

Perioperative Management of Pituitary Macroadenoma through Trans Sphenoidal Approach

Dr. Yamsani Karthik¹, Dr. T. Suryasree², Dr. A. Sivaram³

¹Post Graduate, Department of Anesthesia, Siddhartha Medical College, Vijayawada, Andhra Pradesh, India

²Professor & HOD, Department of Anesthesia, Siddhartha Medical College, Vijayawada, Andhra Pradesh, India

³Assistant Professor, Department of Anesthesia, Siddhartha Medical College, Vijayawada, Andhra Pradesh, India

Abstract: Pituitary adenomas often present with the symptoms of hormonal hypersecretion, and although medical therapy is available for most hyperfunctioning states, it is not curative. As a result, transsphenoidal pituitary surgery has become a commonly performed neurosurgical procedure with unique challenges for the anesthesiologist due to the distinct medical comorbidities associated with various adenomas. Any type of pituitary tumor may also produce hypopituitarism and local mass effects secondary to the expanding intrasellar mass. Here we review the perioperative concerns surrounding surgery to remove adenomas and decompress the sellar space. Special attention is given to Cushing's disease (hypercortisolism secondary to an adrenocorticotropic hormone - secreting adenoma), acromegaly (secondary to a growth hormone - secreting adenoma), and hyperthyroidism in the setting of thyrotropic adenomas. Operative risks, including bleeding, diabetes insipidus, the syndrome of inappropriate antidiuretic hormone secretion, and hypopituitarism, are addressed in detail. Understanding preoperative assessment, intraoperative management, potential complications, their management, and strategies for avoidance are fundamental to successful perioperative patient care and avoidance of morbidity and mortality.

Keywords: Pituitary adenoma, Transsphenoidal approach, SIADH, Hypotensive anaesthesia

1. Introduction

Pituitary is a master endocrine gland.

Presentation of pituitary disease is by direct effects of hormone imbalance or pressure effects of tumour.

Anaesthetic implications- Challenging Airway, Obstructive Sleep Apnea, other endocrine abnormalities

Approach- Trans sphenoidal approach as it has fewer incidence of complications.

Aims of Anaesthesia for this case – Adequate cerebral oxygenation, Maintaining haemodynamic stability, Providing conditions that facilitate surgical exposure, Rapid smooth emergence.

A multidisciplinary approach is important in managing patients with pituitary disease.

2. Case Report

A 62yr old male patient was brought to casualty with h/o seizures followed by loss of consciousness and frequent headaches.

Further evaluation revealed PITUITARY MACROADENOMA.

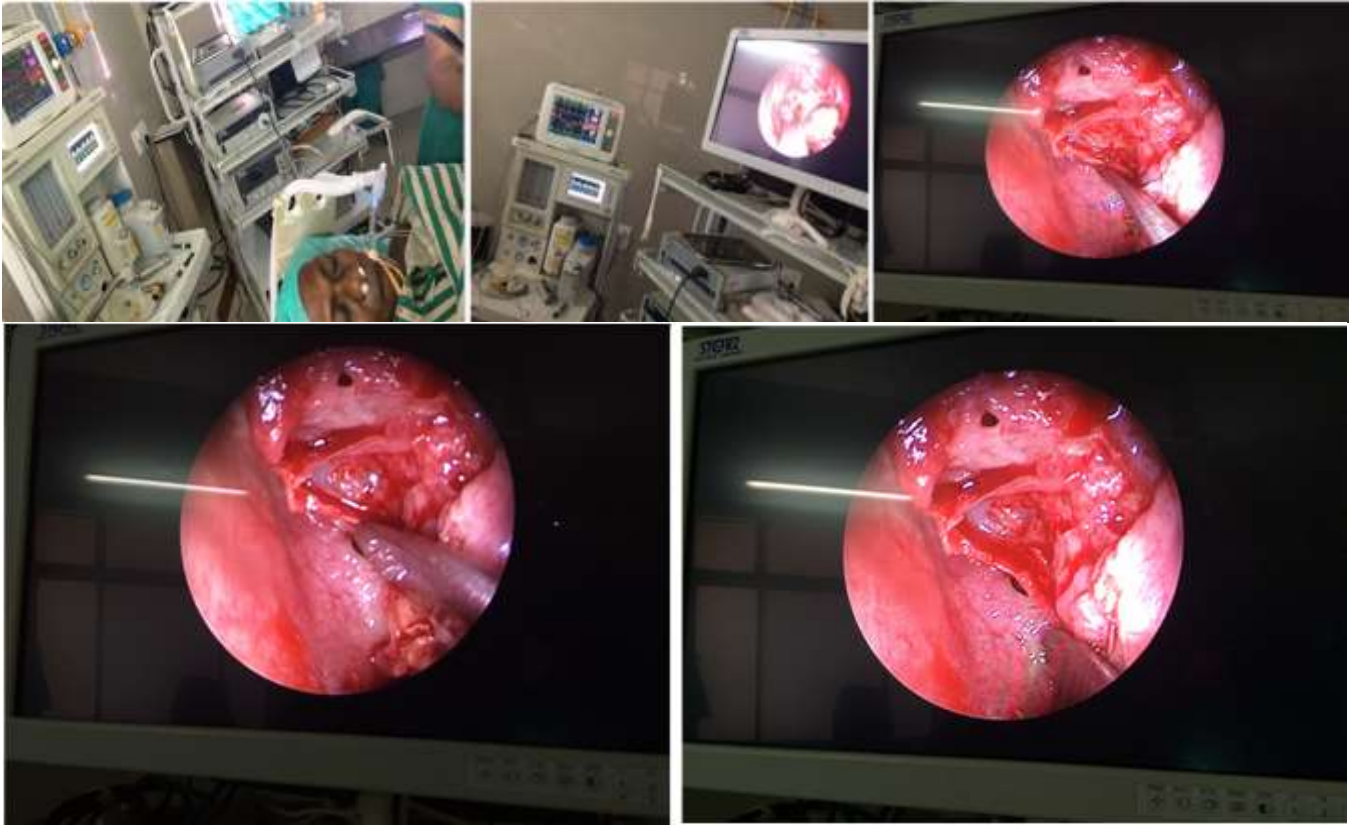
Preanesthetic evaluation done and revealed K/C/O Hypertension since 5years on medication Tab Telmisartan 40 mgOD, Tab Amlodipine 10mgOD, ECG - Sinus bradycardia (58bpm)

