

## Anaesthetic Management of Pheochromocytoma and Cholecystectomy - A Case report

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Date of Submission: 23-01-2018

Date of acceptance: 09-02-2018

### I. Introduction

Pheochromocytoma is catecholamine containing tumor of chromaffin tissues<sup>1</sup>. The anaesthetic management, perioperative course, intraoperative monitoring & adequate fluid therapy have always been a challenge to anaesthesiologist in pheochromocytoma cases. Here we describe a successful management of a pheochromocytoma with cholecystectomy who was diabetic & hypothyroid.

### II. Case Report

A 36 yr old female admitted in hospital with c/o palpitation, headache, weight loss, & cold and clammy palm for 7 years. Patient had undergone uneventful thyroidectomy 9 yrs back. Her B.P was 163/100 mm Hg. Ultrasonography showed cholelithiasis, a cystic lesion in right suprarenal region and prominent hepatic vein. NCCT & CECT of whole abdomen showed necrotic supra-adrenal mass. For confirmation of diagnosis patient underwent all investigations for pheochromocytoma. VMA(24hrs) urine was 24.64 & VMA creatinine ratio was 51.72(<14.0mg/g) Her thyroid functions were deranged T<sub>4</sub> 0.89, T<sub>3</sub> 3.97pg/ml & TSH was 3.46. Her HbA1C was 7.2 indicating a subclinical/uncontrolled diabetic status. Other investigations including ECHO., X-ray chest & hemogram were within normal limits.

Final Diagnosis was as DM2-Hypothyroidism-Hypertension-Cholelithiasis with pheochromocytoma. Patient was put on Tab. Prazocin 5mg O D, Tab. Propranolol 20mg OD, Tab Thyroxine 25mg OD, & Injection human Actaprid Insulin BB, BL, BD on standard sliding scale. Patient was referred to Anaesthesia department for pre-anaesthetic assessment after one month of treatment. On the preoperative visit, supine and standing blood pressure were recorded which revealed no postural hypotension. (122/80 & 119/85) Her sugar & blood pressure were under control. So she was scheduled to undergo Laparoscopic surgery for both Adrenalectomy & Cholecystectomy. Intravenous fluid started with 1500ml/day with normal saline 0.9% for two days prior to surgery.

### III. Plan of anesthesia:

Day prior to surgery patient was premedicated with Tab alprazolam 0.5mg previous night & two hours before surgery. In pre-operative room 2mg Midazolam I.V was given to reduce anxiety. Intravenous line with 16G & arterial cannulation were done following I.V Fentanyl 100 mcg. Right internal jugular cannulation was performed after commencement of general anaesthesia.

The following drugs Labetalol, MgSo<sub>4</sub>, Esmolol, Noradrenaline, & NTG & blood for transfusion were kept ready. In the OT patient was connected to ECG, pulse oximeter, & non invasive arterial blood pressure monitoring.

Induction was done with IV Lidocaine 100mg, Ondansetron, Propofol 120mg, Fentanyl 100mg & Vecuronium 4mg as muscle relaxant for tracheal intubation. Xylocaine 10% spray was done to facilitate smooth intubation. Patient was haemodynamically stable during & just after intubation. Her B P was 122/84mmhg and pulse was 100/min. NTG infusion started with the intubation. Anaesthesia was maintained with Oxygen, Nitrous oxide, Isoflurane & infusion of Vecuronium. Intermittent Esmolol was given to control intra operative hypertension. To combat hyperglycemia Insulin drip was started & blood sugar charting was done. 2.5liters of fluids were administered before ligation of tumor. While handling of tumor BP increased to 200/140. Labetalol

infusion was started @ 1mg/ml which was stopped at the time of clamping. Size of tumour was 6.7 cm. After removal of tumor patient developed hypotension for which nor-adrenaline drip started 10ml/hr (80mcg/ml base) which was continued till surgeon approached gall bladder. Successful cholecystectomy was done. Noradrenaline infusion gradually decreased & finally stopped when desirable effect was achieved. Patient was extubated and transferred to ICU with stable parameters. She made uneventful recovery & discharged from ICU to surgical unit.

