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### Optimum Anesthesia Technique For A Patient With Hypertrophic Obstructive Cardiomyopathy (HOCM) and Systolic Anterior Motion Of The Mitral Valve (SAM).

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## Introduction

Hemodynamic goals in both HOCM and systolic anterior motion of the mitral valve are similar.

These goals include higher preload, decreased heart rate, decreased myocardial contractility and maintenance of afterload.

## CASE Description

A 75 year old female with recent history of increasing tiredness and echocardiographic evidence of HOCM and SAM presented for lumbar transforaminal interbody fusion.

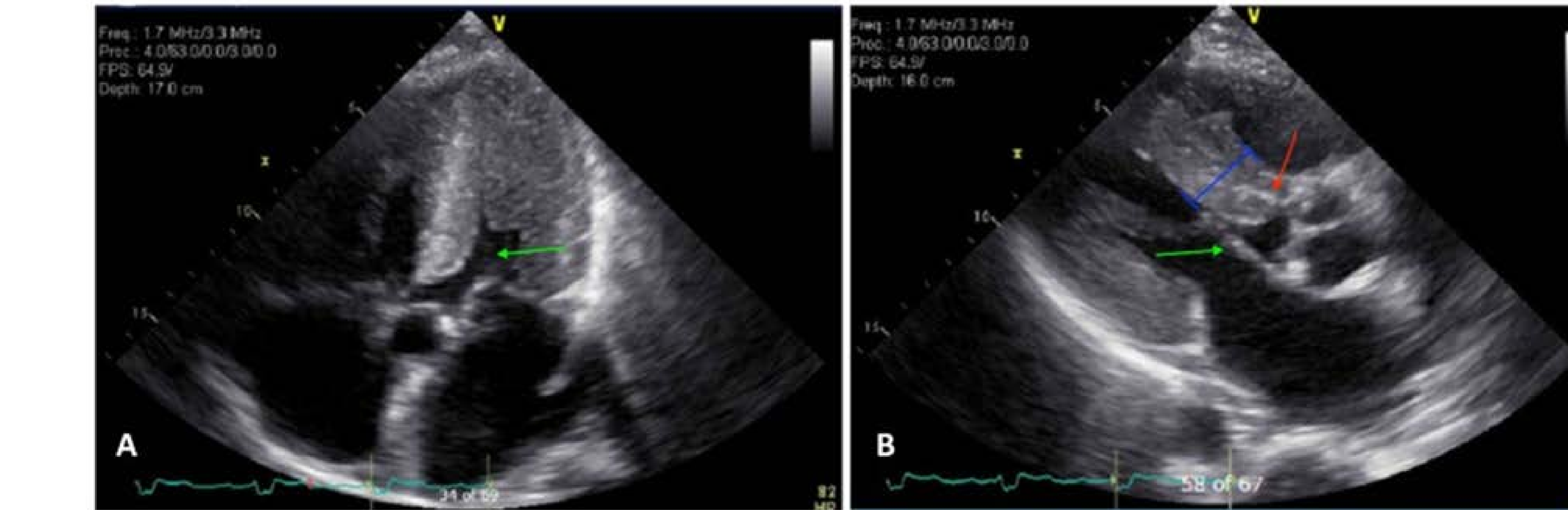
The hemodynamic goals were achieved with lactated ringer's to maintain preload during induction with propofol/phenylephrine/fentanyl/sevoflurane/rocuronium.

Following laryngotracheal spray with lidocaine, endotracheal intubation was performed with minimal increase in heart rate. Anesthesia was maintained with sevoflurane and decrease in SVR was prevented by prophylactic phenylephrine.

Perioperative course was uneventful.

## Discussion

HOCM is due to asymmetric left ventricular hypertrophy leading to left ventricular outflow tract (LVOT) obstruction. The degree of obstruction depends on degree of left ventricular hypertrophy.



A) Green arrow: marked LVH with a narrow chamber

B) Blue line: irregular septal hypertrophy with partial LVOT; green arrow: SAM causing LVOT; red arrow: speckled/granular appearance of the myocardium LVH, left ventricular hypertrophy; LVOT, left ventricular outflow tract; SAM, systolic anterior motion

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**SAM** is due to the displacement of distal portion of the anterior leaflet of the mitral valve towards the LVOT. **SAM** is described as the dynamic movement of the mitral valve (MV) during systole anteriorly towards LVOT<sup>1</sup>. It can occur without HOCM and leads to decreased left ventricular cardiac output and hypotension.

## Functional abnormalities in HOCM

- Left ventricular outflow obstruction
- Diastolic dysfunction
- Systolic dysfunction
- Myocardial ischemia
- Mitral regurgitation
- Atrial and ventricular arrhythmia

## Hemodynamic goals in HOCM and SAM

1. Maintain preload
2. Decrease in heart rate
3. Maintain normal sinus rhythm
4. Decrease in myocardial contractility
5. Maintain systemic vascular resistance

## Anesthetic technique for SAM and HOCM

1. Continue preoperative beta blockers
2. Management of ICD
3. Avoid neuraxial technique such as spinal
4. Hemodynamic monitoring with an invasive arterial line
5. Avoid hypotension at induction with propofol
6. Avoid tachycardia response of direct laryngoscopy
7. Avoid vasoconstrictors having positive inotropic effect
8. Use continuous infusion of phenylephrine during the anesthetic to avoid hypotension secondary to anesthetic agents
9. Avoid tachycardia response at emergence and extubation
10. Avoid hypothermia and shivering which increases the heart rate in postoperative period

## Conclusion

By maintaining preload and avoiding increase in heart rate and decrease in SVR, we uneventfully managed dual problems of SAM and HOCM.

## REFERENCES

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