Endocrine hormone profile showed low serum cortisol, thyroid levels.

After optimising, case was taken for surgery,

Patient was preoxygenated, induction done with Thiopentone sodium

- a) Intubated after administering succinylcholine,
- b) Maintenance done with sevoflurane, oxygen, nitrous oxide (0.6: 2: 3)
- c) Patient position - Head end 30degrees elevation
- d) Endotracheal tube placed at left angle of mouth
- e) Throat pack was placed to prevent trickling of blood into Nasopharynx
- f) Intraoperative management included Hemodynamic stability by hypotensive anaesthesia which was maintained with Inj. Nitroglycerine (0.5 - 2mcg/kg/min) infusion by titrating the dose with invasive BP monitoring.
- g) Other parameters monitored are PR, SpO₂, ECG, NIBP, ETCO₂, ABG analysis
 - After tumour excision, operated entry was closed with fascia lata graft
- h) Surgery went uneventful, patient extubated while in deeper planes after return of gag reflex.
- i) Patient shifted to RICU, observed for complications like
 - Diabetes insipidus
 - SIADH
 - CSF LEAK
- j) Shifted to ward in normal physiological condition.



Intraoperative Images

3. Discussion

- Pre Anaesthetic examination plays a main role.
- Multidisciplinary approach for managing pituitary disease.
- Selected Thiopentone sodium as intravenous induction agent (h/o seizures), Succinylcholine was used as muscle relaxant during intubation and for maintenance Vecuronium was used and Sevoflurane used as inhalational anesthetic.
- Injection Nitroglycerine used as Agent of choice for maintaining hemodynamic stability (Dexmedetomidine was avoided as there is sinus bradycardia in this case)
- Various Parameters were used for monitoring - HR, ECG, ABG Analysis, ETCO₂, IBP
- Observed for intraoperative complications like ICA Rupture.
- Rapid smooth emergence was done by priorly giving Fentanyl.
- Monitored for Postoperative complications by shifting to ICU

4. Conclusion

Anaesthetic management for Transsphenoidal surgery require thorough Preanesthetic Assessment, Intraoperative management by providing adequate surgical exposure, Rapid smooth emergence, Monitoring Postoperative complications.

References

- [1] Indian J EndocrinolMetab.2011 Sep; 15 (Suppl3): S224–S232. doi: 10.4103/2230 - 8210.84872
- [2] Smith M, Hirsch NP. Pituitary disease and anaesthesia. Br J Anaesth.2000; 85: 3–14
- [3] Rashmi Menon, MD FRCA, Paul G. Murphy, FRCA, Andrew M. Lindley, FRCA *Continuing Education in Anaesthesia Critical Care & Pain*, Volume 11, Issue 4, August 2011
- [4] Vance ML. Treatment of patients with a pituitary adenoma: one clinician's experience. Neurosurg Focus 2004; 16: 1–6
- [5] Ellegala DB, Alden TD, Couture DE, et al. Anemia, testosterone, and pituitary adenoma in men. J Neurosurg 2003; 98: 974–7