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Neurofibroma of the Elbow Crease: A Case Report

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Abstract **Case Report**

Background: Neurofibromas are benign peripheral nerve sheath tumors commonly associated with Neurofibromatosis Type 1 (NF1), though sporadic forms also exist. Lesions located in the antecubital region present particular challenges due to the density of neurovascular structures. ***Case Presentation:*** We report the case of a 50-year-old male presenting with a painless, progressively enlarging mass in the right elbow crease. Magnetic resonance imaging and histopathological evaluation confirmed the diagnosis of a plexiform neurofibroma involving the median nerve. Complete surgical excision was achieved without postoperative complications. ***Conclusion:*** Plexiform neurofibromas of the antecubital fossa are rare. Given the anatomical complexity of the region, they require careful diagnostic assessment and meticulous surgical planning to minimize neurological morbidity and preserve upper limb function.

Keywords: Plexiform neurofibroma, Median nerve, Antecubital fossa, Peripheral nerve tumor, Neurofibromatosis type 1.

INTRODUCTION

Neurofibromas are benign tumors arising from Schwann cells and other elements of the peripheral nerve sheath. They occur either sporadically or as part of the autosomal dominant disorder Neurofibromatosis Type 1 (NF1). Among their subtypes, plexiform neurofibromas are particularly notable for their diffuse, infiltrative growth pattern and strong association with NF1. While these tumors may develop along any peripheral nerve, involvement of the antecubital fossa—the anterior aspect of the elbow—is uncommon and poses significant diagnostic and therapeutic challenges due to the proximity of the brachial artery, median nerve, and other critical structures.

CASE REPORT

A 50-year-old man with no significant medical history presented with a gradually enlarging, painless mass localized to the anteromedial aspect of the right elbow crease. He reported occasional paresthesias in the distribution of the median nerve, along with discomfort during elbow flexion.

On physical examination, a firm, mobile mass approximately 8 cm in diameter was palpated in the antecubital region. The lesion was not fixed to underlying tissue or overlying skin, which appeared normal in texture and color. No cutaneous stigmata of NF1, such as café-au-lait macules or dermal neurofibromas, were noted. Tinel's sign was positive over the mass.

Standard radiographs revealed a soft tissue density without osseous involvement. Magnetic resonance imaging (MRI) demonstrated a well-demarcated, unilocular cystic lesion with internal soft tissue components abutting the median nerve. There was no evidence of invasion into adjacent musculature, osseous structures, or vascular elements.

A core needle biopsy was performed, and histopathological analysis confirmed the diagnosis of a plexiform neurofibroma. Surgical excision was carried out under magnification, enabling complete tumor removal while preserving unaffected nerve fascicles. Postoperatively, the patient experienced no complications and had resolution of paresthesias.

