

# Anaesthetic Management of a Severe Mitral Stenosis Admitted for a Cerebrovascular Accident with Congestive Heart Failure for Emergency Abdominal Total Hysterectomy, Consequent To Severe Metrorrhagia due to Cerebrovascular Accident Treatment in an Intensive Care Unit

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**Abstract:** *Mitral Stenosis is a valvular heart disease. Though its incidence has declined in developed countries, it is a significant problem in tropical and Asian countries which can lead to complications like Pulmonary Hypertension, Congestive Heart Failure, Atrial Fibrillation, Cerebrovascular accidents due to left atrial thrombus. We discuss here the case of a 55-year-old female with severe mitral stenosis with left atrial thrombus getting admitted to a medical intensive care unit with a CVA (Left Hemiparesis) and the consequent treatment for CVA landing her into a combination of severe congestive heart failure and severe bleeding from the uterus, rendering her severely anemic. A lifesaving surgery like hysterectomy had to be performed in such a frightening scenario of CHF + CVA + Severe mitral stenosis + Severe anemia to save her life.*

**Keywords:** Mitral Stenosis, Congestive Heart Failure, Left atrial thrombus, Cerebrovascular accident.

## 1. Introduction

Severe mitral stenosis carries a significant risk for both cardiac and noncardiac surgeries. If such severe mitral stenosis presents with suddenly acquired complications like a cerebrovascular accident, congestive heart failure, and severe bleeding and anemia, the available treatment options are not many and are fraught with enormous risk. We discuss one such scenario which we encountered in our practice.

## 2. Case Report

A 55-year-old female, moderately built and nourished, was admitted to the medical intensive care unit with left-sided hemiplegia. She was a known case of severe mitral stenosis (MVA 0.9 cm<sup>2</sup>) with left atrial thrombus and was advised to undergo mitral valve replacement but had postponed it due to reasons best known to her.

On admission, she was evaluated and found to have a right temporoparietal infarct, consequent to a thromboembolic event. She was treated with dipyridamole through Ryle's tube, pentoxifylline intravenously, and heparin 5000 IU intravenously, followed by heparin in an I.V infusion along

with oxygen support by polymask at 6 L/minute.

24 hours after the commencement of treatment for cerebrovascular accident, the patient started bleeding profusely per vagina, and the patient's haemoglobin dropped alarmingly to 6-gram percentage. An urgent clinical examination coupled with an abdominal ultrasound revealed an enlarged uterus (24weeks size up to umbilicus) with multiple leiomyomas in it.

## 3. History and Examination

### 3.1 Preoperative Evaluation

The patient was very dyspneic, with features of congestive heart failure. Pulse rate 160 per minute and rapid and thready, blood pressure 80/60 mm Hg, respiratory rate 40 breaths per minute, bilateral basal rhonchi and crepitations, SPO<sub>2</sub> 88% on an oxygen mask.

2d ECHO -

EF - 50% with fair LV function.

Severe mitral stenosis with MVA 0.9cm<sup>2</sup>.

Enlarged left atrium.

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### 3.2 Preoperative Preparation

The patient was treated with propped up position, oxygen mask support, and 3 mg morphine along with a bolus dose of digoxin (0.5 mg) IV. 0.25 mg of digoxin was repeated 6 hours after the first dose. At around this time, the patient's haemodynamics stabilized somewhat (pulse rate 120/minute, blood pressure remains 80/60 mm Hg only), SPO<sub>2</sub> improved to 96%, and respiratory rate came down to 30 breaths per minute.

All the treatment for the cerebrovascular accident was stopped, and a decision was taken to perform an emergency abdominal total hysterectomy to prevent further blood loss from the uterus.

The patient was taken to the operation theatre after arranging for compatible whole blood and packed cells. E C G, NIBP, SPO<sub>2</sub>, and ETCO<sub>2</sub> were monitors selected and used for operation procedure.

### 3.3 Induction

The patient was preoxygenated in a propped-up position for 10 minutes and induced with 30 mg morphine and 2 mg midazolam 100 mg lidocaine IV, 50 mg thiopentone, and 100 mg suxamethonium. The order of sequence of drugs at induction was midazolam, morphine, thiopentone, lidocaine, and suxamethonium as the last drug, and then the patient was intubated.

### 3.4 Maintenance

Vecuronium was used as a maintenance muscle relaxant. Only two IV lines were used, one for volume replacement and the other as a standby. Internal jugular cannulation for CVP and intraarterial lines were not used for the surgery, consequent to a mutual agreement with the gynaecologist.

The line of incision was infiltrated prior to surgery by 30 mL of 0.1% bupivacaine and 8 mg dexamethasone between the umbilicus and the pubic symphysis. The incision was vertical, lower abdominal midline.

The operation course was uneventful. IV fluids were used judiciously and were dictated by the haemodynamics.

### 3.5 Post Operative Period

It was decided to electively ventilate the patient in the postoperative period. The patient was ventilated for 8 hours after surgery and subsequently weaned off the ventilator and extubated.

Injection morphine was continued for the first 24 hours for postoperative analgesia. From 2<sup>nd</sup> postoperative day, the patient was switched over to injection ketorolac 60 mg I.M twice daily for the next 48 hours. One unit of compatible blood was transfused on 2<sup>nd</sup> postoperative day.

Injection Digoxin and furosemide were not needed for 48 hours after surgery. They were started as tablets on 3<sup>rd</sup> postoperative day and continued.

Isolyte-M (Darrow's solution) was used in the postoperative period on the 1<sup>st</sup> and 2<sup>nd</sup> day in a proportion of 25% of total intravenous daily fluid requirement. The patient was discharged on the 12<sup>th</sup> postoperative day.

## 4. Discussion

Severe mitral stenosis along with a cerebrovascular accident, congestive heart failure, and severe bleeding for an emergency surgery like a laparotomy is a truly frightening proposition, and there are not many options to bail out the patient and rescue them to safety.

Regional anaesthesia like epidural and intrathecal are ruled out and cannot be contemplated given the risk of bleeding, consequent to anticoagulants used for the treatment of cerebrovascular accident.

It had to be general anaesthesia only, and in our mind, we had only the "Queen of the narcotics" morphine for use during the perioperative period. Fentanyl was not considered at all as we felt it was not in any way superior to morphine for a patient with rheumatic severe mitral stenosis with congestive heart failure.

Injection ketorolac was used for postoperative analgesia, as the crisis of bleeding was over, and all culprits that caused metrorrhagia were taken off treatment.

Central venous pressure and arterial line were not used in our case. C V P has no relevance in a left-sided heart disease like mitral stenosis. The arterial line for invasive blood pressure is definitely useful, but we have not considered it, and most of the obstetric and gynaecology centres do not use it as a routine even in the most complicated cases.

General anaesthesia gives us many prudent options to manipulate oxygenation and CO<sub>2</sub> removal without resorting to massive volume replacements, which can be suicidal in a patient with fixed and restricted cardiac output like severe mitral stenosis.

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