

Endoscopic Endonasal Transpterygoid Approach for Vascular Decompression of V3 With Significant Relief of Facial Pain

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Introduction

The endoscopic endonasal transpterygoid approach has been shown to be effective in accessing lesions of the infratemporal fossa and middle cranial fossa. Here, we describe the novel application of this approach for vascular decompression of V3 in a patient with severe trigeminal neuralgia.

Results

The patient was discharged on post-op day 1 after an uncomplicated hospital course. At 6-week follow up, he had sustained pain relief, with 50% improvement in symptoms. His dosing of carbamazepine dropped from 600mg three times daily to 400-600mg once daily. In retrospective review of the pre-operative MRI, there was also a small area of arterial compression from the internal maxillary artery just medial to the lateral pterygoid muscle (Figure 2), in addition to the broader mass effect from the enhancing lesion.

Methods

The patient was a 24-year-old male who presented with medically-refractory pain in the right V3 distribution and a 1.5cm enhancing lesion in the right masticator space along the course of the mandibular nerve (Figure 1), thought to be a tumor versus venous malformation. He underwent a standard transpterygoid approach and exposure of the pterygopalatine fossa, including drilling away of the medial pterygoid plate and preserving the lateral pterygoid plate. The V3 branch was exposed at the foramen ovale. Here, the internal maxillary artery appeared to be compressing the nerve. No mass lesion corresponding to area of enhancement on MRI was found. The nerve was dissected free and secured away from the vessel using Teflon pledgets. The posterior wall of the maxillary sinus was reconstructed using free mucosal graft harvested from the right middle turbinate.

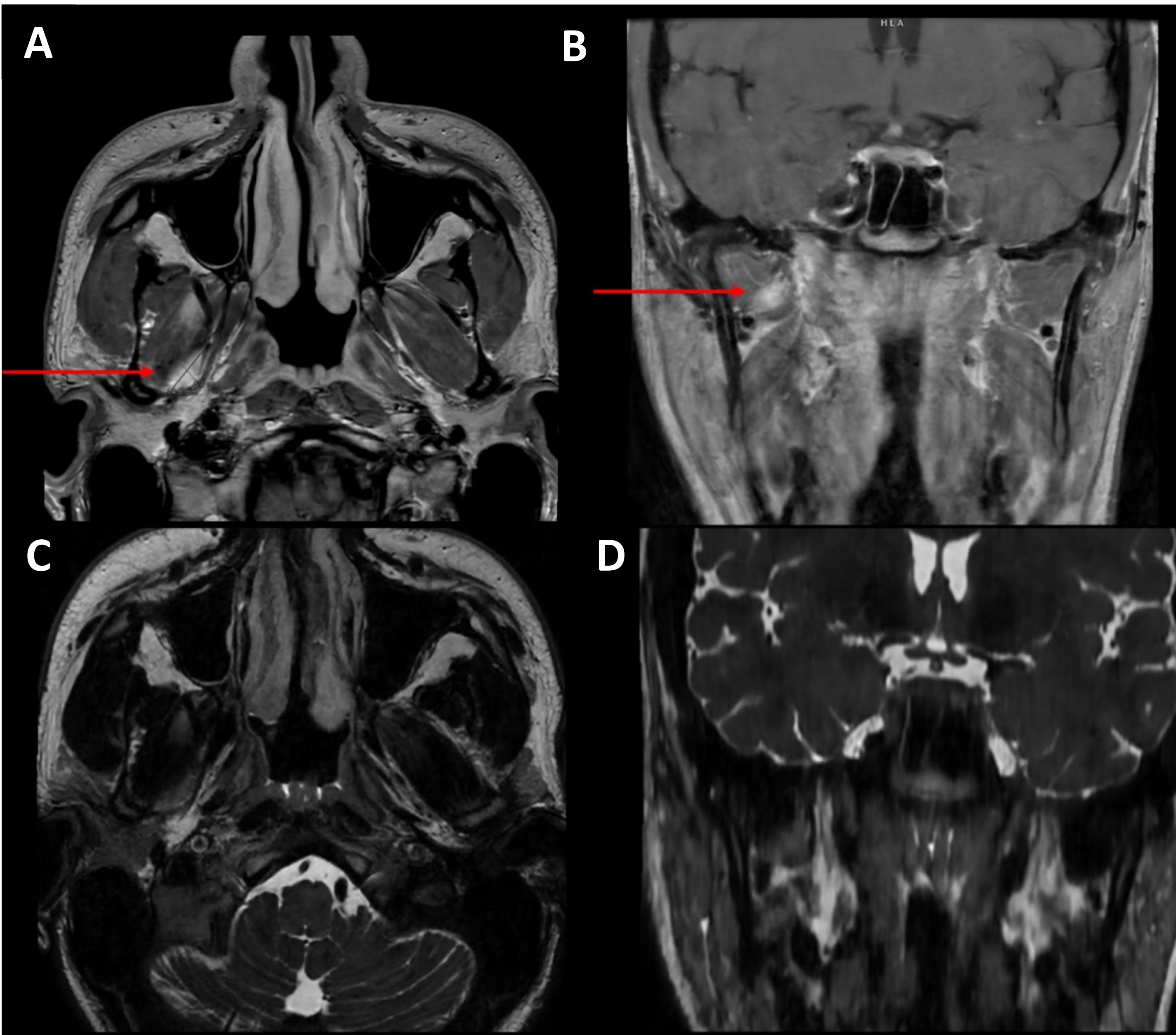


Figure 1: Pre-operative MRI demonstrating a 1.5cm enhancing lesion in the right masticator space (red arrow). No mass lesion was found intra-operatively, but the internal maxillary artery was found to be compressing V3. a) axial T1+contrast, b) coronal T1+contrast, c) axial T2, d) coronal T2.