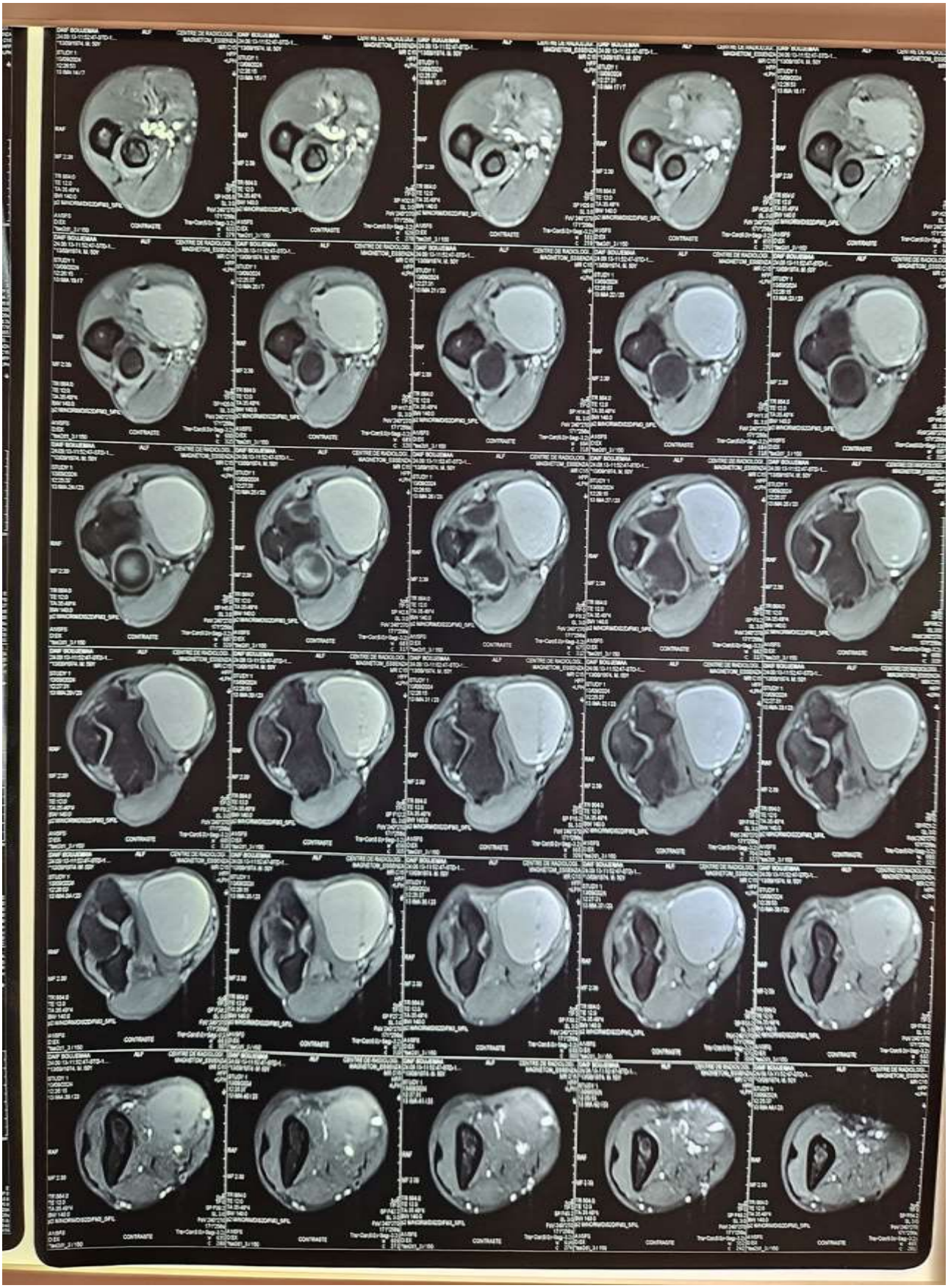

Figure 1: Axial MRI of the elbow showing a lobulated soft tissue mass along the median nerve trajectory

