

Extended Open Rhinoplasty Approach for Excision and Reconstruction of Midline Nasal Mass: A Case Series

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BACKGROUND

- Midline nasal masses are rare and may include dermoid cysts and mesenchymal tumors^{1,2}.
- Excision through extended open rhinoplasty provides broad exposure, direct visualization of open roof deformity, and facilitates concurrent functional and aesthetic reconstruction.

METHODS

- Design: Case series of 3 patients with midline nasal masses (2 pediatric dermoid cysts, 1 adult chondromyxoid fibroma).
- Setting: Single institution, all cases performed by a multidisciplinary team.
- Data collected: Patient demographics, imaging, pathology, reconstructive technique, and complications.
- Follow-up: Early postoperative outcomes with clinical and cosmetic assessments.

PRE-OPERATIVE IMAGING

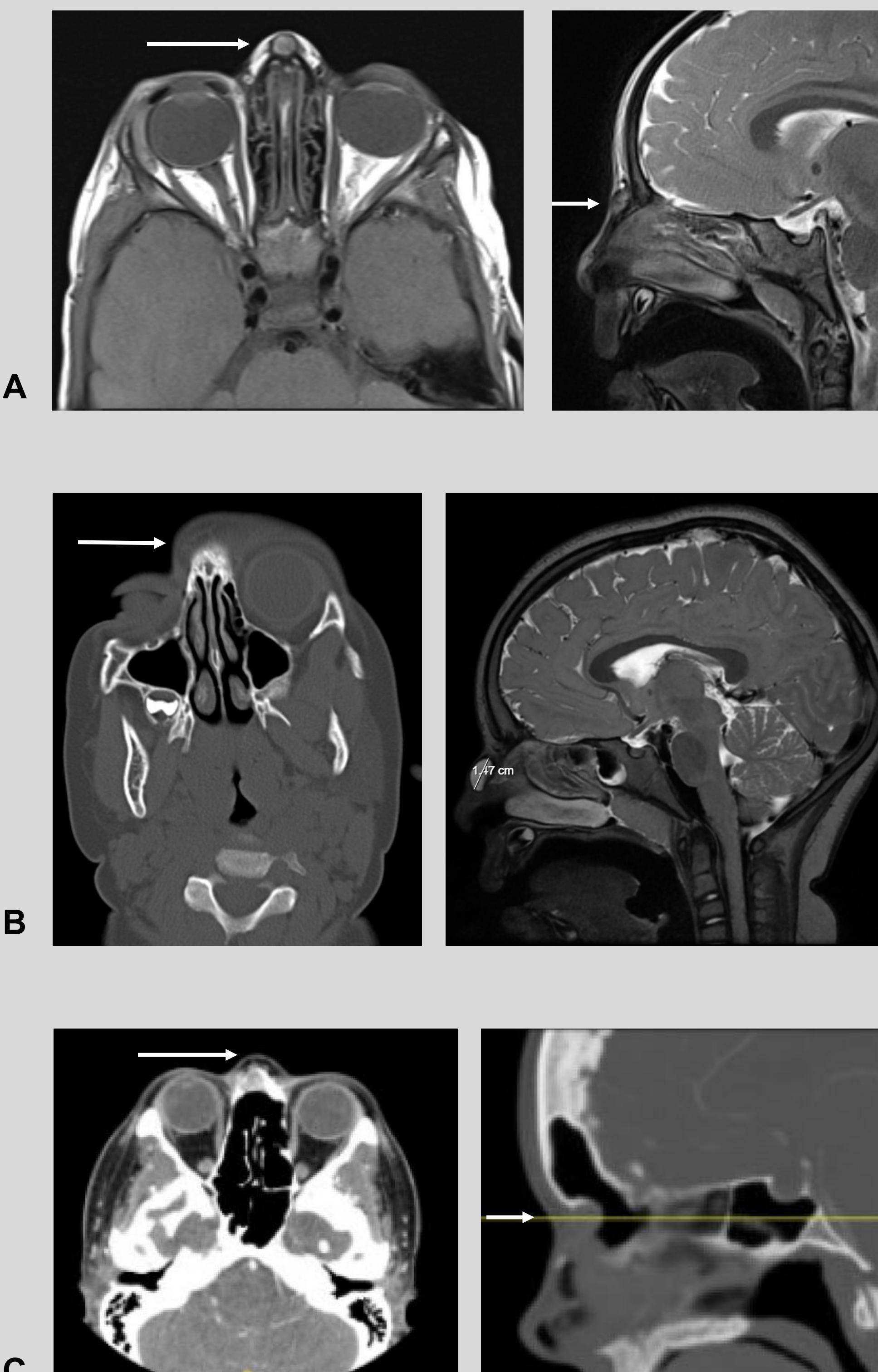


Figure 4: A. Patient 1 axial T1 and sagittal T2 weighted non-contrast MRI B. Patient 2 axial CT (left) and sagittal T2-weighted non-contrast MRI (right) C. Patient 3 axial and sagittal contrast CT

SURGICAL TECHNIQUE

- Extended open rhinoplasty with endoscopic assistance for tumor identification and resection¹.
- Bony attachment sites drilled at the nasofrontal suture and cranial base when involved.
- Reconstruction performed concurrently with ADM or autologous rib/pericranial grafts.

RESULTS



Figure 1. A 2-year-old male with a congenital nasal dermoid cyst extending to the base of the anterior cranial fossa (identified at nasofrontal suture line). The lesion was excised via an endoscopic-assisted open rhinoplasty approach, with correction of the open roof deformity at the radix using acellular dermal matrix. Preoperative (A, B) and postoperative (C, D) views.



Figure 2. A 4-year-old female with a congenital nasal dermoid cyst without significant skull base involvement. The lesion was resected through an endoscopic-assisted open rhinoplasty and reconstructed with acellular dermal matrix to restore dorsal contour. Preoperative (A, B) and postoperative (C, D) views.



Figure 3. A 39-year-old female with recurrent chondromyxoid fibroma involving the nasal bones and frontal recess, status post prior resection. The tumor was removed using a combined endoscopic-assisted open rhinoplasty approach, with reconstruction using autologous rib graft, pericranial flap, and pericranial fascia graft. Postoperative views shown.

