ISA Indian Society of Anaesthesiologists Gujarat State Branch
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ISACON GUJARAT 2024
55th Annual Conference of
INDIAN SOCIETY OF ANAESTHESIOLOGISTS
Bridging The Gap- Theory and Practice
28 29 September 2024 | Venue: The Deltin, Daman (Only 5* Hotel)
Hosted by: Gujarat State Branch of ISA
Organised by: Navsari City Branch of ISA

Anaesthetic Management of a Patient with Adrenal gland tumor (Pheochromocytoma)

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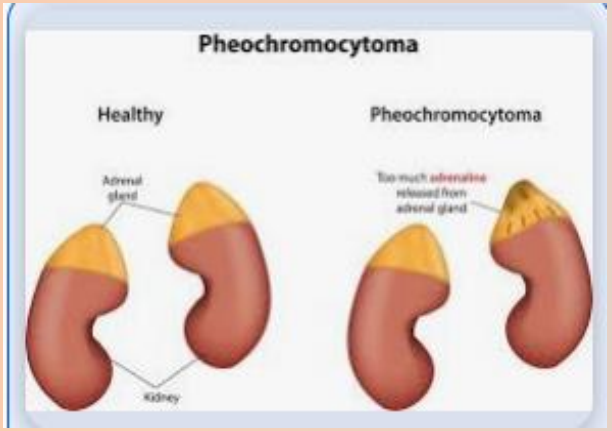
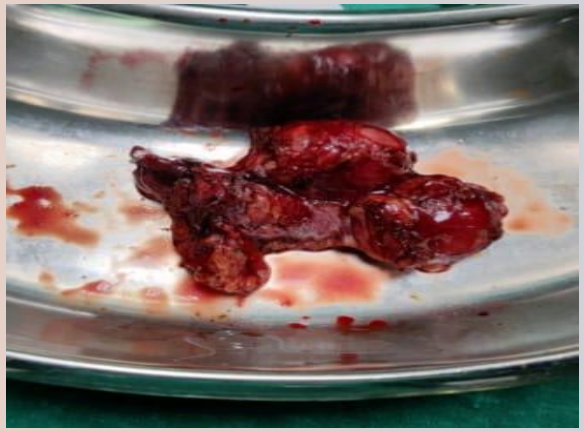
INTRODUCTION

- **Pheochromocytoma**

  Pheochromocytoma is a rare tumor originating from the adrenal medulla that secretes catecholamines. It is a neuroectodermal tumor arising from chromaffin cells of sympathetic nervous system





- **Symptoms**

  It is characterized by intermittent surges of norepinephrine and epinephrine. The classic symptoms include headaches, sweating, and palpitations.

- **Challenges**

  It poses the most fluctuating clinical course during anesthesia and surgical intervention. The tumor can lead to life threatening hypertension, during surgical manipulation. After the tumor is removed, the sudden drop in catecholamine levels can result in severe hypotension.

- **Sharing Experiences**

  I'd like to share my experiences and the challenges I encountered while managing a patient with pheochromocytoma.

CASE REPORT

Patient Details

- A 39-year-old male who was previously diagnosed with right-sided Pheochromocytoma for which adrenalectomy was planned.

- Chief complaints: abdominal pain, headache, sweating, and weight loss over last two months and recently detected hypertension.

Pre-operative Evaluation

• Blood pressure:160/100mmHg,

• Pulse Rate : 98/min,

• Spo2 : 99% on room air.

• Mild generalized abdominal tenderness

• No history of chest pain and occasional palpitations.

• Height :159 cm , weight : 60 kg ; BMI=23.7kg/m^2

• Past history: recently diagnosed hypertension.

• Blood Investigations- Metanephrines (4940 ng/L-[normal range is 0-88]) and Normetanephrines (5847 ng/L-[normal range is 0- 180]).Other investigations were normal.