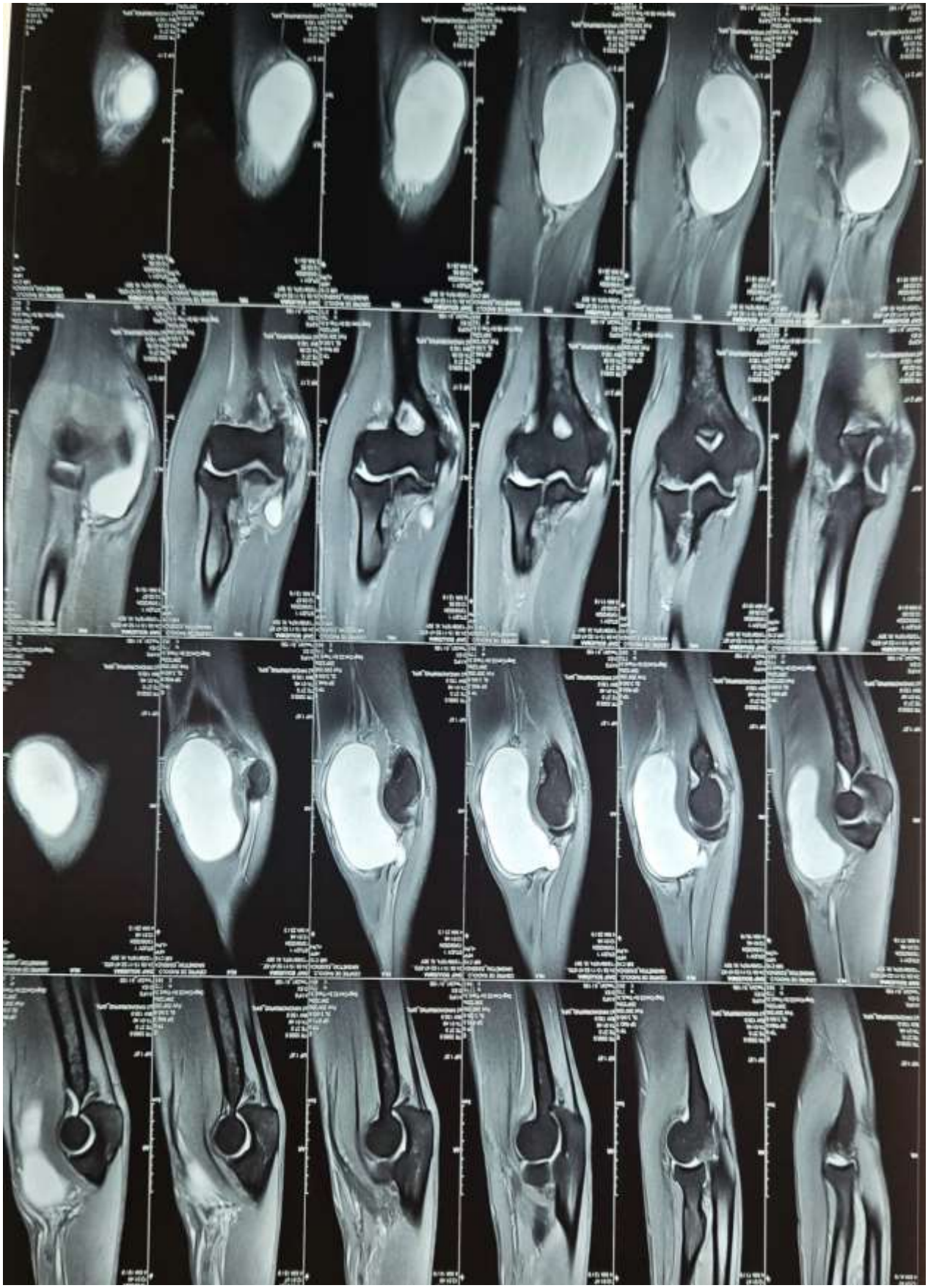

Figure 2: Sagittal MRI of the elbow demonstrating extent and depth of the lesion relative to adjacent joint structures

