

# Elbow Joint Hamartoma Compressing the Ulnar Nerve: A Case Report

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## ABSTRACT

Hamartomas are disorganised clusters of tissue that, although typically benign, can form and grow within the body's original structures. They can develop in various regions of the body; however, reports of hamartomas occurring in joints are relatively rare. This case report describes a 40-year male patient with a hamartoma in his elbow joint, leading to ulnar nerve compression and various complications. The mixed high and low densities observed on the x-ray, along with the mixed high and low signals on the MRI, strongly suggested a hamartoma. Surgical removal was performed, and the diagnosis was confirmed through pathological examination. A two-year follow-up showed no recurrence of symptoms. Hamartomas occurring in joints are rare, and they are even more uncommon for complications such as nerve compression to arise, as seen in this case. Imaging and surgical removal played crucial roles in the diagnosis and treatment of this condition.

**Key Words:** *Hamartoma, Ulnar nerve, Elbow joint.*

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## INTRODUCTION

Hamartomas are disorganised clusters of tissue that, although typically benign, can form and grow in the original structures of the body. Although the majority of hamartomas are noncancerous, there is a slight risk that they may undergo a malignant change.<sup>1</sup> They may develop in various regions of the body, with the hypothalamus, lungs, bile ducts, and smooth muscle among the more frequently affected areas. Due to their inherent growth patterns and locations, hamartomas often remain asymptomatic and may be discovered fortuitously during medical tests conducted for other reasons. Nonetheless, contingent upon their scale, location, and rate of growth, they might sometimes precipitate an array of complications, including symptoms caused by compression of surrounding areas, infections, blockages in blood circulation, haemorrhage, and even the possibility of progression to cancer. Ha *et al.* first reported a median nerve hamartoma of the elbow joint in 2012.<sup>2</sup> The tumour, measuring approximately 3.5 cm in size, compressed the nerve and caused hand numbness. The authors noted that a hamartoma of the elbow had not been previously documented in the literature.

In cubital tunnel syndrome—the most common cause of ulnar nerve compression—tumour-related causes account for only 1-2%, predominantly lipomas and schwannomas, rather than hamartomas. In this article, there are only 4 cases of ulnar nerve compression caused by synovial osteochondromatosis, while there are no cases related to a hamartoma.<sup>3</sup> In this article, the authors report a hamartoma of the elbow joint that was found to be compressing the ulnar nerve.

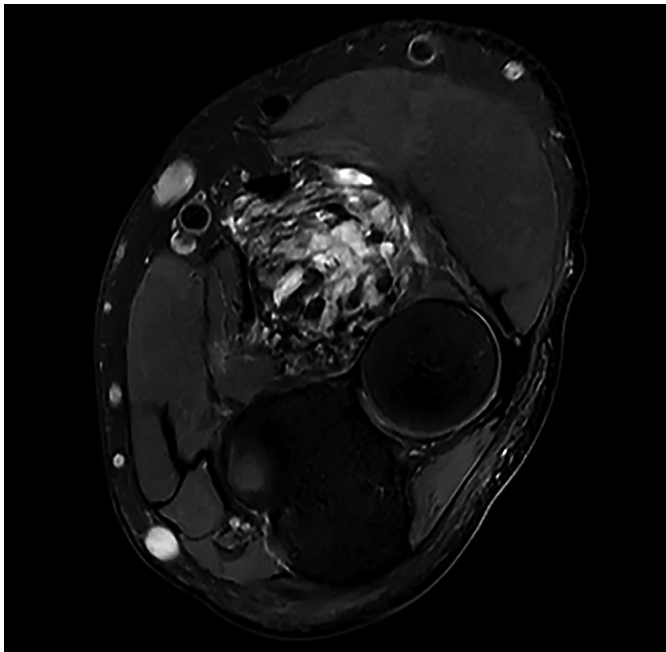
## CASE REPORT

A 40-year male patient discovered a painful swelling in his left elbow joint 10 years ago without any apparent cause. The pain usually worsened during activity and improved with rest. There was no history of similar swelling in his family. The conservative treatment proved ineffective, leading the patient to seek medical attention at our hospital.

