

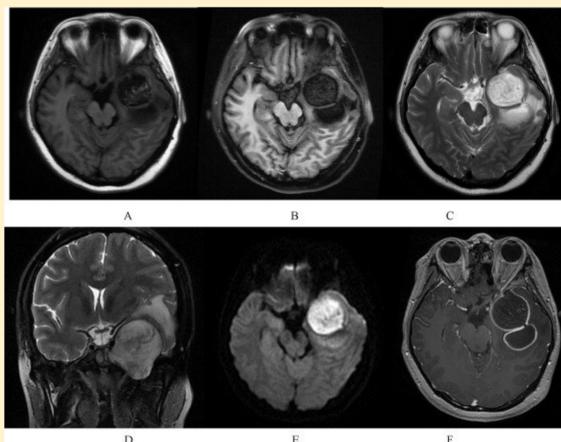
Epidermoid cysts can achieve gross total resection with low complications but have significant long-term risks of recurrence

Introduction

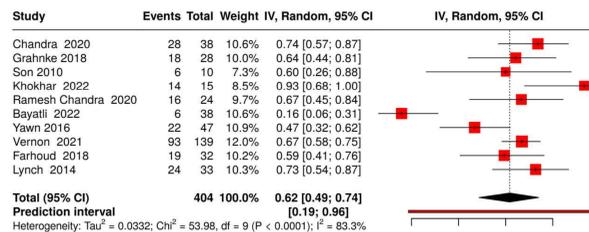
- Skull base epidermoid cysts: rare, benign, but technically challenging lesions
- Morbidity arises from cranial nerve and brainstem compression
- Gross total resection (GTR) desired, often limited by adherence to critical neurovascular structures
- Outcomes vary across centers → need pooled evidence to guide practice

Methods

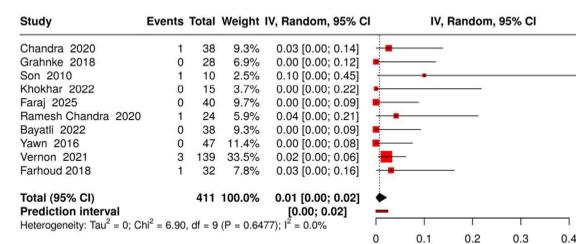
- PRISMA-compliant systematic review + single-arm meta-analysis
- Databases: PubMed, Embase, Scopus, Cochrane (through July 2025)
- Inclusion: ≥5 surgical patients with skull base epidermoids and extractable outcomes
- Exclusion: case reports, radiology-only series, duplicate cohorts
- Two reviewers: screening, extraction, quality assessment; disagreements by consensus
- Extracted: demographics, location, approach, extent of resection, complications, recurrence, mortality
- Stats: random-effects (DerSimonian–Laird), inverse-variance; Freeman–Tukey for proportions
- Heterogeneity: τ^2 , I^2 ; 95% prediction intervals
- Outcomes: Primary GTR; secondary recurrence, complications, mortality



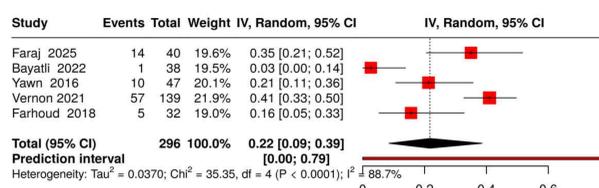
Gross total results



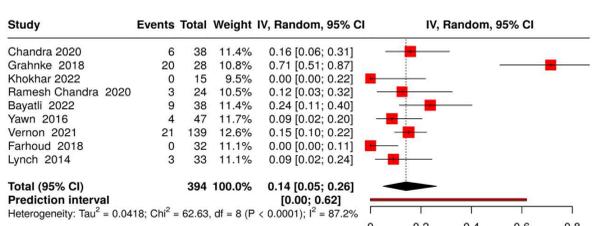
Mortality results



Overall complications



Recurrence results



Results

- 11 studies, 444 patients included
- GTR: 62% (95% CI 49–74); I^2 83.3%
- Mortality: 1% (95% CI 0–2); I^2 0%
- Overall complications: 22% (95% CI 9–39); I^2 88.7%
 - Examples: cranial neuropathy, CSF leak, meningitis, hydrocephalus
- Recurrence: 15% (95% CI 6–27); I^2 87.2%
- Recurrence can occur even after apparent GTR

Discussion

- Skull base epidermoid surgery is safe overall with very low mortality
- GTR achievable in a majority, but limited by adherence to vital structures
- Recurrence despite GTR is possible supporting life-long follow-up
- Challenging to identify a treatment balance between aggressive resection and neurologic preservation
- Standardized reporting and prospective multicenter studies are needed to improve patient selection, outcomes and treatment decisions

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