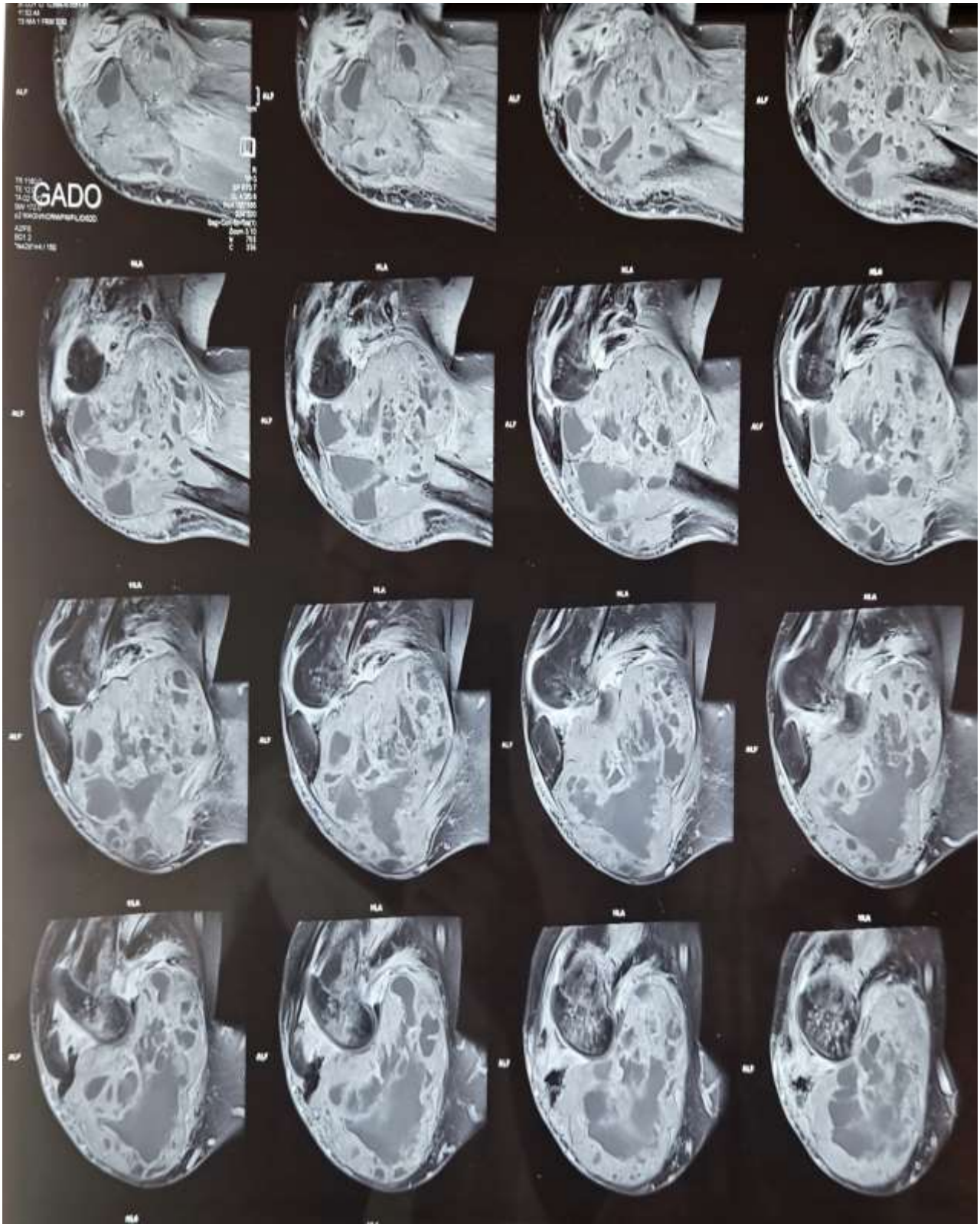

Figure 3: Axial MRI sequence showing multi-lobulated tumor morphology, suggestive of plexiform neurofibroma

