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SNI: Skull Base

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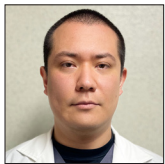
Video Abstract

Enlarged suprameatal tubercle drilling for distal venous microvascular decompression of the trigeminal nerve, anatomical description: Two-dimensional video

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ABSTRACT

Background: An enlarged suprameatal tubercle (EST) has been described as an uncommon anatomical variant that may be encountered during cerebellopontine angle surgery. It can limit exposure during microvascular decompression (MVD) of the trigeminal nerve, particularly when the neurovascular conflict is located distal to the root entry zone (REZ), potentially posing a surgical challenge.

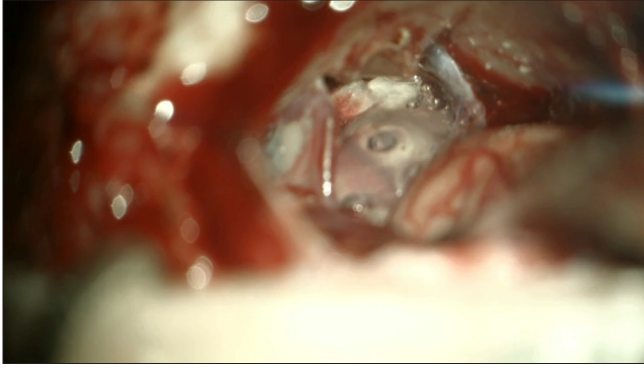
Case Description: We present the case of a 66-year-old woman with a history of medically refractory left-sided V2–V3 typical trigeminal neuralgia, previously treated with radiofrequency ablation without clinical improvement. Magnetic resonance imaging (fast imaging employing steady-state acquisition sequence) demonstrated a vascular loop compressing the left trigeminal nerve. A left retrosigmoid craniotomy was performed. Initial exploration of the REZ showed no arterial contact; the superior cerebellar artery and anteroinferior cerebellar artery were identified without compressive involvement. However, the superior petrosal vein was found to have intimate contact with the trigeminal nerve, forming a loop and producing a visible compression at the entrance to Meckel's cave, with an indentation on the nerve sheath. The neurovascular conflict was clearly visualized only after careful drilling of an EST. Following this maneuver, MVD was successfully performed using a Teflon pledget. Medical treatment was discontinued postoperatively due to the patient's longstanding poor response to pharmacological and ablative therapies. The patient had an uneventful recovery, was discharged 48 h after surgery, and experienced complete resolution of neuralgia without new neurological deficits. At 3-month follow-up, she remained in complete remission, with no complications reported.

Conclusion: When addressing neurovascular pathologies of the posterior fossa, a comprehensive understanding of microsurgical anatomy is critical, especially when extending the traditional retrosigmoid approach. Removing the suprameatal tubercle offers several key anatomical and surgical benefits and has been described as a safe option when compression of the nerve is not in the REZ and might be not evident with the initial exposure of anatomical structures.

Keywords: Decompression, Microvascular, Retrosigmoid, Suprameatal, Trigeminal

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Video 1: Surgical video.

[Video 1]-Available on:

www.surgicalneurologyint.com

Time Annotations

00:15: Case presentation, 00:47: MRI Compression site, 01:06: Case Discussion, 03:59: Therapeutic decision making, 04:31: Patient position, 05:04: Defining Anatomical Landmarks, 06:35: Craniotomy borders, 06:35: Dural opening, 07:07: Cerebellopontine cistern exposure, 07:23: Dissection of proximal portion of vascular compression, 07:45: Commentary on Endoscope-Assisted Microvascular Decompression, 08:42: Drilling of enlarged suprameatal

tubercle, 08:47: Commentary on Advantages and Disadvantages of Suprameatal Tubercle Drilling, 09:45: Dissection of distal portion of vascular compression, 09:44: Microvascular decompression, 10:34: Final view of surgical field, 10:41: Dural closure, 10:59: Postoperative imaging, 11:15: Postoperative evolution, 11:55: Take – home message.

Enlarged suprameatal tubercle drilling for microvascular decompression: surgical technique [Video 1].

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