



ANAESTHETIC MANAGEMENT IN A CASE OF PITUITARY ADENOMA – CASE REPORT

Anaesthesiology

Dr Yasmin Mariam S. G

Post Graduate Of Anaesthesiology, Sree Balaji Medical College And Hospital

Dr Neeta Parlikar

Senior Resident Of Anaesthesiology, Sree Balaji Medical College And Hospital

ABSTRACT

Pituitary is a master endocrine gland that regulate the activities of all other endocrine glands. Pituitary diseases have anaesthetic implications such as a challenging airway, obstructive sleep apnoea and associated endocrine disease. A multidisciplinary approach is important in managing patients with pituitary adenoma. We present here a case of 25 years old with pulsating headache and bilateral gynaecomastia diagnosed to have pituitary tumour and planned for Trans-nasal Endoscopic Hypophysectomy.

KEYWORDS

Pituitary Adenoma; General Anesthesia.

INTRODUCTION:

The pituitary gland is in the skull, below the brain and above the nasal passages. A large tumour can press upon and damage the brain and nerves. It is a master endocrine gland. Pituitary macro-adenoma presents with mass effects and potentially hormonal deficiency or hormonal excess (1). The focus of a pre-anaesthetic check-up is mainly directed at the endocrinological manifestations of pituitary hypo- or hyper-secretion as it secretes a variety of essential hormones, and also any pathological state that can cause imbalance of pituitary secretions. Hypo-secretion of pituitary hormones mainly occurs either due to the compressive effects of pituitary adenoma, hemorrhage into the pituitary gland or pituitary infarction during the post-partum period (Sheehan's syndrome). (2) Pituitary Cushing disease patients are likely obese, diabetic, hypertensive, and hyperlipidemic; they are at high risk for atherosclerosis, OSA, infections and thromboembolic events. Patients with hypopituitarism may have undiagnosed central hypocortisolism or hypothyroidism that needs hormonal repletion perioperatively in order to avoid life-threatening hypotension or increased sensitivity to anesthesia. Difficult airway and OSA management can be planned, and postoperative neurocritical care placement may be sought. The endoscopic transsphenoidal approach has become widely adopted for the resection of pituitary tumors.

Case report:

A 25 year old male came with chief complaints of pulsating headache and bilateral gynaecomastia. He was evaluated and diagnosed to have pituitary tumour and planned for Trans-nasal Endoscopic Hypophysectomy. On local examination: weight – 120 kgs, height – 177 cms, BMI – 38.4, STOP BANG – 4/8. On general examination patient is conscious, oriented, HR- 76/min, BP- 130/80mmHg, SpO2- 98% in Room air, systemic examination was within normal limits. Airway examination showed MPC- III, Neck movements: normal flexion and extension, Teeth: no artificial denture/loose tooth, Spine: normal. Investigations: Haemoglobin: 15.5g/dl, total count: 10,300 cells/cumm, Sr. Prolactin: 1450, Sr. Testosterone: 1.10, Sr. Cortisol: 12.84 micro grams/dl, IGF-I: 203, Sr. Sodium: 139 & Sr. Potassium: 4.20, TSH-2.45. MRI Brain: F/S/O Pituitary macro adenoma with internal haemorrhage and necrotic areas. Mass effect over optic chiasma and invasion of left cavernous sinus. Lesion size- 2.1 x 1.7 x 2.2 cm.

Preoperatively:

Ophthalmological evaluation of visual acuity, visual fields, relative afferent pupillary defect, and extraocular movements are required for detailed evaluation of the neuro-ophthalmologic functions. Base-line pituitary hormone panel, including thyroid stimulating hormone (TSH), free T4, serum prolactin, growth hormone (GH), insulin-like growth factor 1, follicle-stimulating hormone, luteinizing hormone, adrenocorticotrophic hormone (ACTH), fasting cortisol, serum sodium level, testosterone were done. Additional endocrinology testing may be performed for evaluation of the hypothalamic-pituitary-endorgan axis. After all these patient was assessed and taken for procedure under ASA 3 under general anaesthesia.

Intraoperatively:

In operating room, theatre was prepared with difficult airway cart and emergency drugs was kept ready. All mandatory monitors were connected. Keeping in mind the BMI and difficult intubation adequate ramping was done. Patient was adequately pre-oxygenated and pre-medicated following which he was induced with Inj. Propofol 140 mg and paralysed with Inj. Succinylcholine 100mg. Patient was then intubated with 8 size Endotracheal tube and after confirming bilateral air entry was fixed at 22 cms, Intubation was uneventful. Due to morbid obesity of the patient and chances of atelectasis were more, PEEP of 5 cmH2O was kept in the ventilator. The plane of anaesthesia was maintained with O2-N2O-Sevoflurane Inj Vecuroneum [1:1:1-2 vol:0.01mg/kg]. Intra operatively there was blood loss of 400 ml. Analgesics used: Inj. Fentanyl 250mcg, Inj Tramadol 100mg, Inj Dexmedetomidine 80 mcg infusion on flow and Inj Paracetamol 1g. Total duration of the procedure was 4 hrs 30 mins. Patient was extubated following Inj Myoppyrolate after achieving adequate tidal volume and respiratory efforts.

POST OPERATIVELY:

patient was monitored for any airway obstruction and fall in consciousness level. Post op analgesia was continued. MRI Brain (FIG 1), Serum electrolytes, urine output, visual acuity, epistaxis and CBG levels were monitored at regular intervals. Patient was followed for CSF leak Post operatively. If unexpected, new onset diplopia or deterioration in visual acuity is experienced, systemic corticosteroids may be administered to reduce neuronal swelling. Emergent imaging of the brain (CT or MRI) should be obtained to look for hematoma and packing effects. If mass effect on the optic apparatus or the cavernous sinus is observed, an emergent return to the operating room is necessary.

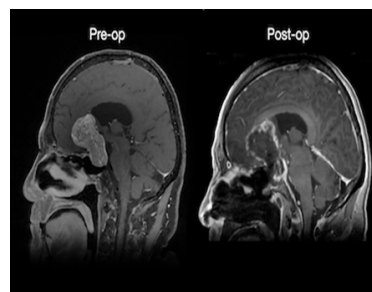


Fig 1: MRI brain preoperatively & post operatively

DISCUSSION:

Patient with pituitary disease undergoing pituitary or other surgery faces a lot of anaesthetic challenges. The general aim of anaesthesia includes haemodynamic stability, maintenance of cerebral oxygenation, conditions to facilitate surgical exposure, prevention of intra operative complications and rapid emergence to facilitate early neurological assessment (3). Anaesthetic techniques that reduce nasal perfusion by reducing cardiac output is preferred. Controlled hypotension have been standard for endoscopic sinus surgery to reduce bleeding and improve operative field(4). The reverse Trendelenburg

position is a simple technique to reduce intra cranial bleeding during surgery. The most feared and disastrous complication of endoscopic pituitary surgery is carotid artery injury. Overwhelming and uncontrolled blood loss from carotid artery injury is a potential cause of intraoperative mortality, and hence the anaesthetist must also be prepared to face such dreadly complication and manage it. These patients are also prone for difficult airway and one must be anticipating difficult intubation and be ready with a difficult cart or prepared for awake oro-tracheal fibre optic intubation. Post operatively the patient must be monitored carefully due to high risk of airway obstruction. Sodium abnormalities can occur after pituitary resection; hyponatremia could be due to CENTRAL DI or hyponatremia could be due to SIADH (5). Teamwork between neurosurgeon, anaesthetist, neuroendocrine and radiologist is essential for managing such cases.

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