [9,10]. The current study describes a patient with chronic bilateral CTS, exacerbated on the left by an idiopathic calcified cyst. Though our patient had a remote history of breast cancer status post mastectomy, there were no clinical findings to suggest active disease. The significant tenosynovitis of the FDS within the carpal tunnel likely contributed to the symptoms of CTS and may be present bilaterally. Whether there is a causative effect between the hyperplastic synovium of the FDS tendons and calcified cyst however, remains unknown. The course

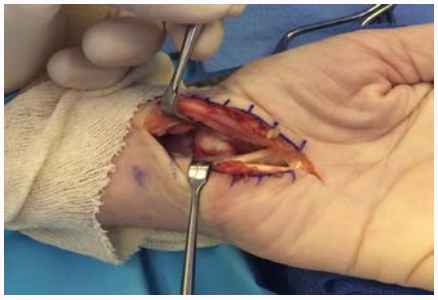

Figure 3: Calcareous lesion identified within the carpal tunnel.

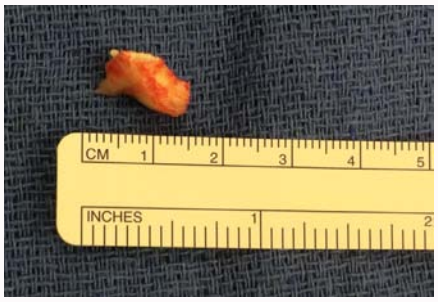

Figure 4: Calcareous lesion upon removal, measuring 1.5 x 0.9 x 0.4 cm.

of the patient described in this study demonstrates that regardless of laterality, clinical suspicion for, and radiographic assessment of, mass-occupying lesions implicated in CTS should be undertaken where clinically appropriate.

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