



Case Report

Excision of a Retroperitoneal Paraganglioma (As a Incidental Finding) in a 60yr Old Female Under General Anaesthesia

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ABSTRACT

Paragangliomas are tumors derived from specialized chemoreceptor tissue thought to be of neural crest origin outside the adrenal medulla.

In an previously undiagnosed and hence preoperatively unprepared case, the unexpected encounter of paraganglioma in the operating room, may lead to life-threatening complications during surgical resection under anaesthesia and its management is a challenge to the skill of the anaesthesiologist.

Here we present an undiagnosed case who developed severe hypertension, arrhythmia and subsequent hypotension under general anaesthesia.

Keywords: Incidental retroperitoneal paraganglioma, General anaesthesia challenges.

CASE REPORT

The patient 60 yr old female non diabetic and non hypertensive known case of CVA 7 yrs back with left hemiparesis and tobacco chewer presented with complains of pain in abdomen and vomiting since 5 days associated with increased sweating, facial flushing, nausea and decreased appetite and headache. Patient also gave history of chest pain 15 days back.

Investigations showed a well defined moderately heterogeneously enhancing lesion in retroperitoneum in paracaval and retropancreatic location measuring 3.4 x 3.7cms with few calcific foci within (CT abdomen). Sheet of calcification in left paracolic gutter along descending colon. Imaging features were suggestive of neoplastic retroperitoneal lesion possibly nerve sheath tumour/mesenchymal tumor.

Sinus tachycardia and inferior wall MI on ECG. 2D ECHO showed hypertensive heart disease and concentric LVH, LVEF of 60 % trivial TR and grade I diastolic dysfunction. Remaining blood investigations were in normal limits.

Airway examination features were presence of buck teeth, high arched palate, Mallampatti class II. After explaining due risk to patient consent was taken, 2 units whole blood reserved and patient was accepted for surgery under ASA grade 2. Bed was reserved in the ICU. Tab. propranolol was stopped on night prior to surgery i/v/o tachycardia and intermittent bradycardia. Tab. lorazepam 0.25mg was given at night prior and on morning of surgery.

Patient was wheeled in the OR. Monitors (pulse oximeter, NIBP, ECG) were attached. Baseline HR was 90/min and NIBP 180/100 mm of Hg and SpO₂ of 99% on room air. Peripheral line was secured with 18G cannula. Patient was made to sit and 18 G epidural needle inserted in L2-L3 space under all aseptic precautions with loss of resistance technique. Epidural space was obtained at 3.5cm and 18G epidural catheter inserted and fixed at 10cm mark. Test dose was given with Inj. Adrenalized lignocaine 2% (3 cc) to rule out intra-arterial/intrathecal placement of catheter. Patient was then made supine.

Premedication (Inj. Glycopyrolate 0.2mg, Inj. Midazolam 1mg, Inj. Pentazocine 30 mg I.v.) was given. Preoxygenation was done with 100% oxygen. Induction was done with Inj. Thiopentone 300mg, ventilation checked and patient intubated under Inj. Succinylcholine 100mg with 7.0 no. ETT. Position was confirmed with the capnograph trace and tube secured. Patient was maintained with oxygen, intermittent N₂O, halothane. Only loading dose of muscle relaxant Inj. Vecuronium 4mg I.v.

was used. After intubation right radial artery was cannulated with 20G cannula to obtain an IBP trace.

Intra-operatively there was persistent fluctuations of BP ranging from 80/50 mm of Hg to 220/120 mm Hg with handling of the mass. The lability of the BP and continuous fluctuations mandated the use of a central line. The right internal jugular vein was cannulated and central venous catheter fixed. CVP was 15-20cm. Inj. Furosemide 20 mg was given and later dose repeated to maintain CVP initially between 10-12 cm and later between 8- 10cm. HR ranged between 90/min to 168/min and saturation n between 85% to 100%. Surgery lasted for 2.5 hours. Blood loss was 500ml and urine output of 400ml. 3 units of crystalloids and 2 units of Haemaccel were transfused intraoperatively. Dopamine was started 10mcg/kg/min.

At the end of surgery patient had spontaneous respiration. Reversal was given with Inj. Neostigmine 2.5mg and Inj. Glycopyrolate 0.4 mg after thorough oral and ET suctioning. ABG showed pH-7.29, pCO₂-43, pO₂-72, HCO₃-20.7 and SO₂ of 92%. Chest auscultation revealed crepts bilaterally. Patient was not extubated and shifted to ICU on T-piece with oxygen @ 5L/min.

Inotropes-Dopamine was continued and noradrenaline started. Post-operative analgesia was maintained with epidural Inj. Bupivacaine 0.125% every 8 hrly noradrenaline was stopped the same day. Patient was extubated the next morning (ABG: pH-7.45, pCO₂-41, pO₂-118, HCO₃-28.5, SO₂-99%) and dopamine gradually tapered off. Post-op hypokalemia correction was done and patient started on T. Cardace 2.5mg OD, T. Aspirin 75mg OD, T. Amlod H –OD.

Histopathology report confirmed a paraganglioma with an adjacent autonomic ganglion. The tumour cells expressed

synaptophysin and chromogranin. S-100 protein was expressed in the sustentacular cells.

DISCUSSION

- Paraganglioma is the term used to describe pheochromocytoma arising in various sites, other than the adrenal medulla^{1,2}
- The organ of Zuckerkandl, the posterior mediastinum, retroperitoneum in general, the base of skull, neck and vagal aortic bodies, carotid and jugular bodies, larynx, small intestine and urinary bladder are the sites of paraganglioma
- Paraganglioma cells have abundant typical and large neurosecretory granules which may produce catecholamines to cause hypertension
- The clinical triad of diaphoresis, tachycardia and headache in hypertensive patient is suggestive of paraganglioma^{1,2}
- Other clinical suggestive features are sustained hypertension resistant to conventional treatment, paroxysmal hypertension or sustained hypertension with superimposed paroxysm
- Less common manifestations are unexplained hypotension, shock and severe hypertensive reactions that occur during incidental surgery or in association with trauma and anaesthesia³
- The unexpected encounter of paraganglioma in the operating theatres, delivery rooms and other circumstances carry mortality more than 50%
- Despite active metabolites being secreted, paraganglioma cases may remain normotensive
- These cases may come up for other surgical conditions and are at high risk of developing hypertensive crisis with catastrophic results³
- In patients with increased serum catecholamine concentrations preoperative administration of

phentolamine or prazosin may be done. Surgical excision may be preceded by radiation or embolization to decrease the vascularity of the tumour

Anaesthesia management - a formidable challenge

- Risks include catecholamine secretion producing symptoms resembling pheochromocytomas, serotonin secretion-symptoms of carcinoid syndrome, impaired gastric emptying and massive blood loss. Inadequate preparation of the patient prior to surgery, difficult surgical dissection⁴
- Excessive and different pattern of released catecholamines may cause severe hypertensive episodes during tumour manipulation⁵
- Intraoperatively, histamine and bradykinin released during surgical manipulation can cause profound hypotension^{6,7}
- Hypothermia is likely in prolonged surgery

CONCLUSION

Any patient with a retroperitoneal tumour having hypertension, palpitation, tachycardia or syncope with arrhythmias should be suspected of having paraganglioma and further investigated properly before administering anaesthesia.

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