# Beyond Eagle's Syndrome: Enlarged Styloid Process Inducing Facial Nerve Paralysis

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## Background

- Facial nerve paralysis is most commonly idiopathic (Bell's palsy), traumatic, infectious, or neoplastic in origin.[1]
- Elongation and ossification of the styloid process (Eagle syndrome) rarely presents with facial paralysis.[2]
- Compression of the facial nerve at the stylomastoid foramen by an elongated styloid process is an uncommon but clinically significant etiology requiring high suspicion and multidisciplinary management.

## Case Presentation

- We report the case of a 56-year-old female who developed acute left neck swelling, throat pain, dysphagia, and otalgia.
- She denied hearing loss or prior otologic surgery.
- Initial treatment with antibiotics and steroids did not provide relief.
- Within one week, she developed progressive left facial paralysis, initially of the lower division and subsequently complete paralysis.
- Computed tomography (CT) scans of the temporal bones and neck showed enlargement and elongation of the left styloid process forming a pseudoarthrosis with the hyoid bone, near the stylomastoid foramen, with soft tissue thickening and enhancement. The contralateral styloid process was mildly elongated.
- No masses, middle ear pathology, or other intracranial abnormalities were identified.

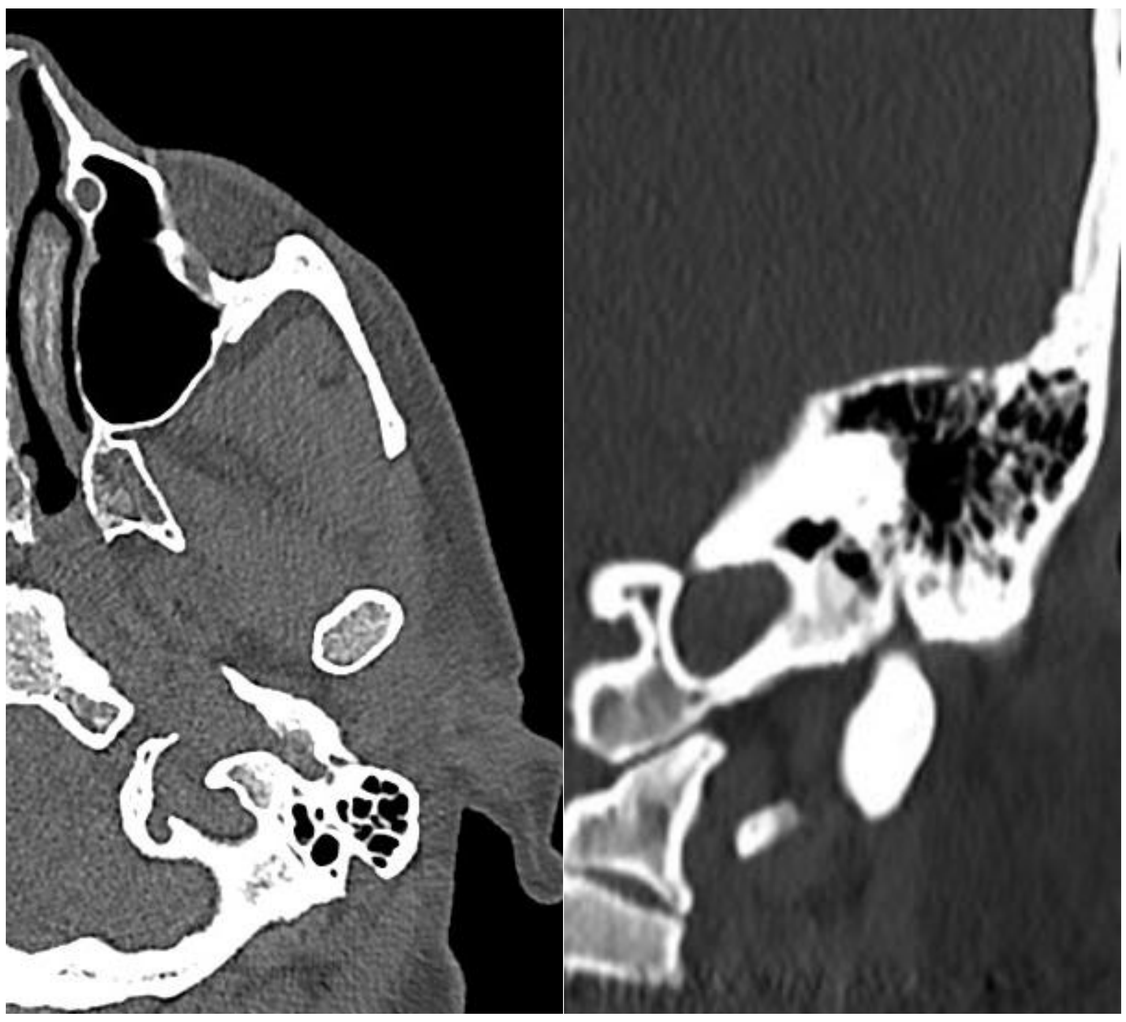

**Figure 1.** Axial CT scan showing enlarged left styloid at stylomastoid foramen



**Figure 2.** Coronal CT scan demonstrating enlarged left styloid at stylomastoid foramen

## Management and Intervention

- Given her progressive, complete paralysis and imaging findings, a combined surgical approach was planned.
