

# Etiology and Management of Recurrent Hemifacial Spasm—A Single-Center Experience

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## BACKGROUND

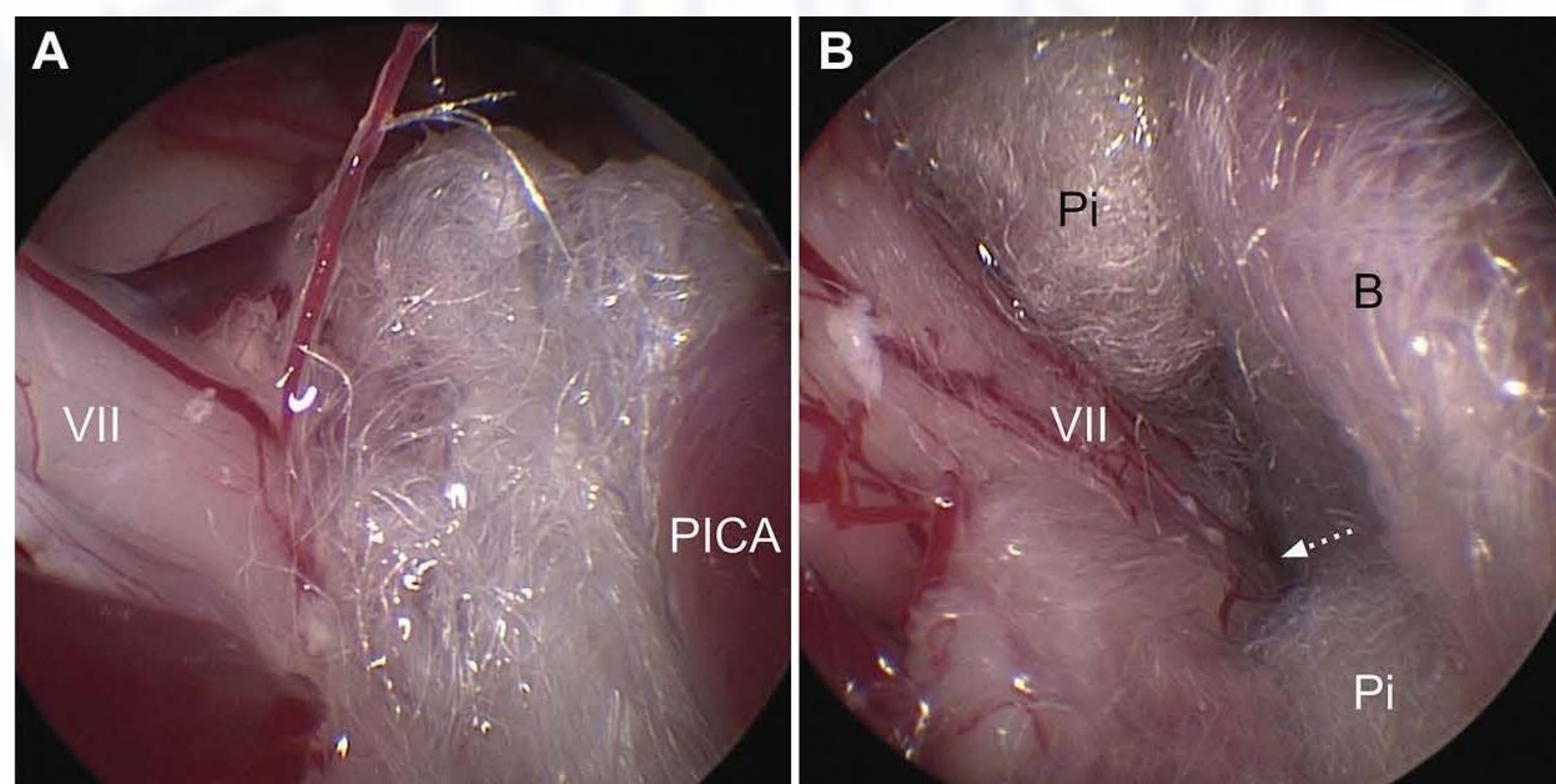
Hemifacial spasm (HFS) is a debilitating condition caused by vascular compression of the facial nerve. Microvascular decompression (MVD) is the standard treatment, achieving success rates of 70-98%. However, 3.3-20% of patients experience recurrence within five years. The reasons for recurrence including adhesions, missed vascular compressions, or inadequate decompression, require further investigation.

## OBJECTIVE

This study aimed to evaluate recurrent and persistent HFS cases post-MVD, focusing on underlying causes, surgical strategies, outcomes, and complications.

## METHODS

Data from 43 patients who underwent revision MVD for HFS at a single center were retrospectively analyzed. Causes of recurrence, decompression techniques, and outcomes were assessed via surgical notes, intraoperative videos, and follow-up interviews. Endoscopic-assisted surgery and comprehensive evaluations were employed to enhance diagnostic accuracy.



