



# The Greater Superficial Petrosal Nerve Schwannoma: A Brief Report

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## Abstract

### Keywords

- greater superficial petrosal nerve
- GSPN
- schwannoma

Schwannoma of greater superficial petrosal nerve (GSPNS) is a rare tumor of middle cranial fossa. We report a case of GSPNS presenting with twitching of face and eyelid. We describe its characteristic radiological appearance. Total excision of the GSPNS was done through a subtemporal approach with complete relief of symptoms. GSPNS is a rare tumor of middle cranial fossa. Preoperative diagnosis may be misleading. A high index of suspicion is important to make a correct diagnosis and choose an appropriate approach for surgery as it is amenable to complete excision.

The greater superficial petrosal nerve schwannoma (GSPNS) is a rare middle cranial fossa lesion and a very rare cranial nerve sheath tumor. Varying degrees of facial nerve involvement have been reported in such cases. We present a case of GSPNS, presenting with intermittent attacks of facial twitching, which was excised through a subtemporal craniotomy.

A 32-year-old male patient presented with a history of intermittent left upper eyelid and facial twitching for the last 2 years along with two episodes of drooling of liquids from left angle of mouth from which he recovered each time in short period. He also complained of left eye dryness and foreign body sensation. General physical and neurological examination did not reveal any abnormalities. He had normal facial nerve functions. Contrast-enhanced computed tomographic scan of brain showed a well-defined extra-axial lesion in left middle cranial fossa, with patchy calcification, heterogeneous enhancement, and adjacent bony rarefaction along the course of GSPN in the region of facial hiatus (►Fig. 1A, B).

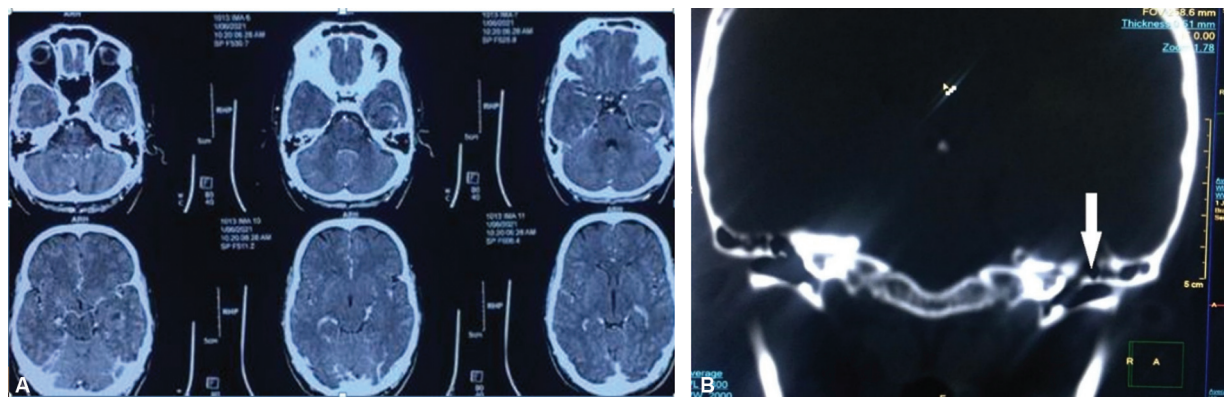
Magnetic resonance imaging demonstrated a T2 hyperintense lesion in left middle cranial fossa showing heterogeneous enhancement and extending to left Meckel's cave (►Fig. 2A, B).

We performed neuronavigation-guided left subtemporal craniotomy. Tumor was approached extradurally. Dura had to be opened to resect the tumor with the capsule that was part of the middle fossa floor dura mater. The GSPN was not seen separately at surgery, and we believe that it might have been destroyed by the tumor, which was extending along its whole length from the geniculate ganglion region up to the foramen lacerum (►Fig. 3A, B).