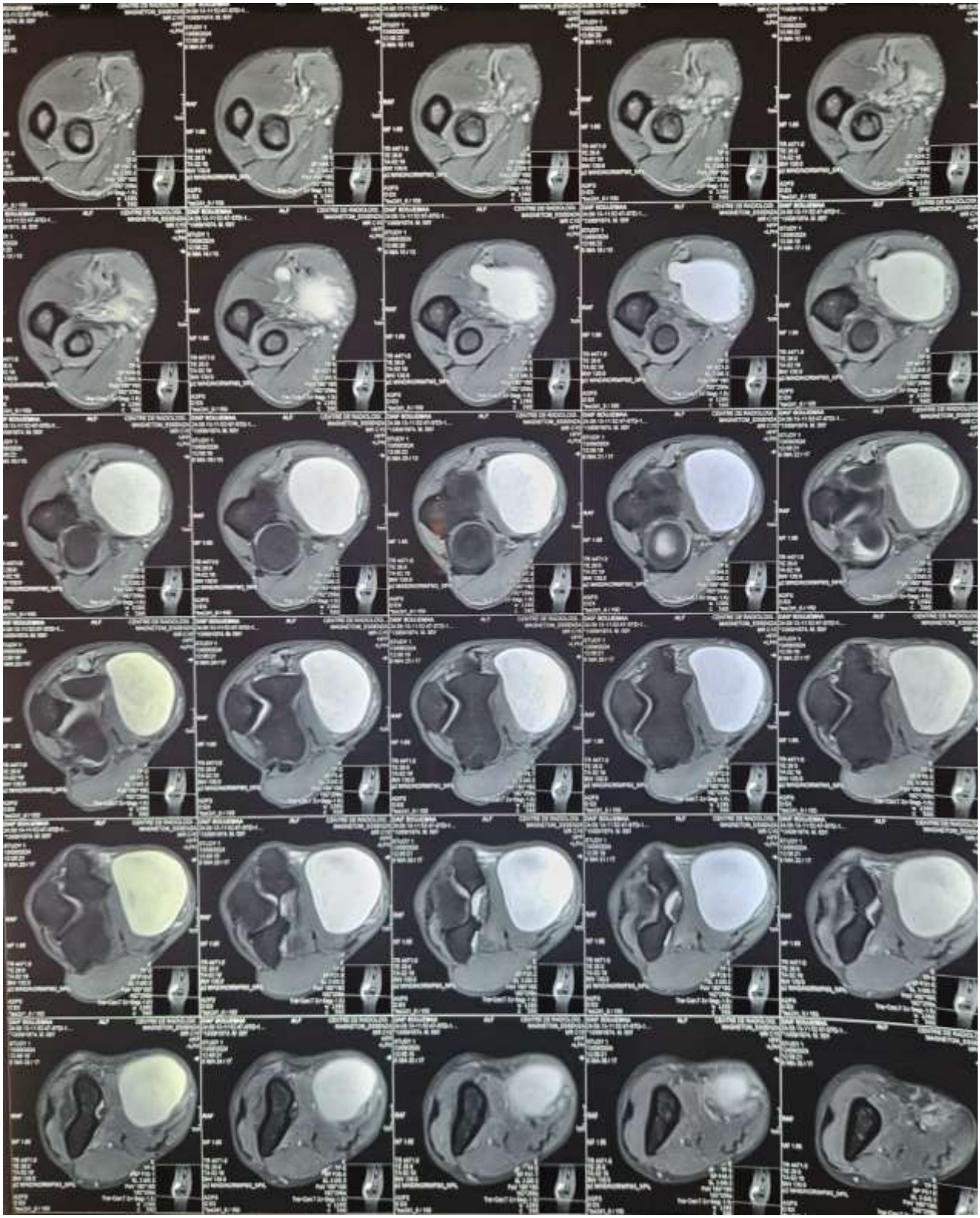

Figure 4: Additional axial MRI images showing involvement of the median nerve and surrounding soft tissue contrast enhancement

DISCUSSION

Plexiform neurofibromas are pathognomonic for NF1 and typically present during childhood, although isolated cases in adults are occasionally observed. These tumors exhibit tortuous, elongated involvement of multiple nerve branches and can attain considerable size, especially if undiagnosed or untreated. In contrast, solitary localized neurofibromas, which represent over 90% of sporadic cases, usually involve a single nerve

fascicle and are not associated with NF1.

The antecubital fossa is a rare site for these tumors. Diagnosis is guided by clinical findings—most notably, a palpable mass with a positive Tinel's sign—and confirmed by MRI, which offers superior visualization of soft tissue and neural structures. Histological confirmation via biopsy remains essential, particularly to differentiate benign neurofibromas from malignant peripheral nerve sheath tumors.

Surgical excision is the treatment of choice in symptomatic cases or where functional compromise is evident. Complete resection is often complicated by the tumor's infiltrative nature and lack of encapsulation. Microsurgical techniques, including intraoperative nerve monitoring, are essential for minimizing iatrogenic nerve injury. In certain cases, resection of the involved nerve segment may necessitate immediate nerve repair or grafting.

Conclusion

Plexiform neurofibromas located in the elbow crease are rare and present a diagnostic and surgical challenge due to the complex anatomy of the antecubital fossa. Multimodal evaluation with clinical examination, imaging, and histopathology is essential. Microsurgical excision remains the definitive treatment, offering favorable outcomes when performed with attention to anatomical detail.

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