ORIGINAL RESEARCH PAPER

Anaesthesiology

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ANESTHESIA MANAGEMENT OF A CASE OF LEFT SUPERIOR PARATHYROID ADENOMA - CASE REPORT

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ABSTRACT

Endocrine surgeries are on rise since the last few years. The endocrine, electrolytes and metabolic disturbances from such disorders can influence normal human physiology. Surgery of the parathyroid gland is also associated with multiple challenges during pre-op, intra and post operative periods. This case report presents a case of parathyroid adenoma, anesthetic implications and preparation required during surgery.

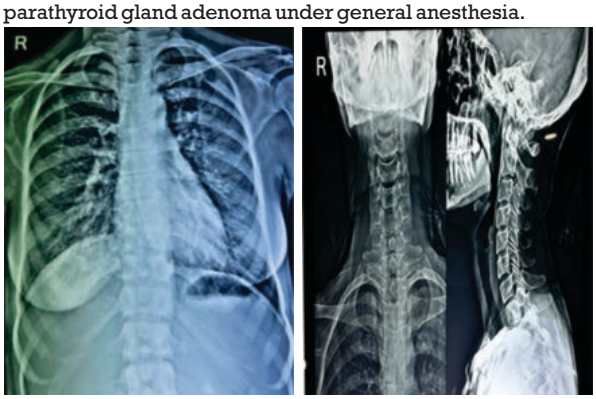
INTRODUCTION

Parathyroid glands are small, oral shaped structure found in close relation with the thyroid gland. They are four in number with two lying superior and two lying inferior. Superior glands are located on posterior- lateral surface of the superior thyroid love and inferior glands are in the inferior third of the thyroid gland. Normal parathyroid gland is usually the size of an apple seed and weighs approximately 0.5 grams . Individual glands measure about 3x 6x2 mm. They have abundant blood supply from inferior thyroid arteries and their veins and lymphatic drainage is shared with thyroid gland. Histologically, the gland consists predominantly of chief cells, which produces and secrets parathyroid hormones.

Human PTH regulates calcium homeostasis many physiological processes such as cell signaling, muscle contraction propagation of action potentials, coagulation and regulating of cell growth. It shows effect on three organs - kidneys, bones, and intestines. Parathyroid adenoma is a non-cancerous tumor of the parathyroid gland. Etiology is usually unknown but most common genetic mutation associated with sporadic adenomas is the cyclin D / PRAD 1 gene. They are more commonly seen in patients who are 50-70 years old, however they can occur at any age group. Women are usually 3 times more commonly affected than males.

Case Report

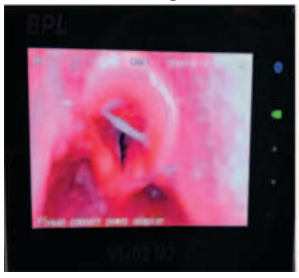
30 years presented to OPD with complaints of recurrent long bone fractures, in the past 2 years. She has no other complaints and no history of any trauma. She provided history of right lower limb femur fracture 2 years back after slip and fall. She underwent Open reduction and internal fixation with nailing and plating which was done under spinal anesthesia 2 years back. 5 months back she fractured her right upper limb doing her regular household chores. She was diagnosed with fracture of shaft of humerus, further evaluation revealed left sided superior parathyroid adenoma. She also had a history of cervical lymph node biopsy done under general anesthesia 10 years back. She had no other comorbidities and no history of any allergies. Obstetric history - para 2 live 2 full term normal vaginal delivery - uneventful. Menstrual history - Normal cycles 4/28 days, no dysmenorrhea, and no clots, LMP -25/3/24. On general examination her height is 152 cm and weight 35 kgs, Body mass index is 15kg /m2. Routine investigations are in normal limits, but serum calcium levels are 14.5 gm / dl, PTH levels are 425 pg / ml and alkaline phosphatase levels are 493. Serum uric acid levels are 6.5 mg/ dl. Usg abdomen reveals bilateral medullary nephrocalcinosis, ilacus muscle abscess and mildly bulky uterus with thickened endometrium. 2d echo suggestive of ejection fraction of 60%, Trivial tricuspid regurgitation and PASP of 22 mmhg, CECT abdomen suggestive of ilacus muscle abscess, multiple variable sized lytic expansile lesions involving bilateral place bones, right sacral ala with some lesions showing ground glass opacities within them, heterogeneous lytic areas involving the L3 vertebral body with associated mild wedge compression predominantly along the superior end plate, no retropulsion is noted . Few variable sized clusters of calcifications along the cortico medullary junction of upper, mid, and lower poles of bilateral kidneys —- s/o medullary nephrocalcinosis. Few non obstructive left renal calculi. Findings are most likely suggestive of sequalae of hyperparathyroidism with multiple Brown's tumor. X-ray of the cervical spine Wala also done, and vertebrae were evaluated. Pre-Anesthesia evaluation was done. Patient was started on oral calcium supplements. Orthopedic surgeon opinion was taken, and they have advised for a u slab for the humerus fracture and surgical management later. Patient underwent parathyroidectomy of left sided superior parathyroid gland adenoma under general anesthesia.