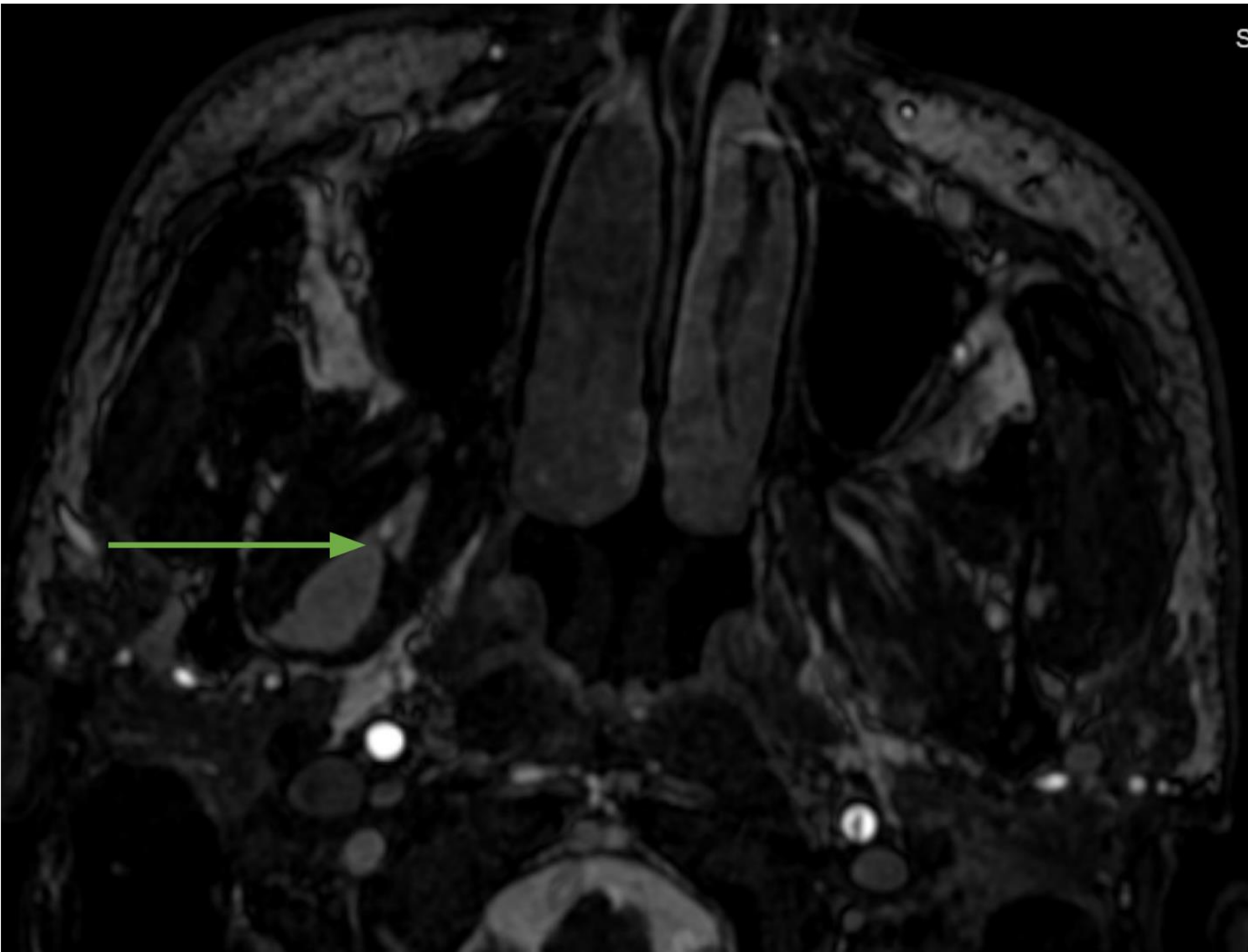


Figure 2: Pre-operative axial FIESTA MRI demonstrating area of internal maxillary artery compression on V3 (green arrow).

Conclusions

We describe the successful use of the endoscopic endonasal transpterygoid approach to treat severe facial pain by relieving V3 compression by the internal maxillary artery. In the future, for patients with trigeminal neuralgia that is refractory to medication and traditional microvascular decompression at the brainstem when indicated, this approach may be considered for more distal decompression. In atypical cases, the possibility for vascular compression in this region should be carefully studied on pre-operative imaging.