Transfrontal-sinus-subcranial approach for olfactory groove meningioma

The transfrontal-sinus-subcranial approach (TFSSA) allows for direct exposure and removal of olfactory groove meningiomas (OGMs), without any brain retraction. Compared with other skull base approaches (e.g., fronto-orbitobasal, transbasal, subcranial, fronto-orbitozygomatic, and one-and-half approach), it could offer the same advantages but is less invasive.

Objective: We report the results in a series of 21 consecutive patients with OGMs and operated on through TFSSA, to propose a viable alternative approach.

Methods: Mean maximum tumor diameter was 45.9 ± 3.4 mm (range, 25-70 mm). The aim of surgery was Simpson grade I removal. Surgical, clinical, and functional outcomes were reported. Mean follow-up was 87 ± 7 months (range, 36-176 months).

Results: In all patients, magnetic resonance imaging after surgery confirmed complete tumor removal. The recurrence-free survival rate was 100% and 85.7% at 5 and 10 years, respectively. Surgery-related mortality and major morbidity were 0% and 4.8%, respectively. Risk of anosmia significantly correlates with meningioma size ($P < 0.001$) and smell sense was preserved only in patients with tumors less than 4 cm in maximum diameter (4/7; 57.1%). A significant improvement of Mini Mental Standard Examination score was recorded at follow-up ($P < 0.001$) and no patients worsened their cognitive profile. Visual function improved in 7/8 (87.5%). Karnofsky Performance Scale score after surgery significantly increased ($P < 0.001$). According to the Glasgow Outcome Score, good outcome was achieved in 20 patients (95.2%).

Conclusions: Based on reported results, TFSSA allows complete tumor removal with good outcome and low complication rate. It may be proposed as a safe and effective approach to treat large and giant OGMs [1].

1)
Barzaghi LR, Spina A, Gagliardi F, Boari N, Mortini P. Transfrontal-Sinus-Subcranial Approach to Olfactory Groove Meningiomas: Surgical Results and Clinical and Functional Outcome in a Consecutive Series of 21 Patients. World Neurosurg. 2017 May;101:315-324. doi: 10.1016/j.wneu.2017.02.039. Epub 2017 Feb 15. PMID: 28213192.