



ANESTHETIC MANAGEMENT OF A CASE OF VENTRAL HERNIA WITH SEVERE MITRAL STENOSIS WITH SEVERE PAH POSTED FOR HERNIOPLASTY

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ABSTRACT

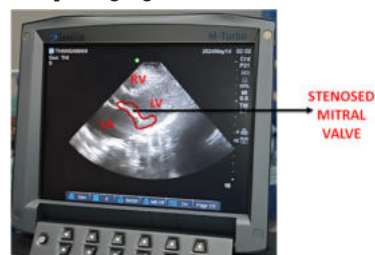
Introduction: Managing severe mitral stenosis in non-cardiac surgeries poses a significant challenge for anesthesiologists. Both general and regional anesthesia present specific limitations. Mitral stenosis, the most frequent complication of rheumatic heart disease (RHD), requires careful anesthetic planning due to its associated complexities. Segmental epidural anesthesia, a neuraxial technique, offers effective anesthesia while minimizing excessive sympathetic blockade. **Case Report:** 69-year-old female with a history of systemic hypertension and rheumatoid arthritis presented with a painful, gradually enlarging swelling in the right infra-umbilical region, which had been progressing for the past 20 years. She also reported intermittent episodes of breathlessness and palpitations over the last three years. Upon admission, she experienced severe breathlessness, with a METS score of 5. The cardiologist prescribed oral Torsemide (10 mg BD), Aldactone (25 mg OD), and Metoprolol (50 mg OD). The patient declined mitral valve replacement (MVR). On examination, her vital signs were stable. Auscultation revealed a low-pitched, rough, rumbling mid-diastolic murmur at the mitral area, a loud P2 in the pulmonary area, and a pan-systolic murmur over the tricuspid area. Abdominal examination identified a 6x4 cm non-reducible swelling, located 8 cm inferior and 5 cm lateral to the umbilicus on the right side. **Conclusion:** Graded epidural anaesthesia is a reliable technique for patients with low ejection fraction and valvular heart disease. Implementing a cautious and controlled epidural approach allows cardiac patients to undergo elective surgeries with improved safety and outcomes. This case emphasizes the advantages of graded epidural anaesthesia and highlights key perioperative considerations for managing patients with severe valvular conditions.

KEYWORDS : Mitral stenosis , Epidural anaesthesia, Non cardiac surgery

INTRODUCTION

Managing severe mitral stenosis in non-cardiac surgery presents a significant challenge for anesthesiologists, as both general and regional anesthesia have inherent limitations. Mitral stenosis is the most prevalent complication of rheumatic heart disease (RHD) and poses several anesthetic concerns during non-cardiac procedures. Segmental epidural anesthesia, a neuraxial technique, offers effective anesthetic control while minimizing excessive sympathetic blockade. This report discusses the case of a female patient with RHD, severe mitral stenosis (MS), and severe pulmonary arterial hypertension (PAH) undergoing hernioplasty

(PASP 73 mmHg), thickening and calcification of the aortic valve, normal left ventricular systolic function (EF 63%), and moderate tricuspid regurgitation.



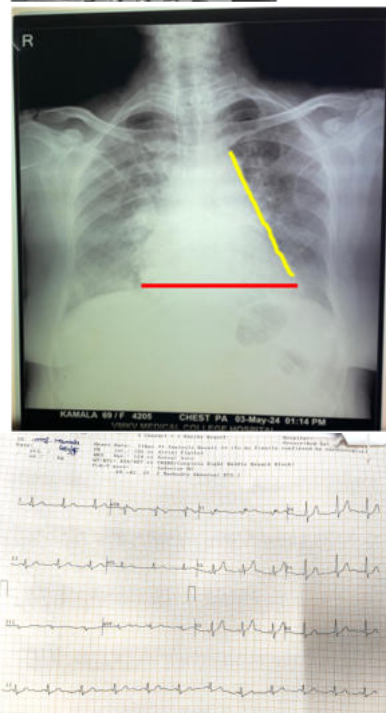
Case Report

A 69-year-old female with a history of systemic hypertension and rheumatoid arthritis presented with complaints of a painful, gradually progressive swelling in the right infra-umbilical region, which had been present for the past 20 years. She also reported intermittent episodes of breathlessness and palpitations over the last three years. Upon admission, she experienced severe breathlessness, with a METS score of 5.

