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Anaesthesiology

ANAESTHETIC MANAGEMENT OF CAROTID BODY TUMOR EXCISION

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ABSTRACT CBT is a rare, non-chromaffin paraganglioma arising from chemoreceptor cells at carotid bifurcation. Though slow growing, painless & usually benign, they can invade or exert pressure on surrounding neurovascular tissue. Due to tendency for malignancy, surgical excision should be performed at the earliest. A 28year old male patient presented with a soft painless, gradually progressive swelling below right pinna since 2yrs.All the blood, radiological investigations done, DSA confirms the diagnosis as Carotid body surgical excision done under General anaesthesia with controlled ventilation. Intraop vitals maintained stable, patient extubated after spontaneous efforts.

KEYWORDS : Paraganglioma, carotid body tumor

INTRODUCTION:

CBT is a rare, non-chromaffin paraganglioma arising from chemoreceptor cells at carotid bifurcation. Incidence is 1-2 per1,00,000. Though slow growing, painless & usually benign, they can invade or exert pressure on surrounding neurovascular tissue. Due to tendency for malignancy, surgical excision should be performed at the earliest. Surgery imposes several challenges & high incidence of perioperative morbidity & mortality (20-40%)

CASE REPORT:

- A 28year old male patient presented with a soft painless, gradually progressive swelling below right pinna since 2yrs.
- Lump was non-pulsatile, non-collapsible with no bruit heard over it. C/o dysphagia, hoarseness, numbness of tongue was absent.
- Airway was normal. General physical examination, systemic examination & blood investigations were normal.
- IDL showed bulge on posterior pharyngeal wall on right side with bilateral mobile vocal cords.
- USG showed hyperechoic lesion with involvement of right IJV.
- CT neck revealed 6.7x5x2.5cm well defined, strongly enhancing lesion in right carotid region extending from bifurcation of CCA to jugular fossa.
- DSA confirms diagnosis.
- Left ICA, CCA & VA were normal.

Fig-1. Carotid body tumor excision under General Anesthesia

Fig-2. Carotid body tumour excision.

Fig-3. Removal of tumour.

CONDUCT OF ANAESTHESIA:

Excision of Right sided Carotid body tumor under General anesthesia with controlled ventilation was planned. Preoperative - adequate blood, left sub-clavian central venous line, ventilator standby, high risk informed consent taken. Premedication - tab alprazolam 0.25mg & tab ranitidine150mg night before surgery. Intraop - all required monitors connected. Induction and intubation were normal. Intraoperative hypotension was induced with dexmedetomidine 0.5ug/kg/hr and sevoflurane 1-2% to maintain mean BP 80-90mm Hg, HR – 60-70/min.

sudden increase in BP during tumor handling was managed with sevoflurane and IV boluses of propofol.

Surgery lasted for 3hrs. Intra operative blood loss was 600ml. 2 units blood transfused.

Patient extubated after giving reversal & shifted to ICU for observation. Patient shifted to ward and discharged on day 10. HPE confirmed paraganglioma.

DISCUSSION:

The carotid body, first described by Von Haller in 1743, is a highly specialized chemoreceptor organ situated at the bifurcation of CCA which detects changes in arterial oxygen tension. It is stimulated by hypoxia, hypercapnea and acidosis & in response controls BP, HR and respiration by increasing sympathetic flow.Receives blood supply predominantly from ascending pharyngeal artery of CA, innervated by glosso pharyngeal and vagus nerves. 5-7% may be malignant tumors.

History of uncontrolled hypertension, tachycardia, flushing, and excessive sweating suggests a catecholamine secreting CBT.Biopsy – catastrophic and contraindicated.Diagnosis – USG, CT, MRI with carotid angiography being gold standard.Surgery is definitive treatment. Radiotherapy reserved for elderly and with poor general condition.Shamblin's tumor classification based on size of tumor and difficulty of surgical resection. Stage II & III require more extensive surgery and associated with vascular and cranial nerve injuries.

Methods to maintain stable intraop hemodynamics- Administration of alpha blockers preoperatively & beta blockers intra operatively in functional tumors.

Mild hypothermia to prevent cerebral hypoxia. Inj. TPS (3 to 5mg/kg/hr) if carotid artery must be clamped.

Inj. atropine for reflex bradycardia during carotid sinus stimulation.Infiltration with 2% lignocaine at surgical site.

Predisposed to airway obstruction or aspiration due to nerve injury during surgery or tissue oedema.Involvement of cranial nerves, stridor & wheezing following extubation due to edema around cranial nerve , recurrent laryngeal nerve palsy, horner's syndrome are all may be unavoidable

CONCLUSION: Utmost vigilance by anesthesiologist is essential during CBT excision. A detailed history, specific investigations, proper optimization, monitoring, hypotensive anesthesia, and high index of suspicion for possible complications with prompt management result in successful outcome.

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