

# Anaesthetic management of a patient with dilated cardiomyopathy for femoral embolectomy – A case report

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## Abstract

We report the successful anesthetic management of a patient with dilated cardiomyopathy, scheduled for left femoral artery Embolectomy. The risks involved and the potential benefit of the use of regional versus general anesthesia in a patient with compromised cardiac status is discussed.

**Key Words:** cardiomyopathy, femoral embolectomy.

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## INTRODUCTION

Dilated cardiomyopathy is a primary myocardial disease of varied causes.<sup>1</sup> It is characterized by left ventricular or biventricular dilatation and impaired ventricular contractility.<sup>2</sup> Anesthetic management of these patients is quite challenging. The anesthesiologist should have the knowledge of its pathophysiology, clinical features, diagnostic evaluations and the treatment modalities. This is to be followed by careful planning for the provision of safe anesthesia.

## CASE REPORT

A 38-year-old, 96kg male with femoral artery thrombosis was scheduled for embolectomy. His previous medical records revealed that he had dilated cardiomyopathy. He

was previously admitted to the Coronary Care Unit for episodes of congestive cardiac failure and history of CVA one year back and also having chronic peripheral vascular disease. He was admitted in our hospital with acute on chronic presentation of PVD. Preoperatively heart rate was 94/min and regular. The blood pressure was 128/76 mmHg. There were no rhonchi or rales on auscultation. Heart sounds were normal. Preoperative 12 lead ECG showed LBBB and poor progression of R wave in V1-V4. X-ray chest showed cardiomegaly. Echocardiography report demonstrated dilated cardiomyopathy, global hypokinesia with poor systolic function, ejection fraction of 15%, severe PH and type 2 diastolic dysfunction with LV clot. His hemoglobin was 16.5 gm/dl and all biochemical parameters were within normal limits. He was on treatment, tab amlodipine 5 mg BID, Tab furosemide 40 mg OD, tab atorvastatin 20 mg OD. Patient and his relatives were explained about anesthetic risk and high risk consent was obtained. Regional (inguinal + femoral block) anesthesia technique were explained to the patient. No premedication was advised. Intravenous access was established with an 18 G i.v. cannula. Invasive arterial blood pressure, arterial oxygen saturation (SpO<sub>2</sub>) and lead II, V of the electrocardiogram were monitored throughout the surgery. Using the anatomic knowledge, initially ilioinguinal blocks were given. Local anesthetic is infiltrated subcutaneously at the estimated site of needle insertion; a total of 12 mL of 1%

xylocaine is given in a fan-like distribution between the external and internal oblique and the internal oblique and transversus abdominus muscles. Later on femoral block was given. The needle is introduced immediately at the lateral border of the artery and advanced in sagittal, slightly cephalad plane, after obtaining negative results from an aspiration test for blood, 15 to 20 mL of 1% xylocaine is injected slowly. Intraoperatively SpO<sub>2</sub> was maintained between 98 to 99%, HR 90 to 100 beats/min, systolic BP was maintained between 110-130 mmHg, and diastolic BP was maintained between 70-80 mmHg. Blood loss was minimal and patient received 75ml of crystalloids over a period of 1 hrs with urine output of 75 ml. Intraoperatively 5000 IU unfractionated heparine was given with the interval of 75 min after block. Patient remained hemodynamically stable throughout the procedure. His subsequent postoperative course was uneventful.

## DISCUSSION

Idiopathic dilated cardiomyopathy is a unique subset of primary myocardial disease of unknown cause characterized by left ventricular or biventricular dilatation and impaired myocardial contractility. The key hemodynamic features of the DCM are elevated filling pressures, failure of myocardial contractile strength, and a marked inverse relationship between after-load and stroke volume. Clinical picture of DCM may vary from asymptomatic with only cardiomegaly to severe CHF. Apart from CHF, dysrhythmias and embolism (systemic or pulmonary) are also common features of DCM patients.<sup>1</sup> The predictors of poor prognosis in our patient were, an ejection fraction of less than 0.20 (as seen on Echo), left ventricular end diastolic dilatation, a hypokinetic left ventricle, severe PAH with LV clot, with old

CVA and morbid obesity. The goals for anesthetic management consist of avoidance of drug induced myocardial depression, maintenance of normovolemia, prevention of increased ventricular after load. In view of all high risk factor, compromised cardiac status of patient with expected duration of procedure less than one hour, we preferred regional block-combined ilioinguinal and femoral block. Spinal and epidural was not suitable in this patient because of need of heparinisation. The advantages of combined ilioinguinal and femoral block over general anesthesia - Most of the general anesthetic drugs tend to depress myocardium, slow the heart rate and dilate the blood vessels. Patients of DCM may deteriorate from induction of anesthesia till extubation and also in the postoperative period and hemodynamic instability can lead to malignant arrhythmias.<sup>3</sup>

## CONCLUSION

The factors which favored the good outcome of this high-risk patient, were preoperative assessment, optimized cardiac status, formulating the anesthetic plans, postoperative monitoring, prompt diagnosis and management of the complications. Hence, successful management of the case.

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