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ANAESTHESIA MANAGEMENT IN A PATIENT OF CA ENDOMETRIUM WITH MYOCARDIAL INFARCTION AND TRIPLE VESSLE DISEASE: A CASE REPORT

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ABSTRACT

Coronary Artery Disease (CAD) is the leading cause of significant mortality and morbidity, that detected in the early stages is amenable to treatment. When coupled with a condition like Carcinoma endometrium with bleeding Per Vaginum, any coronary intervention where anticoagulant like heparin is used, it would lead to uncontrolled bleeding that would lead to complete cardiovascular collapse. We report a case of Carcinoma endometrium with myocardial infarction with Triple Vessel Disease posted for TAH. We share our experiences in the anaesthetic management of such a patient.

KEYWORDS: Coronary Artery Disease (CAD), Carcinoma Endometrium, Triple Vessel Disease (TVD)

INTRODUCTION

Patients with ischemic heart disease undergoing non-cardiac surgery are at increased risk for perioperative cardiovascular events such as heart failure, arrhythmias or even sudden cardiac arrest. In case of Triple Vessel Disease (TVD) where Percutaneous Coronary Intervention (PCI) is not possible / contraindicated, Coronary Artery By-pass Grafting (CABG) is the treatment of choice (1). When complicated with a condition that causes active bleeding like Carcinoma endometrium, the narrative shifts to first treat the source of bleeding and then move ahead with the coronary intervention. We report the successful anaesthetic management of a case of TVD with a recent Myocardial Infarction with Carcinoma endometrium that needed to undergo Total Abdominal Hysterectomy followed by PCI for her TVD.

CASE REPORT

61-year-old female reported to the department of obstetrics and gynaecology with chief complaints of bleeding per vaginum for 3 months. On further evaluation she was diagnosed as a case of carcinoma endometrium and would require Total Abdominal Hysterectomy as definitive management.

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Patient is a known case of hypertension, diabetes mellitus on regular treatment with a BMI of 37.91Kg/m^2. She was also post moderate COVID status (contracted in the month of December 2021).

In July 2022, patient developed sudden onset chest pain with severe sweating and was taken to a nearby hospital where she was diagnosed with Non-ST Elevation Myocardial Infarction (NSTEMI). After initial treatment, she underwent coronary angiography which revealed a Triple Vessel Disease (TVD). Left Anterior Descending Artery showed an 80% block in proximal to distal segment whereas Left Circumflex Artery showed a 70% mid to distal segment block and the Right Coronary Artery had a 90% proximal to mid segment block. After ruling out multiple coronary stenting by the cardiologist, she was advised to undergo PCI and was started on dual anti-platelet therapy (DAPT), atorvastatin, potassium channel blockers and anti-anginal in the form of Nitro-glycerine.

She reported to our hospital after 3 weeks of being discharged by her cardiologist. After consulting the gynaecologist, cardiac anaesthetist, cardiologist and CTVS surgeon she was planned for undergoing TAH under General Anaesthesia.

During her pre-anaesthetic evaluation, she was diagnosed to have sub-clinical hypothyroidism with elevated TSH (8.7 IU/dL). USG neck was sorted which revealed a 22mm x 15mm x 17mm mass lesion on the left lobe of the thyroid gland. Cardiac evaluation was done with a 12-lead ECG showing sinus rhythm with left axis deviation, prominent Q wave in lead III and T wave inversion in I, aVL and V5-V6, 2-D echo showed left ventricular ejection fraction of 50-55% with left ventricular hypertrophy and mild hypokinesia in the inferior wall. Right Atrium / Right Ventricle were normal. Cardiac markers were raised. Pulmonary Function Tests were normal. Patient was accepted under ASA IV for general anaesthesia.

After obtaining consent, patient was taken for surgery. Operating Room was prepared with standard monitors, invasive lines and forced air warmers. All resuscitation equipment and drugs were kept ready.

After placing standard monitoring, left Radial Artery was cannulated for beat-to-beat dynamic monitoring under local anaesthesia and a 7 Fr triple lumen central venous catheter was placed in right internal jugular vein under local anaesthesia. Intra venous fluids, vasopressors, inotropes and venodilators were connected and on standby.