#### IV. Discussion

Our patient was having multiple problems. She was suffering from pheochromocytoma, cholelithiasis, & diabetic also. So multidisciplinary management was needed to achieve ideal condition for surgery.

Proper evaluation of patient with pheochromocytoma is essential from anesthesia point of view. Roizen<sup>2</sup> et al have recommended following guidelines prior to surgery for pheochromocytoma. (a) Blood pressure < 160/90mmhg for 24 hrs before surgery (b) postural hypotension > 80-45mmhg, (c) ECG should be free from any ST-T changes for a week, (d) PVCs not more than 1 in five minutes. In our case except postural hypotension all other Roizen's criteria were fulfilled.

Newer alpha blockers (Prazocin, Terazosin & Doxazosin) have many advantages over **Phenoxybenzamine. They are devoid of tachycardia, having shorter half life & can be continued till surgery &** dose adjustment is such that preoperative & post operative hypotension is less than phenoxybenzamine<sup>3</sup>.

Anaesthetic management is crucial in such type of surgery. All histamine releasing drugs should be avoided. Ketamine due to sympathomimetic effect is not used. Propofol & Etomidate are safe in these patients. Selection of muscle relaxant is very important. Vecuronium is most widely used muscle relaxant. It does not cause histamine release & has no autonomic effect<sup>4</sup>. Although Rocuronium is also a choice of drug for muscle relaxant. We preferred Vecuronium for laryngoscopy & maintenance. Smooth laryngoscopy is very important factor in such type of surgery. For this we used Fentanyl, Xylocard spray (10%) & Esmolol 0.5mg/kg. In this case intraoperative hypertension was controlled by Nitroglycerine( NTG) infusion & intermittent Esmolol was given. It is said that Sodium Nitroprusside(SNP) may be effective in causing arteriolar dilatation & suppress the hypertensive response to circulating catecholamines. Evidence shows that Isoflurane is as effective as an arteriolar dilator<sup>5</sup> & almost as rapid in onset while avoiding the undesirable metabolic consequences of prolonged SNP infusion.

Hypotension at the time of ligation should be managed by fluid boluses. Data from the British literature suggest that massive fluid therapy is more effective than vasopressor administration<sup>6</sup>. Vasopressors are ineffective in hypovolemic state<sup>7</sup>. We used both fluid therapy & Nor epinephrine infusion and our response was good.

We conclude that proper preoperative preparation, considering Roizen's criteria, skillful anaesthetic management from laryngoscopy to removal of tumor with massive fluid transfusion is the key points for successful management of pheochromocytoma surgery.

#### Reference:

- [1]. Warner MA, Van Heerden JA: Pheochroma: anaesthetic and surgical management employed at Mayo clinic, in Manager WM, Gifford Jr RW. Clinical and experimental Pheochroma. Blackwell Science 1996, 388-407
- [2]. Roizen MF, Horrigan RW et al, A prospective randomized trial of four anaesthetic techniques for resection of pheochromocytoma. *Anesthesiology*. 1982;57:A43.
- [3]. Bravo EL: Pheochromocytoma. *Curr Ther Endocrinol Metab*; 1997;6:195-197
- [4]. Kinney MA, Warner ME, VanHeerden JA et al. Perioperative risks and outcomes of pheochromocytoma and paraganglion resection. *Anesth Analg* 2000;91:1118-23.
- [5]. Schwinn DA, McIntyre RW, Reves JG: Isoflurane-induced vasodilation: role of the alpha-adrenergic nervous system.
- [6]. Desmonts JM, Marty J. Anaesthetic management of patient with pheochromocytoma. *Br J Anaesth* 1984;56:781-9
- [7]. Michelle AO Kinney, Bradley J Narr & Mark A Warner: Perioperative Management of Pheochromocytoma. *JCTV*; 2002, 16:359-369

Neena Rungta "Anaesthetic Management of Pheochromocytoma and Cholecystectomy - A Case report". IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 17, no. 2, 2018, pp. 67-68.