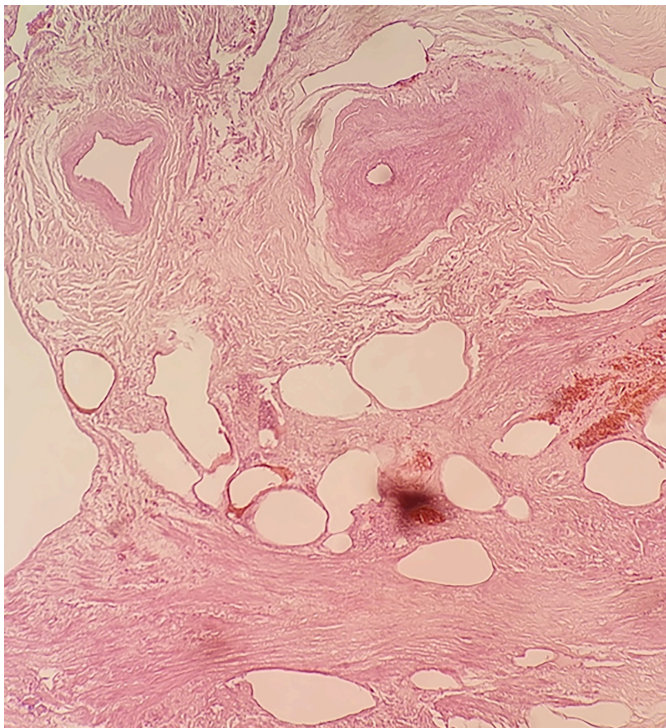
Upon physical examination, a firm and stable swelling measuring about 5×4 cm was observed in his left elbow joint. It was a reddish, painless soft tissue mass with no tenderness on palpation. The range of motion of the elbow joint was 10° to 120°. There was no dissociated sensory loss involving motor function impairment. Additionally, the patient experienced a reduced sensation in the skin of the ulnar side of the left hand, as well as in the ring and little fingers. No sensory abnormalities were noted in the palmar aspects of the thumb, index, and middle fingers, or the radial side of the palm. There was no wrist extension weakness or finger extension deformity. Palpation of the bilateral radial and ulnar arteries confirmed strong and symmetrical pulsations. The Froment's sign test was negative, while the Tinel's sign was positive.

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**Figure 1: The magnetic resonance imaging of the left elbow joint: It shows a mass lesion with an abnormal and heterogeneous signal intensity, with unclear borders.**



**Figure 2: The pathology of the tissue mass. It shows the presence of mature bone tissue, myeloid tissue, and malformed blood vessels.**

Magnetic resonance imaging (MRI) showed an area with an abnormal and heterogeneous signal intensity, with unclear borders (Figure 1). During the surgery to remove the swelling in the left elbow, an irregular tissue mass measuring approximately 35 × 30 × 20 mm was identified. Peroperatively, the surrounding tissues were carefully dissected to identify the boundaries of the hamartoma. The hamartoma was completely resected while preserving the surrounding normal

nerve tissue. Obviously, inflamed tissues were also addressed to relieve compressive factors. The pathology of the excised tissue revealed the presence of mature bone tissue, myeloid tissue, and malformed blood vessels (Figure 2).

Based on these findings, the diagnosis of an elbow joint hamartoma compressing the ulnar nerve was made. Following the surgery, the symptoms were relieved. Postoperatively, the intrinsic hand muscle weakness persisted for one month, after which the symptoms gradually improved and completely resolved by three months postoperatively. At a two-year follow-up, the patient remained asymptomatic, with no recurrence of symptoms.

## DISCUSSION

Here, the authors reported a case of a 40-year male with a hamartoma in the left elbow, a rare occurrence for this type of lesion. This case is further complicated by the unusual presentation of a nerve compression.

Many types of lumps are found in the vicinity of the elbow joint.<sup>3</sup> Common lumps are lipomas and ganglion cysts. Lipomas are usually soft in texture and have relatively clear boundaries, showing typical fatty signal characteristics on ultrasound or MRI.<sup>4</sup> Ganglion cysts are often connected to the joint cavity, have a certain degree of elasticity, and their contents are generally gelatinous substances.<sup>5</sup> Differential diagnosis must also be made with heterotopic ossification, which presents initially soft tissue inflammation, gradually evolves into immature osteoid tissue, and ultimately matures into lamellar bone. Cloud-like calcifications are visible on x-ray. In contrast, a hamartoma is characterised by a well-defined mass on x-ray; due to its diverse composition, it exhibits heterogeneous signal intensity on MRI. Hamartomas have a complex composition containing multiple tissue types, and their internal signals are mixed on imaging.<sup>6</sup> In this case, the presence of nerve compression symptoms necessitated a more aggressive treatment approach. Prior to treatment, we relied on imaging techniques such as x-ray and MRI for diagnostic support. The x-ray revealed mixed high and low densities, while the MRI showed mixed high and low signals, leading to a strong suspicion of a hamartoma. Surgical excision was performed, and the diagnosis was confirmed through the pathological examination. MRI revealed that the lesion was located on the radial side of the proximal forearm, while the ulnar nerve is situated on the ulnar side of the proximal forearm. Due to the large size of the hamartoma, surrounding inflammatory reactions and obstruction of venous/lymphatic drainage with resultant soft tissue swelling, indirectly increased the intraneural pressure within the ulnar nerve sheath. Compression of the ulnar nerve manifested numbness in the ulnar aspect of the little finger and ring finger, which were innervated by the ulnar nerve.

This case of elbow joint hamartoma demonstrates that hamartomas can occur in various tissues. Furthermore, it underscores the importance of imaging in the diagnosis and the critical

role of surgical excision in the treatment of hamartomas.

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#### PATIENT'S CONSENT:

Informed consent was obtained from the patient.

#### COMPETING INTEREST:

The authors declared no conflict of interest.

#### AUTHORS' CONTRIBUTION:

XQ, CL: Contributed to the drafting and revised the manuscript.

XQ, QR: Conceived and planned the study.

TL: Wrote the manuscript.

All authors treated the studied patients and approved the final version of the manuscript to be published.

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