The cardiologist prescribed Tab TORSEMIDE (20 mg BD), Tab ALDACTONE (25 mg OD), and Tab METOPROLOL OD. The patient declined mitral valve replacement (MVR).

On examination, her vital signs were stable. Auscultation revealed a low-pitched, rough, rumbling mid-diastolic murmur at the mitral area, a loud P2 in the pulmonary area, and a pan-systolic murmur over the tricuspid area. Abdominal examination identified a 6x4 cm non-compressible swelling, located 8 cm inferior and 5 cm lateral to the umbilicus on the right side, which did not reduce upon lying down.

Investigations revealed a chest X-ray with a slightly enlarged cardiothoracic ratio and straightening of the left heart border due to an enlarged left atrial appendage. Echocardiography confirmed rheumatic heart disease (RHD) with a calcified mitral valve, severe mitral stenosis (valve area 0.9 cm²), a dilated left atrium, severe pulmonary arterial hypertension



Anaesthetic Management

The patient was classified as ASA III and scheduled for surgery after obtaining informed written consent. She was advised to continue diuretics and beta-blockers until the day of surgery, while antihypertensive medication was withheld on the day of the procedure.

Preoperatively, two wide-bore IV lines were secured, and intravenous ONDANSETRON (4 mg) was administered. Emergency equipment, including an airway cart, defibrillator, emergency cardiac drugs, and infusion pumps for inotropic support, was prepared. Upon transferring the patient to the operating theater, monitors were connected, and baseline vitals were recorded.

Intra-arterial blood pressure monitoring was established using a 20G IV cannula in the left radial artery. A 16G epidural catheter was inserted at the L2-L3 space under strict aseptic conditions using a 16G Tuohy needle with the loss-of-resistance technique at 3.5 cm. The epidural catheter was secured at 9 cm, and a test dose of 3 ml lignocaine with adrenaline was administered.

Epidural anaesthesia was initiated with incremental doses of a combination of 0.75% ropivacaine and 1.5 mg morphine (5 ml + 4 ml + 4 ml + 4 ml) over 20 minutes. Sensory blockade up to the T6-T8 dermatomes was achieved and confirmed using a needle prick test. Once the adequacy of anaesthesia was established, surgery commenced. The procedure lasted 90 minutes, with the patient remaining comfortable and hemodynamically stable throughout, and minimal blood loss was noted.

Postoperative pain management included a single epidural top-up of 4 ml 0.125% bupivacaine with 25 mcg fentanyl, followed by intravenous paracetamol (TDS). The postoperative course was uneventful.



DISCUSSION

Considering the patient's underlying pathophysiology, our primary goal was to maintain hemodynamic stability by optimizing systemic vascular resistance (SVR), preload, heart rate, and sinus rhythm while preventing myocardial depression and an increase in pulmonary vascular resistance. This was accomplished using graded epidural anesthesia, administering small, fractionated doses of local anesthetic to allow a gradual onset of the block and minimize hemodynamic fluctuations caused by sympathetic autonomic blockade.

General anesthesia was deliberately avoided to prevent a rise in pulmonary vascular resistance and worsening pulmonary hypertension, which could result from sympathetic stimulation during laryngoscopy, intubation, or nitrous oxide inhalation. Additionally, this approach helped mitigate the risk of

myocardial depression caused by anesthetic agents.



Conflicts Of Interest:

The authors declare that they have no conflicts of interest.

Acknowledgements: The authors declare that they have no competing interest.

CONCLUSIONS:

Graded epidural anaesthesia is a safe and effective technique for patients with low ejection fraction and valvular heart disease. By adopting a controlled and gradual epidural approach, cardiac patients can undergo elective surgeries with enhanced safety and improved outcomes. This case underscores the advantages of graded epidural anesthesia and highlights key perioperative considerations for managing patients with severe valvular conditions.

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