

# Handling Atypical Sellar and Parasellar Lesions in Initial years of Skull Base Practice: Diverse Pathologies, Surgical Strategies, and Outcomes in first 100 Endoscopic Endonasal Surgeries

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## Introduction

Sellar and clival lesions encompass diverse pathologies, from common pituitary adenomas to rare entities with unique histologic and anatomic challenges. While standard management paradigms exist for typical cases, rare lesions demand tailored strategies due to their heterogeneity and proximity to critical neurovascular structures. This case series highlights unusual sellar/parasellar pathologies, focusing on diagnostic nuances, surgical decision-making, and outcomes.

## Methods

A retrospective analysis of first 100 consecutive patients operated by a single surgeon via endoscopic endonasal approach was done. This yielded 12 patients with rare sellar/parasellar lesions treated at a tertiary center. Data included clinical presentation, imaging findings, surgical approach, histopathology, complications, and outcomes. Technical aspects through video analysis was also done.

## Results

Twelve patients were identified. Pathologies included benign cysts (non sellar Rathke's, arachnoid cyst), fibrous dysplasia, mixed neuroglial tumors, and malignancies like plasma cell tumor, squamous cell carcinoma, and metastases (neuroendocrine, adenocarcinoma). Presenting symptoms were highly variable, including visual deficits, cranial neuropathies, hearing loss, seizures, and pituitary dysfunction. Lesion size ranged from 8 mm to over 3.5 cm, with imaging frequently demonstrating optic chiasm, cavernous sinus, or internal carotid artery involvement and extensive bony erosion in malignant cases. Extended approaches were utilized over 90% of the time. Management strategies ranged from gross total resection to subtotal debulking for invasive tumors and innovative reinforcement for a non-leaking sphenopetroclival arachnoid cyst. GTR was often limited by neurovascular encasement. No vascular injury, new neuro deficit or CSF leak was noted. Intraoperative Doppler directly prevented vascular injuries and video technical nuances are provided as well.

## Conclusions

Rare sellar/parasellar lesions require meticulous preoperative planning and intraoperative adaptability. Intraoperative doppler, multidisciplinary approach and anticipation of distorted surgical anatomy is quintessential surgical armamentarium in handling complex cases in initial years of practice.