• CECT abdomen : Right Supra-renal mass measuring 3.7x3.5 cm

• 2D ECHO : LVEF=55-60%,NO RWMA,GRADE I LVDD

• High-risk consent taken , and surgery was scheduled after preoperative optimization.

❖Peri-operative Preparation

• The patient was stabilized with Prazosin(alpha blocker) 5mg BD and Bisoprolol 5mg OD for 2 weeks, along with high-protein diet and incentive spirometry and adequate hydration.

• Hypertension was treated with Nifedipine(calcium channel blocker) 30 mg TDS and Bisoprolol(beta blocker) 5 mg OD.

• The patient was hemodynamically stabilized preoperatively.

❖**Day before surgery** procedure was done as follows:

-Tablet Alprazolam 0.5mg HS (night before surgery)

-Ringer 's lactate 60ml/hr IV overnight .

-Adequate PCV and ICU bed was reserved, overnight NBM was done and consent was taken.

-Tab. Prazocin 5mg and Tab. Nifedipine 30mg at 6am on day of surgery after measuring morning vitals.

❖**Type of Anaesthesia**

-Type of anaesthesia : General Anaesthesia +Epidural Anaesthesia.

• Premedication : Inj. Glycopyrrolate 0.2mg IV, Inj. Ondansetron 4mg IV , Inj. Midazolam 1mg IV.

• Epidural Catheter was inserted.

• Induction agent : Inj. Fentanyl 100mcg IV. ,Inj. Propofol 150mg IV, Inj. Rocuronium 0.7mg/kg (40 mg)IV.

• Intubation : 8.0mm cuffed portex tube orally

• Maintainance : Oxygen, Air, Sevoflurane And Infusion Inj. Rocuronium 0.2mg/ml@4ml/hr IV.

• Right IJV Central Venous Catheter And Left Radial Arterial Line and ryles tube were secured

❖**Intraoperative Management**

• The right-sided tumor found encroaching the renal vessels, from which it was dissected and tumor was excised.

• Episodes of hypertension while dissecting the tumor were observed, which were managed using Nitro-glycerine infusion and Esmolol (beta blockers).

• Intraoperative blood sugar monitoring was done.

• After resection of tumor, hypotension was observed , which was treated with IV fluids, Inj. Phenylephrine 1mg iv, twice.

• After surgery, neuromuscular block was reversed with Inj. Sugammadex 120 mg iv and patient was extubated.

❖**Postoperative Management**

• Surgery was completed without any complications and patient was shifted to ICU for observation.

• Post operative pain was managed by epidural dose of Tramadol and Inj Paracetamol (SOS).

• Discharged on POD 7.

DISCUSSION

- Pheochromocytoma poses a significant challenge for anesthesiologists.
- Prazosin, an α-blocker with a shorter half-life and minimal risk of reflex tachycardia, was used to reduce hypertension during the preoperative and postoperative periods.
- β-blockers are to be used only after adequate α-blockade as otherwise initial use of β-blockers will lead to unopposed α-stimulant action of catecholamines leading to hypertensive crisis.
- **Stress response** during induction can trigger catecholamine release, potentially leading to hypertension,which were managed using Fentanyl, Nitroglycerine and Esmolol(beta blockers).
- Resection of the tumor results in acute withdrawal of catecholamines which leads to hypotension aggravated by reduced plasma volume expansion due to chronic vasoconstriction. We used fluids and phenylephrine during hypotension.
- Post surgery, monitoring was done vigilantly as patients vital parameters can fluctuate due to catecholamine withdrawal.

CONCLUSION

Challenges

Managing patients with pheochromocytoma continues to pose a challenge for anesthesiologists.

Success Factors

Achieving a successful surgical outcome relies on thorough proper pharmacotherapy, preoperative preparation, vigilant intraoperative monitoring, and meticulous postoperative care.

Prognosis

The prognosis is generally favorable when the tumor is identified early, helping to prevent serious complications associated with excess catecholamines.

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Thank You