

# Hybrid reconstruction of the anterior skull base following extended endoscopic transnasal resection of skull base tumours

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## BACKGROUND

- Robust skull base reconstruction in endoscopic transnasal surgery is essential for preventing cerebrospinal fluid (CSF) leakage and associated complications (1)
- The use of vascularized pedicled flaps has shown to be successful in reducing postoperative complications (2-4)
- The nasoseptal flap has gained popularity, however, this may not be viable in cases of malignant infiltration, revision or salvage procedures

## RESULTS

### Demographics and pathologies

Total no. of cases (n=16)

Median age= 71

Female: Male= 1: 2.2

Benign tumour (2)

Meningioma (2)

Malignant tumour (14)

Sinonasal adenocarcinoma (5)

Sinonasal squamous cell carcinoma (6)

Basaloid carcinoma (1)

Neuroblastoma (1)

Melanoma (1)

### Surgical technique

- Supine position with head secured in Mayfield headframe
- Coronal and lateral rhinotomy incisions marked (Figure 2A)
- Endoscopic resection
- Subgaleal dissection from coronal incision to supraorbital ridge
- Pericranial flap was raised from the cranium (Figure 2B)
- Scalp drain was inserted prior to closure
- Lateral rhinotomy with dissection down to the nasal bone which was drilled to create a communication with the nasal cavity
- Autologous tensor fascia lata graft harvested from lateral thigh and underlay in the dural defect
- Augmented externally by the vascularized pericranial flap rotated through the nasal bone defect (Figure 2C,D)
- Balloon catheter inserted in nasopharynx to support the flap
- Nasopores and nasopharyngeal airways inserted in nasal cavities

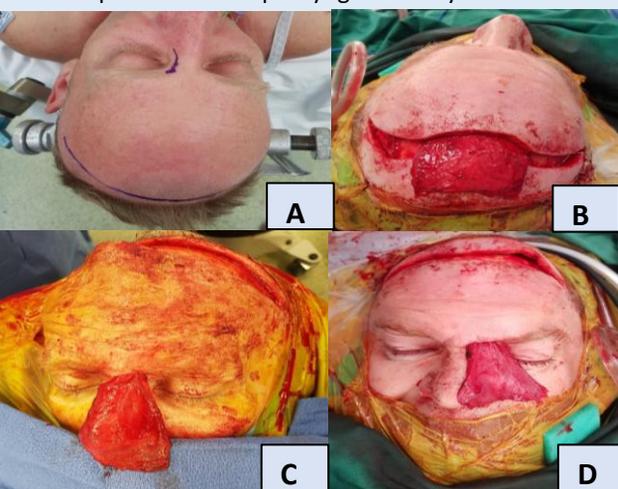


Figure 2. Surgical technique

## OBJECTIVE

We describe our hybrid endoscopic/open technique of using autologous fascia lata and a pedicled vascular pericranial flap to reconstruct the skull base defect following extended endoscopic skull base surgery.

## METHOD

Retrospective study of 16 consecutive cases of extended endoscopic transnasal resections of skull base tumours performed by a single ENT surgeon and a Neurosurgeon since December 2018.

### Post-operative care

Computed tomography brain scan on Day 1

- Minor pneumocephalus in all patients
- 1 patient had a small subdural haemorrhage that was treated conservatively

Scalp drain removal on Day 2

- No significant scalp oedema or haematoma
- No CSF leakage or major bleeding

Follow up at 3-week

- Most patients had some minor nasal crusting
- 1 patient had a minor cutaneous fistula at the lateral rhinotomy incision which was conservatively managed with dressings

## CONCLUSION

The use of pedicled pericranial flap in combination with autologous fascia lata in reconstruction of large dural defects resulting from an extended endoscopic transnasal skull base resection is a reliable method for skull base reconstruction.

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