- A left transparotid styloidectomy and transmastoid facial nerve decompression and inferolateral temporal bone resection with mastoid tip removal were performed.
- Intraoperatively, the facial nerve was intact but edematous, without stimulation throughout the procedure even at 2.0 mA. The facial nerve was decompressed along the mastoid segment up to the tympanic segment. The nerve was traced distally to the level of the stylomastoid foramen. The elongated left styloid process was skeletonized and resected, with preservation of surrounding vascular and neural structures. A 4.5 cm specimen was excised. The nerve sheath and vascularity were preserved.

**Figure 3.** Styloid process exposure prior to resection

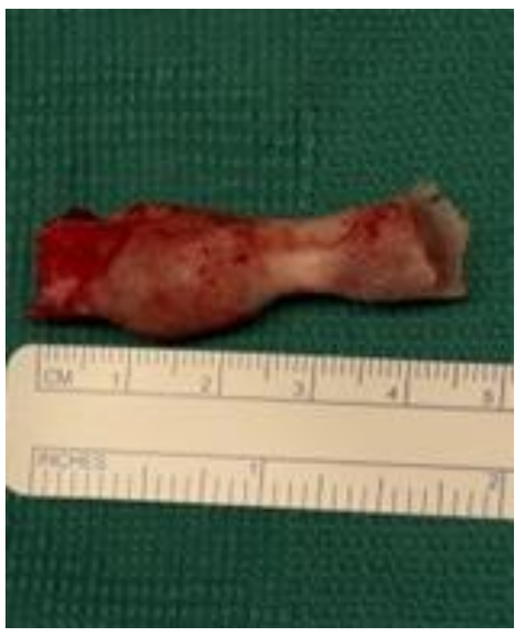

**Figure 4.** Excised styloid process specimen

## Outcome

- The patient recovered well postoperatively and was clinically stable for discharge with appropriate follow-up on postoperative day one.
- At the time of discharge, there was no noted improvement in facial nerve function.
- At most recent evaluation, facial nerve function demonstrated improvement to House-Brackmann grade V / VI. Long-term follow up is ongoing.

## Conclusion

- We present a rare case presentation of facial nerve paralysis from an elongated styloid process at the stylomastoid foramen.
- Imaging was required to make the diagnosis and rule out idiopathic Bell's palsy and other causes.
- Combined facial nerve decompression with styloidectomy provided definitive management, with preservation of neural structures and safe postoperative recovery.
- Clinicians should consider Eagle syndrome variants in patients with atypical or refractory facial paralysis, especially when imaging reveals elongated styloid processes abutting the facial nerve.

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## References

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