Pterional approach soft tissue dissection

- Supraorbital Keyhole Craniotomy for Clipping Cerebral Aneurysms: A Systematic Review and Meta-Analysis
- Paradoxical Temporal Enlargement: An Expansion of Superficial Temporal Fat Pad Following Interfacial Technique for Pterional Craniotomy
- Reshaping the zygomatic complex: A "small step" in frontotemporal craniotomy and a "big leap" in exposure
- New approach for operative management of vascular lesions of the infratemporal internal carotid artery

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Open cerebrovascular surgery remains an irreplaceable tool in the neurosurgeon's armamentarium for cerebral aneurysms. Among open approaches, the supraorbital keyhole approach provides a novel approach with less soft tissue dissection and cortical exposure compared with the traditional pterional approach [1)]

A multicenter prospective cohort study included all patients who underwent elective pterional craniotomy between 2018 and 2020 at 3 centers in Riyadh, Saudi Arabia. All patients underwent 1 of 3 soft tissue dissection techniques: myocutaneous flap, interfascial dissection, and subfascial dissection techniques. Clinical and radiological assessments were performed upon discharge and at the 3- and 6-month follow-ups.

They included 78 patients, with a mean age of 44.9 ± 16.3 years. Myocutaneous flap, interfascial, and subfascial dissections were performed in 34 (43%), 24 (30%), and 20 patients (25%), respectively. The myocutaneous flap method had the shortest opening (P = .001) and closure (P = .005) times; tenderness was more evident in this group than in the others (P = .05). The frontalis muscle was most affected in the interfascial dissection group (P = .05). The frontalis nerve function was similar in all groups after 6 months (P = .54). The incidence of temporomandibular joint dysfunction was highest in the myocutaneous flap group (29%). Decreased temporalis muscle thickness at the 6-month postoperative follow-up was most severe in the subfascial dissection group (12.6%), followed by the myocutaneous flap (11.9%) and interfascial dissection (9.9%) groups, with no significant difference (P = .85). Temporal hollowing was more prominent in the myocutaneous flap group (P = .03). Cosmetic satisfaction was highest in the interfascial dissection group, with no significant difference (P = .4).

This study provides important information for neurosurgeons in weighing the benefits and risks of each technique for their patients [2)].

Interfascial dissection

Interfascial dissection is performed along the most anterior part of the STL. Subfascial dissection is also performed to dissect both layers of temporal fascia and expose the temporalis muscle. A musculo-fascial cuff is left along the STL. The temporalis muscle is dissected along the STL and reflected anteroinferiorly over the zygomatic arch.

1)

Ong V, Faung B, Brown NJ, Yang C, Sahyouni R, Ng E, Sheppard JP, Shlobin NA, Lien BV, Loya J. Supraorbital Keyhole Craniotomy for Clipping Cerebral Aneurysms: A Systematic Review and Meta-Analysis. World Neurosurg. 2022 Dec;168:287-297.e1. doi: 10.1016/j.wneu.2022.09.129. Epub 2022 Oct 5. PMID: 36208869.

2)

Ajlan A, Basindwah S, Hawsawi A, Alsabbagh B, Alwadee R, Abdulqader SB, Alzhrani G, Orz Y, Bafaqeeh M, Alobaid A, Alyamany M, Farrash F, Alaskar A, Alkhathlan M, Alqurashi A, Elwatidy S. A Prospective Comparison Between Soft Tissue Dissection Techniques in Pterional Craniotomy: Functional, Radiological, and Aesthetic Outcomes. Oper Neurosurg (Hagerstown). 2023 Oct 9. doi: 10.1227/ons.0000000000000929. Epub ahead of print. PMID: 37815213.