Patient was premedicated with intra venous glycopyrrolate 0.2mg, intravenous ondansetron 8mg and intravenous fentanyl 150 mcg in titrated doses. Induction was done with intravenous etomidate 20mg in divided doses. After confirming bag mask ventilation non depolarising muscle relaxant intravenous rocuronium 100mg given. No stress response to laryngoscopy and intubation was noted and no hemodynamic alterations took place. General anaesthesia was maintained with sevoflurane and oxygen and air.

For analgesia, intravenous paracetamol 1gm and intravenous diclofenac 50 mg was given. Infusion Noradrenaline at the rate 0.25 mcg/kg/min started intra-operatively when Mean Arterial Pressure (MAP) was below 70 mmHg, which was tapered off eventually. Other parameters during surgery were stable.

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Awake extubation was carried out after giving reversal with mixture of intravenous neostigmine 50mcg/kg and intravenous glycopyrrolate 10mcg/kg. Post extubation, she was noted to have accelerated blood pressure of 210/100 mmHg. She did not complain of pain and was given intravenous esmolol 20 mg and intravenous nitro-glycerine 1mg in divided doses followed by infusion nitro-glycerine.

She was shifted to intensive cardiac care unit for further monitoring where she remained on infusion nitro-glycerine for 12 hours while tapering it off eventually. She made a full recovery and was eventually discharged after being transferred to ward.

1 month after surgery, the patient was taken up for PCI to treat her TVD. She underwent triple stenting with Drug Eluting Stent (DES) to her coronaries and had a favourable outcome. She was discharged after 3 days of observation.

Fig 1. Intra-op vital parameters with invasive monitoring.

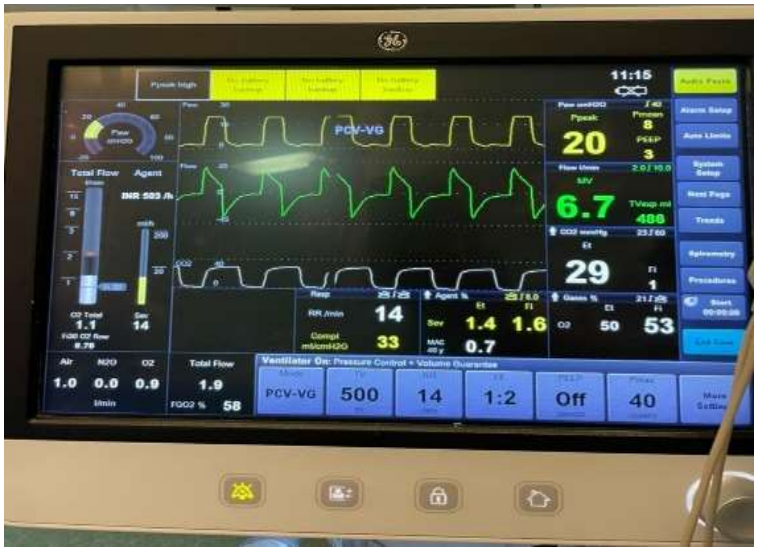

Fig 2. Ventilatory parameters.

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Fig 3. Vasopressors and inotropes to maintain hemodynamic parameters.

Fig 4. Head end of the patient with endotracheal tube and invasive lines in situ

DISCUSSION

Coronary Artery Disease (CAD) is one of the leading causes of significant mortality and morbidity worldwide, especially in India. An estimated 3% of rural and 7% of urban population in India have CAD (2). Acute Myocardial Infarction carries a major risk of adverse cardiac events in the peri-operative period with the most encountered mechanical complications are acute mitral regurgitation secondary to papillary muscle rupture, ventricular septal defect, pseudoaneurysm, and free wall rupture; each complication is associated with a significant risk of morbidity, mortality, and hospital resource utilization (3). Our patient underwent surgery in under 3 weeks of being diagnosed of Non ST Elevation Myocardial Infarction(NSTEMI) after being adjudged high risk for PCI for her TVD due to her bleeding per vaginum.

