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Anaesthetic Management with Segmental Epidural for Indirect Inguinal Hernia in a Patient with Mitral Valve Prolapse

Authors
Shashank Mudhelli[1], M H Nagrale[1], Srikanth A[2], Kiran kumar S[2], Sundeep Shailender Matteda[3]
[1]Department of Anaesthesiology, Mamata Medical College, Khammam
Corresponding Author
Shashank Mudhelli
3-9-103/38, Behind Kamineni Hospitals, Central Bank Colony, L B Nagar, Hyderabad, Rangareddy, Telangana-500074
Email: *shashankmudhelli@gmail.com*

Abstract
Segmental Epidural anaesthesia is suitable for inguinal hernias. It has some definite advantages over spinal anaesthesia. The segmental epidural block denotes the use of a small volume enough to block only the segments involved in the field of surgery and also avoids heamodynamic changes in comorbid conditions.
Keywords: *Segmental Epidural anaesthesia, Mitral valve prolapse (MVP), spinal anaesthesia, general anaesthesia.*

Introduction

Epidural anesthesia involves the use of local anesthetics injected into the epidural space to produce a reversible loss of sensation and motor function. The use of a catheter allows the anesthesia provider to add local anesthetics as extending duration beyond the original dose. Epidural anesthesia[1,2] can be used as the segmental anesthetic. In addition, the epidural catheter can be used for postoperative analgesia[8].

Advantages specific to epidural anesthesia include:

Due to segmental block patient will be haemodynamically[5,10] stable throughout surgery.

Easy to perform (though it takes a bit more practice than spinal anesthesia)

Reliable form of anesthesia.

The ability to administer additional local anesthetics increasing duration.

The ability to use the epidural catheter for postoperative analgesia.

Return of gastrointestinal function generally occurs faster than with general anesthesia[7].

Patient airway manipulation can be avoided.

Fewer pulmonary complications compared to general anesthesia[7].

Decreased incidence of deep vein thrombosis and pulmonary emboli formation compared to general anesthesia.

Mitral valve prolapse (MVP) is currently one of the commonly diagnosed cardiac valve abnormalities. Most patients with MVP are

asymptomatic[4,5]. Symptoms are related to one of the following:

Progression of MR[5].

An associated complication (ie, stroke, endocarditic, or arrhythmia)

Autonomic dysfunction (The association between autonomic dysfunction and MVP remains unconfirmed.)

Symptoms related to autonomic dysfunction[4] are usually associated with genetically inherited MVP and may include the following:

Arrhythmia.

Palpitations.

Atypical chest pain.

Fatigue.

Syncope or presyncope.

Aim

To study the effectiveness of segmental epidural anaesthesia for inguinal hernia with MVP**.**

Case Report

This is a case of 45yrs male pt with left sided indirect inguinal hernia with H/o dyspnea on exertion, recently he noted occasional non radiating atypical angina, primarily while recumbent, unrelated to activity.

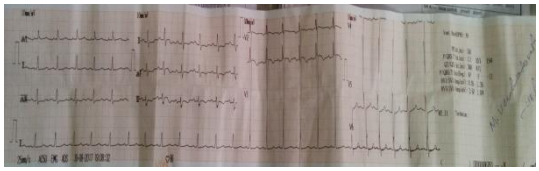
On physical examination there was no jugular vein distension. Point of maximum impulse of the cardiac apex was displaced to the sixth intercostal space at the midclavicular line. There was a grade III/IV systolic murmur at the apex that radiated to the axilla, and a questionable grade II/IV diastolic murmur at the left third intercostal space heard best while the patient was sitting up and leaning forward.

Pre anaesthetic checkup was done.

Vitals: H.R.82/BPM, RR.14/min, Blood pressure 140/90 mmHg (not a k/c/o HTN)

CVS: S1S2 normal, pan systolic murmur, present, ECG shows-, T wave inversions in lead1 and 2, Tall R waves in v1-v4, 2D echo –MVP, sever MR, mild LV dysfunction, concentric LVH with EF-50%.

Chest x -ray- moderate cardiomegaly**.**



CNS: NAD, P/A: soft.

Patient preloaded with 500ml Ringer lactate to avoid hypotension intra-operatively.

Shifted to OT. Standard monitors connected like ECG, pulse oxymeter, standard BP, central venous pressure monitoring, Inj. Midazolam 1mg and inj fentanyl 20 mcq given IV.

Patient was on lateral position and back cleaned, painted and draped. With all aseptic precautions epidural needle was inserted at L2-L3 and epidural space confirmed with loss of resistance technique.

5ml of 0.5% Bupivacaine given through epidural needle directly[11]. Immediately epidural catheter was passed through the needle and needle removed and catheter fixed with tip at T12-L1.

After conforming the adequacy and level of analgesia up to T10, the surgery was commenced.

Pulse rate and blood pressure were recorded at an interval of 1 minute for first 5 minutes and then every 5 minutes till the end of surgery. Oxygen saturation and ECG monitoring was done continuously.

Level of analgesia, duration of analgesia, total usage of local anaesthetics used were recorded (pre & post operatively).

Patient did not have complications like bradycardia, hypotension, respiratory depression, shivering, nausea and vomiting, sweating not observed.

Intraoperative heart rate ranged between 80 to 95 bpm, SBP 110- 140mm hg, DBP 70-90 mm hg.

Procedure ended in 45min and no epidural top up was required.

Postoperatively epidural top up with 10ml of 0.125% bupivacaine given for analgesia after 2 hours of surgery.

Discussion

The prime consideration in managing our case was to maintain heamodynamic stability during surgery.

MVP is the one of the common valvular lesions occurring in approximately 2-4% of the general population.

Avoid decrease in preload by providing adequate volume replacement. Maintain afterload and avoid increase in HR.

Hypovolemia, venodilataion, increased airway pressure, and tachycardia all decrease LV volume causing an earlier proplapse of the valve leaflets and thus increasing MR.

The severity of prolapse depends on factors that reduce ventricular volume, which is in an inverse proportion to the extent of MVP [4].

The smaller the ventricular volume, the greater the prolapse. Although the course and the prognosis of MVP are often benign, it may be complicated infrequently by progressive MR, ruptured chordae tendineae, infective endocarditis, transient ischemic attacks, malignant arrhythmias, or sudden death.

Spinal anesthesia is usually avoided because of the sympathetic denervation resulting in increased venous capacity and decreased peripheral resistance. This leads to a reduction of ventricular volume, which may increase the degree of prolapse. However, the safe use of epidural anesthesia in a patient with MVP has been reported.

Conclusion

Segmental epidural block is safe anaesthesia with minimal physiological alterations[11] and with less side effects specially in patients with mitral valve prolapsed as compared to general anaesthesia. Intra operative vitals are stable. Procedure uneventful.

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