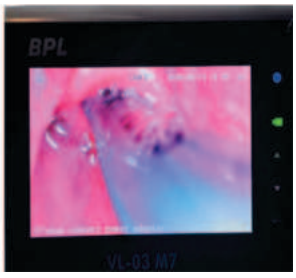


Anaesthesia Management

- Informed anesthesia consent, adequate NBM were confirmed.
- Patient was explained about general anesthesia.
- Patient shifted to operative room and all standard monitors attached and base line vitals were noted.
- Patient was adequately pre oxygenated and pre medicated with inj Glycopyrrolate, INJ Fentanyl with dose appropriate to her weight.
- Injection Propofol 2 mg / kg was used as induction agent along with sevoflurane as the inhalational agent and muscle relaxant injection Atracurium was used.

- Video laryngoscopy assisted endotracheal tube no 6.5 mm ID, Polyvinylchloride, portex, cuffed was inserted and fixed at 18 marks at the angle of mouth after confirmation with auscultation and positive capnography.
- Care was taken to intubate the patient with minimal neck extension to prevent any fractures.
- Anesthesia was maintained with mixture of sevoflurane along with air and oxygen and intermittent doses of muscle relaxant.
- All vitals were monitored, fluid input and output were also monitored.
- Intra operative blood loss was also minimal.
- She underwent parathyroidectomy of left superior parathyroid gland.
- Duration of surgery was 4 hrs.
- Intra operative analgesia was given with injection paracetamol and fentanyl and local anesthesia infiltration was given at surgical site after the surgery with lignocaine 2% and bupivacaine 0.5 %.
- Patient was reversed with injection neostigmine and glycopyrrolate and then video laryngoscopy was also done to check the mobility of vocal cords and hemostatic of the surgery.
- After the patient was fully awake and taking adequate tidal volume and regular respiration and regained muscle function, patient was extubated.
- Post extubating patient was stable vitally and oxygen was provided with Hudson mask at 4 lit / min.
- Intra operative period was uneventful.
- She was shifted to recovery and monitored for 4 hours before shifting to ward.





Post Operative Period

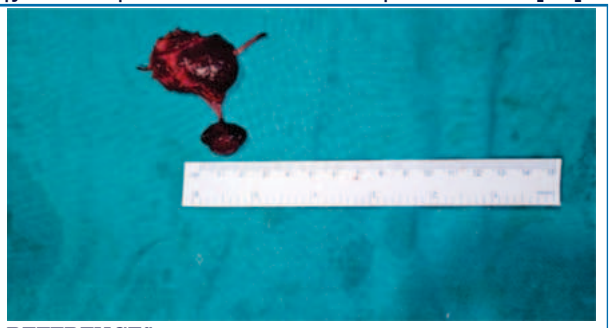
Post operative period was uneventful and paracetamol was given for management of pain during post operative period. On pod - 0 her serum calcium level is 12.4 gm / dl and again serum calcium was repeated after 24 hours and later pod 4 she was started on calcium supplements.

Serum calcium levels:

Pre-operatively - 14.5 gm / dl
Pod 0 - 12.4 gm / dl
Pod 1 - 10.1 gm / dl
Pod 2 - 9.9 gm / dl
Pod 3 - 9.1 gm / dl
she was discharged after 8 days of surgery.

CONCLUSION

With good preoperative assessment, preoperative preparation and providing good intraoperative and post operative analgesia we have successfully operated a case of parathyroid adenoma. PTH plays an important role in calcium homeostasis and other physiological processes. Anesthesiologists should pay attention to the timing of surgery, the airway, volume status, control of serum calcium level, organ function, and coagulation in anesthetic management during the perioperative period. Maintenance of deeper plane of anesthesia, fluid balance, maintaining normothermia, analgesia and blood loss and during extubation smooth extubation with awareness of the various complications which may occur, including bleeding, metabolic abnormalities, recurrent laryngeal nerve trauma, oedema of the glottis and hypocalcemia tetany. Care should be taken to evaluate post operative calcium levels and timely addition of calcium supplements in post operative periods.



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