

Endoscopic Trans-aortic Septal Myectomy

A video case report

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Objective

Hypertrophic obstructive cardiomyopathy (HOCM) is a heart disease characterized by a left ventricular outflow tract (LVOT) obstruction due to hypertrophic septum and its interaction with the mitral valve leading to mitral valve regurgitation due to systolic anterior motion (SAM) of the anterior mitral leaflet. The disease can lead to sudden death or progressive heart failure if left untreated.

Septal myectomy represent the treatment of choice in these cases and can be performed via different approaches such as transapical, trans-mitral and transaortic and in most cases conducted via a full sternotomy.

Here we describe a case report of a 75 years old female patient undergoing a septal myectomy via an endoscopic approach

Methods

A 75 years old lady with dyslipidemia presented at our institution with symptoms of chest pain and dyspnea which lasted for over 3 years.

A trans-thoracic echocardiogram showed septal hypertrophy with obstruction of the LVOT and a max gradient of 72 mmHg(Fig 1).

This was later confirmed with cardiac MRI which documented LVOT obstruction associated with SAM and with stress echocardiogram which confirmed elevated LVOT gradient peaking to 103 mmHg (Fig. 2).

The patient was admitted to underwent septal myectomy and routinely preoperative diagnostic ruled out coronary artery disease and peripheral vascular disease.

She underwent an endoscopic septal myectomy which was performed via a 4 cm mini-thoracotomy at the second intercostal space (see video).

Postoperative course was uneventful, and the patient was discharged on postoperative day 6.

Postoperative echocardiogram confirmed good results of the procedure with residual LVOT peak gradient of 20 mmHg



Fig.1. Preoperative echocardiogram showing HCOM with obstruction on the LVOT

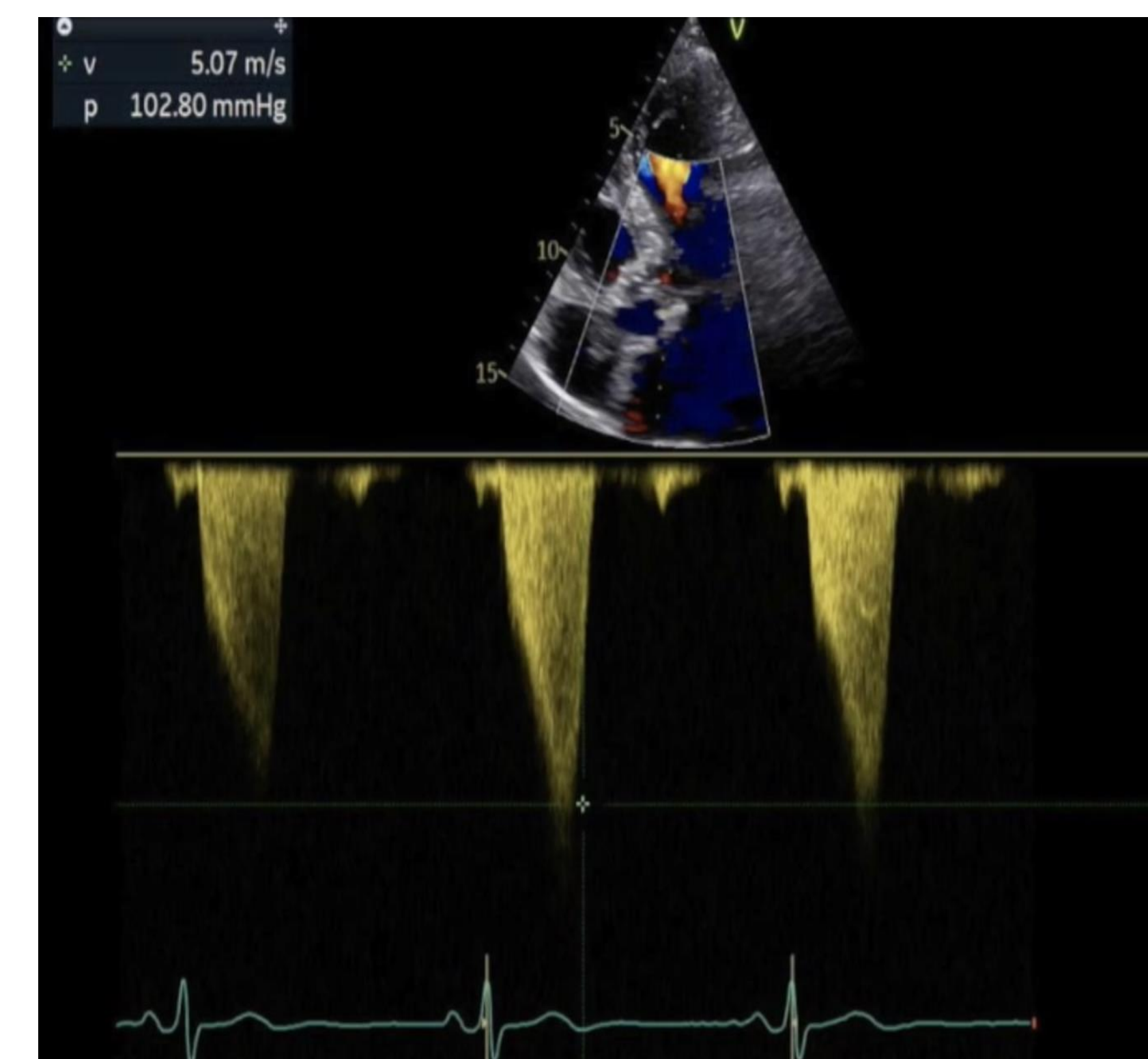


Fig.2. Preoperative echocardiogram showing markedly elevated gradient across the LVOT