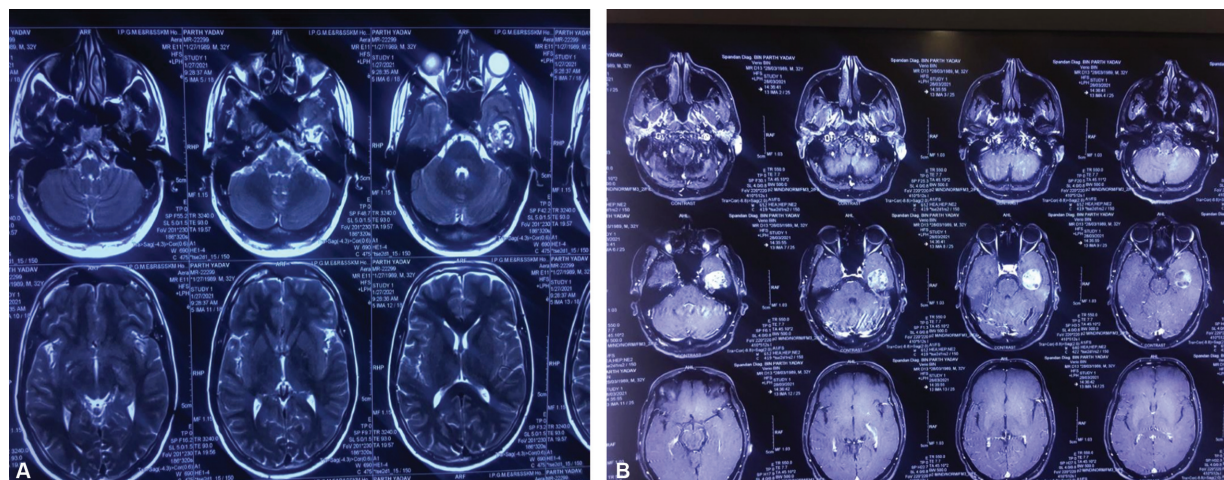
Postoperatively, he developed House-Brackmann grade II facial nerve dysfunction in the left side. Histopathology section showed cellular compact Antoni A areas and hypocellular Antoni B areas with many hyalinized blood vessels and foam cell aggregates (►Fig. 4A). Immunohistochemistry (SOX-10 and S-100 [neural markers] were positive, epithelial membrane antigen (EMA) [meningioma marker], glial fibrillary acidic protein

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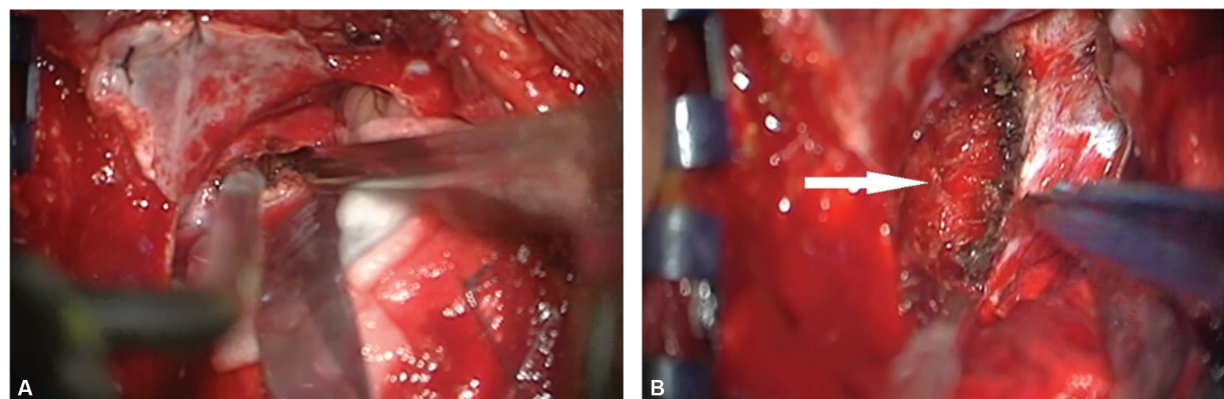
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**Fig. 1** (A) Contrast-enhanced computed tomographic scan of brain showing well-defined extra-axial lesion in left middle cranial fossa, with heterogeneous enhancement and (B) erosion of the anterior superior surface of the petrous bone (the course of greater superficial petrosal nerve, white arrow).