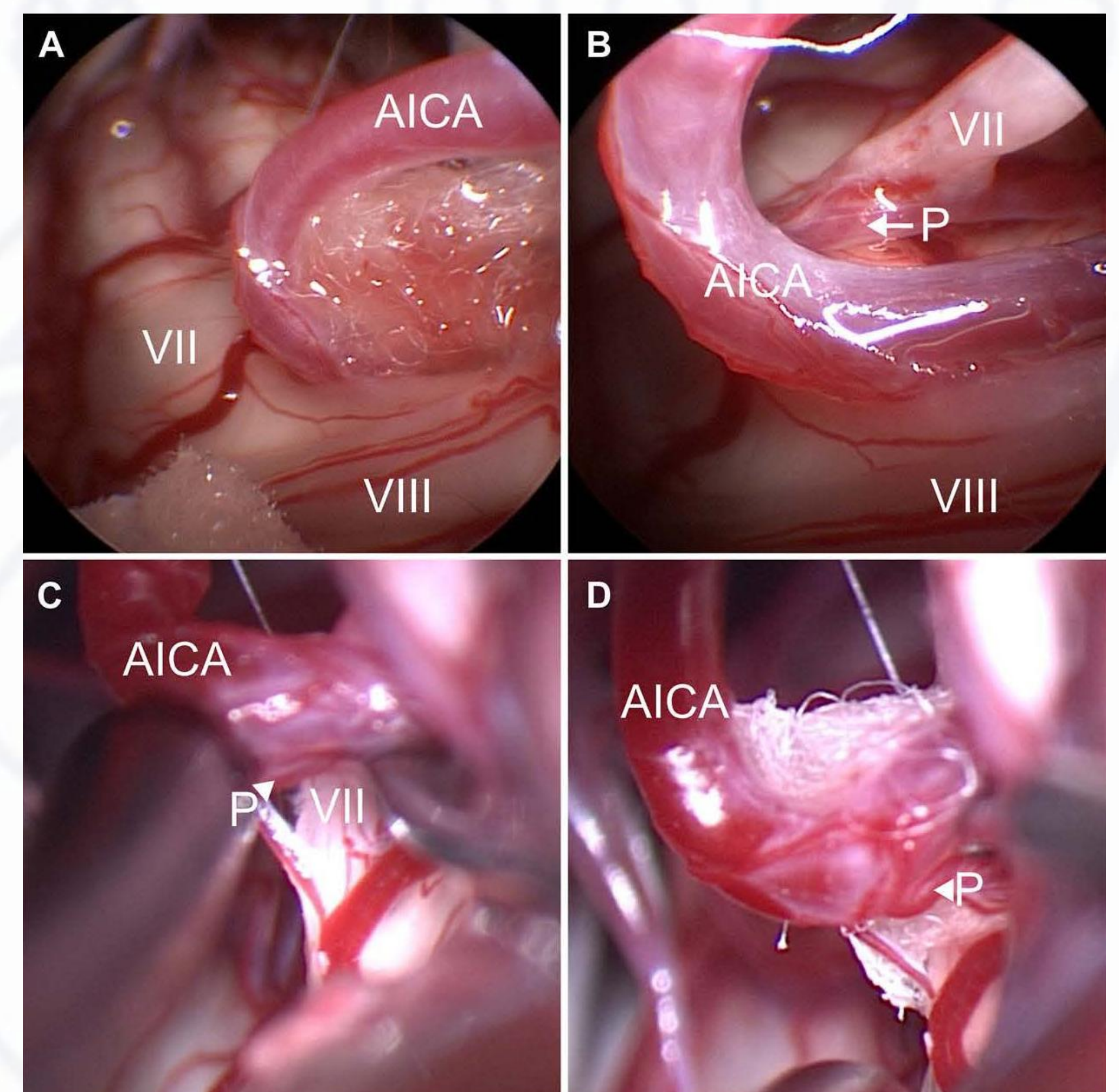
A, Endoscopic image showing the Teflon pledget correctly placed between PICA and facial (VII) nerve. B, The Teflon was removed from the facial nerve until the exit at the pontomedullary sulcus (arrow) and a bridge (B) with two pillars (Pi) was placed to avoid any contact between the facial (VII) nerve and Teflon. Ninety-one months after surgery the patient has no spasms. B, bridge; Pi, pillars; PICA, posterior inferior cerebellar artery.

## RESULTS

Of 493 patients treated for HFS, 8.7% required revision surgery. The leading cause was Teflon pledget adhesion to the facial nerve (53.5%), followed by missed vascular compressions (30.2%). The median time between primary and revision surgeries was 14 months. Revision outcomes included complete resolution in 62.8%, >90% reduction in 14%, partial improvement in 7%, and no improvement in 16.3%. Endoscopic techniques significantly improved diagnostic accuracy in identifying compression at the pontomedullary sulcus.

## CONCLUSION

Adhesions from Teflon pledgets and missed vascular compressions are the most frequent causes of recurrent HFS. Therefore, we recommend to use a 45° endoscope for inspection of the entire course of the facial nerve until the pontomedullary sulcus. Additionally, we recommend to place the Teflon between brainstem and offending vessel avoiding contact to the facial nerve whenever anatomically possible.



A, Endoscopic image showing the Teflon pledget correctly placed between AICA and facial (VII) nerve. VIII—vestibulocochlear nerve. B, However, after removal of the Teflon, a missed vascular compression with remaining contact of a perforating artery (arrow P) to the facial (VII) nerve was seen. C, The perforator (arrowhead P) was dissected off the facial (VII) nerve and D, a new shredded Teflon was placed between perforator (arrowhead P) and facial nerve. The spasms disappeared immediately after surgery. 14 months after surgery, the patient is still without any spasms. AICA, anterior inferior cerebellar artery.

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