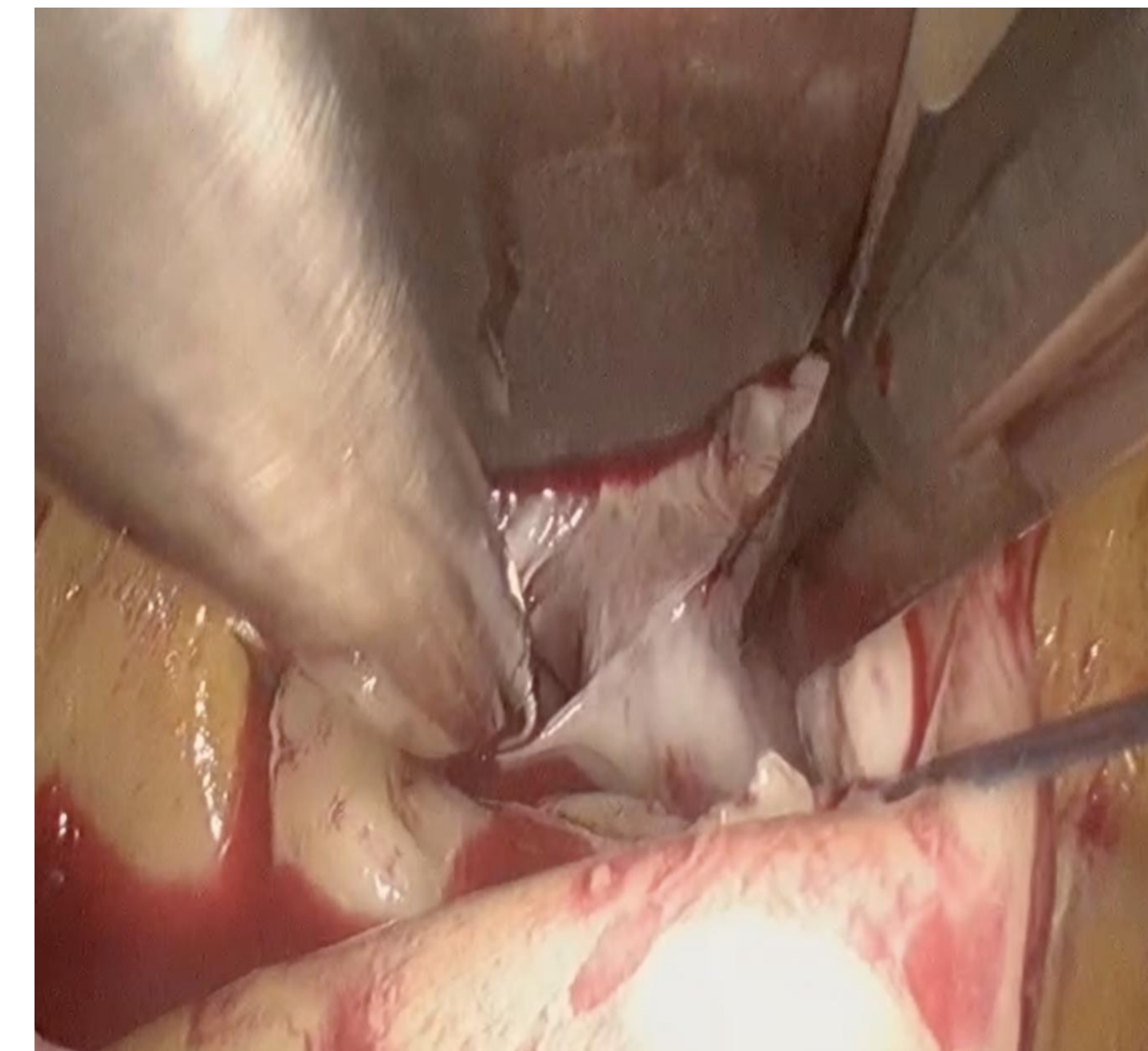


Fig.3. Endoscopic myectomy: stay suture placed at the nadir of the aortic valve cusps



Fig.4. Septal myectomy using an 11 blade

Surgical Technique

Surgical preparation:

- 3 cm mini thoracotomy incision
- Lateral port for 3D camera
- Femoro-femoral cannulation
- Detachable aortic cross clamp (Glauber's Clamp)
- Del Nido Cardioplegia
- LV Vent in RSPV

Surgical Steps:

- Small transverse aortotomy
- 3 exposure sutures placed at the nadir of each aortic valve cusps (fig 3)
- Extensive Septal myectomy using 11 blade (fig 4)
- Washout
- Aortotomy closure

Conclusion

Septal myectomy can be safely performed with an endoscopic approach with extensive resections of the muscle tissue with low risk.

Surgical exposure can be improved by using stay suture placed at the nadir of the aortic valve cusps

References

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