Table 1. Clinical characteristics, imaging findings, pathology, reconstructive technique, and complications for three patients undergoing endoscopic-assisted open rhinoplasty for midline nasal masses.

Patient	Age/Sex	Lesion Size (Imaging)	Pathology/Diagnosis	Reconstruction	Complications
1	2/M	9 x 6 x 7 mm (MRI)	Nasal dermoid cyst	Acellular Dermal Matrix	None
2	4/F	13 x 8 x 15 mm (CT/MRI)	Nasal dermoid cyst	Acellular Dermal Matrix	None
3	39/F	1.5 x 1.1 cm (CT)	Chondromyxoid fibroma with recurrence	Autologous rib + pericranial/nasoseptal flap	Post-op forehead hematoma (resolved)

DISCUSSION

- Midline nasal range from congenital dermoid cysts in children to rare neoplasms in adults³.
- In our pediatric patients, acellular dermal matrix proved effective.
- Our adult patient required autologous rib and pericranial flaps due to a larger, recurrent, bony-destructive tumor³.
- Limitations: small case series with short follow-up period. Long-term recurrence risk and graft durability require further study.

CONCLUSION

- Extended open rhinoplasty, combined with endoscopic assistance when necessary, is a versatile approach for excising midline nasal masses.
- This approach adapts cosmetic rhinoplasty exposure to oncologic and congenital tumor excision to achieve lesion clearance and high-level aesthetic reconstruction in a single-stage operation^{1,2}.
- This case series demonstrates a successful and reproducible approach to managing rare and complex lesions while attaining optimal aesthetic results with minor complications.

REFERENCES

- Toriumi DM, Johnson CM. Open structure rhinoplasty: featured technical points and long-term follow-up. *Clin Plast Surg*. 1993;20(1):127-152. doi:10.1016/S0094-1298(20)31072-5
- Pensler JM, McCarthy JG. The surgical management of midline nasal dermoid lesions. *Plast Reconstr Surg*. 1985;75(4):535-542. doi:10.1097/00006534-198504000-00006
- Oh M, Kim H, Kim J, et al. A case of chondromyxoid fibroma observed in the nasal cavity. *Korean J Otorhinolaryngol-Head Neck Surg*. 2023;66(5):259-263.

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