**Fig. 2** (A, B) T2- and T1 postcontrast magnetic resonance imaging showing T2 hyperintense lesion in left middle fossa with heterogeneous enhancement extending up to Meckel's cave.



**Fig. 3** (A) Tumor exposed after opening of dura. (B) Middle fossa floor after tumor excision (white arrow).

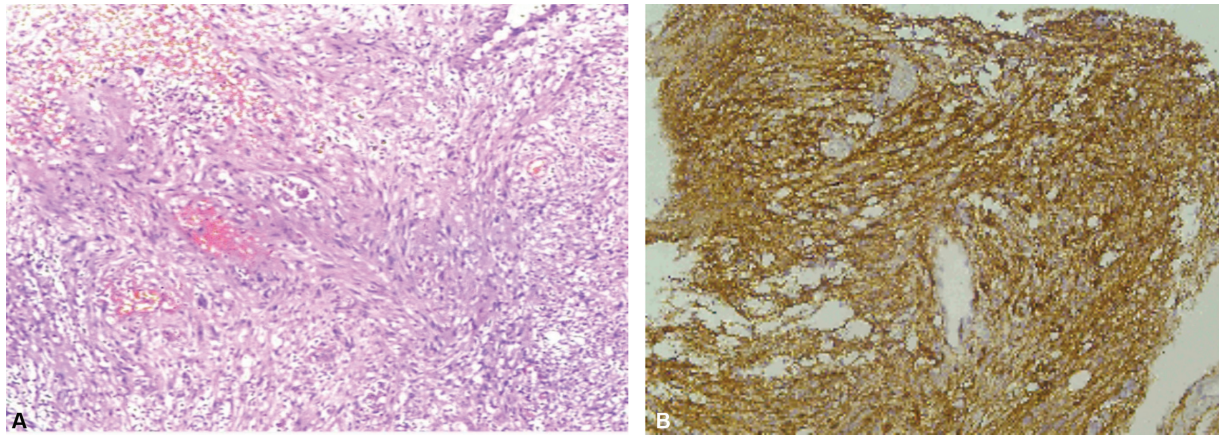
(GFAP), and oligodendroglial lineage marker 2 (OLIG 2) [glial markers] were negative and Ki-67 [proliferation marker] was 4% in few areas) confirmed it to be a schwannoma (→ Fig. 4B).

GSPNS is a very rare type of facial nerve schwannoma comprising 0.8% of all petrous bone lesions.<sup>1</sup> First case of GSPNS was described by Woodruff et al in 1981.<sup>2</sup> GSPNS is the

first branch of the facial nerve arising from the geniculate ganglion.<sup>3</sup>

Usual presenting symptoms are facial paresis, hearing loss or disturbances, headache, and eye pain.<sup>4</sup> Dry eye, although pathognomonic for GSPNS, may not be present in all cases, and only seen if parasympathetic nerve fibers have been destroyed by the tumor.





**Fig. 4** (A) Hematoxylin and eosin section showing cellular compact Antoni A areas and hypocellular Antoni B areas with many hyalinized blood vessels and foam cell aggregates. (B) S-100 immunostain positive.

GSPNS is a rare tumor of middle cranial fossa. Preoperative diagnosis may be misleading. A high index of suspicion is imperative to make a correct diagnosis and choose an appropriate approach for surgery as it is amenable to complete excision and carries a good long-term outcome.

#### Declaration of Patient Consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

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Nil.

#### Conflicts of interest

None.

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