Owing to the nature of her disease, this put us in a dilemma as she would need to undergo CABG or PCI for her TVD, but with Carcinoma Endometrium with bleeding per vaginum that would not be feasible as the heparin used during Cardio-Pulmonary Bypass(CPB) during on-pump CABG or PCI would lead to disastrous consequences of uncontrolled bleeding. On

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the other hand, undergoing a major surgery with TVD and recent MI unamenable to PCI, would put her at a very high risk of suffering peri-operative MI again or severe hemodynamic instability during induction of general anaesthesia. As this patient also had other associated co-morbidities especially sub-clinical hypothyroidism which has a prevalence of nearly 15% in subset of Indian population from eastern India (4), the risk involved with general anaesthesia increased many folds. In addition, to the already weakened heart, Surgery, which is a major stress to the patient's body, causes a major hemodynamic instability which may lead to severe hypotension in the peri-operative periods that could lead to heart failure, cardiac arrest and even death (5). The goal in such a scenario would be to optimise the patient before taking up for a major surgery and to have little to no stress response during intubation and throughout the surgery with multimodal analgesics which continues even in the post op period. To maintain favourable outcomes, the stability of Cardiac Grid consisting of heart rate, blood pressure, systemic vascular resistance, venodilatation, contractility and cardiac output needs to be maintained constantly throughout the procedure so as to avoid any undue stress on the cardiovascular system. This was achieved with precise cardiac induction and adequate depth of anaesthesia coupled with a quick laryngoscopy and intubation to achieve hemodynamic stability with no stress response, the use of vasoactive drugs to keep the cardiac grid in the desirable range followed by a smooth awake extubation. The same principles are to followed in the post operative period in an Intensive Cardiac Care Unit(ICCU) by the use of conscious use of vasoactive agents and analgesics to maintain a steady pain-free state.

CONCLUSION

A team effort involving multi-specialities in a tertiary care centre needs to be in place for proceeding further with such a challenging case after discussing with the patient and the next of kin regarding all the treatment modalities and the risk involved. The major anaesthetic challenges in such a case would be to maintain the Cardiac grid optimally from induction till extubation, use of invasive monitoring in the peri-op period and multimodal analgesics to maintain a stress free and uneventful post op period.

Having said that, each patient and situation is unique and having an in-depth knowledge of the cardiovascular system and its interaction with the anaesthetic agents play a vital role in conducting a smooth and safe surgery which, even with the slightest miscalculation, could lead to disastrous consequences.

REFERENCES

1. Jiang L, Xu L, Song L, Gao Z, Tian J, Sun K, Yu H, Xu B, Song L, Yuan J. Comparison of three treatment strategies for patients with triple-vessel coronary disease and left ventricular dysfunction. J Interv Cardiol. 2018 Jun;31(3):310-318. doi: 10.1111/joic.12497. Epub 2018 Feb 21. PMID: 29468730.

2. Rao KD, Bhatnagar A, Murphy A. Socio-economic inequalities in the financing of cardiovascular & diabetes inpatient treatment in India. The Indian journal of medical research. 2011 Jan;133(1):57.

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 12, 2023

3. Damluji AA, van Diepen S, Katz JN, Menon V, Tamis-Holland JE, Bakitas M, Cohen MG, Balsam LB, Chikwe J; American Heart Association Council on Clinical Cardiology; Council on Arteriosclerosis, Thrombosis and Vascular Biology; Council on Cardiovascular Surgery and Anaesthesia; and Council on Cardiovascular and Stroke Nursing. Mechanical Complications of Acute Myocardial Infarction: A Scientific Statement From the American Heart Association. Circulation. 2021 Jul 13;144(2):e16-e35. doi: 10.1161/CIR.0000000000000985. Epub 2021 Jun 15. PMID: 34126755; PMCID: PMC9364424.

4. Mukherjee S, Datta S, Mandal SC. Prevalence of Subclinical Hypothyroidism in Acute Coronary Syndrome in Nondiabetics: Detailed Analysis from Consecutive 1100 Patients from Eastern India. J Thyroid Res. 2018 Sep 4;2018:9030185. doi: 10.1155/2018/9030185. PMID: 30254730; PMCID: PMC6142768.

5. Sessler DI, Meyhoff CS, Zimmerman NM, Mao G, Leslie K, Vásquez SM, Balaji P, Alvarez-Garcia J, Cavalcanti AB, Parlow JL, Rahate PV, Seeberger MD, Gossetti B, Walker SA, Premchand RK, Dahl RM, Duceppe E, Rodseth R, Botto F, Devereaux PJ. Period-dependent Associations between Hypotension during and for Four Days after Noncardiac Surgery and a Composite of Myocardial Infarction and Death: A Substudy of the POISE-2 Trial. Anaesthesiology. 2018 Feb;128(2):317-327. doi: 10.1097/ALN.0000000000001985. PMID: 29189290.