

Anaesthesia Management of Elderly Woman with Coronary Heart Disease and Severe Left Ventricular Dysfunction Suffering from Left Obstructed Inguinal Hernia Posted for Emergency Surgery Under Combined Continuous Low Dose Segmental Epidural and Ilioinguinal Nerve Block

Naveen Kumar Avvaru¹,
S Jagadeesha Charalu²

¹In Charge Professor of Anaesthesia, Govt. Medical College, Anantapuramu, Andhrapradesh, India,
²Assistant Professor of Anaesthesia, Govt. Medical College, Anantapuramu, Andhrapradesh, India

Corresponding Author: Dr. A.Naveen Kumar, 15/51, Flat No.301 Jayam Paradise,
Kamalanagar, Ananthapuramu, A.P, India, Pin - 515001, Mobild: 9885679600, 9908688909.
Email: ramyaraj27@gmail.com

Abstract

We present a case of elderly woman aged 68 years with left obstructed inguinal hernia posted for emergency surgery with coronary heart disease and severe left ventricular dysfunction as co morbid factors. Coronary heart disease and severe left ventricular dysfunction are two most dangerous risk factors contributing to high morbidity and mortality during surgery. General anaesthesia in patients with coronary heart disease and severe left ventricular dysfunction results in high mortality during surgery. In order to avoid high morbidity and high mortality associated with general anaesthesia in patients with coronary heart disease and severe left ventricular dysfunction, we opted for emergency surgery under combined continuous low dose segmental epidural and ilioinguinal nerve block. This case highlights the advantage of continuous low dose segmental epidural and ilioinguinal nerve block over general anaesthesia in patients with coronary heart disease and severe left ventricular dysfunction. Combined continuous low dose segmental epidural and ilioinguinal nerve block provided good Intraoperative hemodynamic stability and postoperative analgesia.

Keywords: Coronary heart disease, Continuous low dose segmental epidural, Ilio inguinal nerve block, Severe left ventricular dysfunction

INTRODUCTION

Coronary heart disease is common comorbid factor present in elderly population which leads to high mortality during surgery.^{1,2} In patients with Coronary heart disease emergency surgery increases the risk of surgery further. In patients with Coronary heart disease oral anticoagulants should be stopped 5days before surgery and INR should be less than 1.5 on the day of surgery, and low molecular heparin should be started after stoppage of oral anticoagulants.

The preoperative management of patients with Coronary heart disease is geared towards the following goals:

1. Determining the extent of Coronary heart disease and previous interventions like CABG
2. Determining the severity and ability of the disease, and
3. Reviewing medical therapy and noting any drugs that can increase the risk of surgical bleeding or contraindicate a particular anesthetic technique.

Aim of this study is to highlight the safety of combined continuous low dose segmental epidural block and ilioinguinal nerve block for emergency obstructed inguinal hernia surgery in patients with Coronary heart disease and severe left ventricular dysfunction.

CASE REPORT

A 68 year old female patient weighing 64 kgs was admitted in our hospital with history of pain and swelling in the left groin, vomiting, distension of abdomen since 5 days and being treated outside and referred to our hospital since the patient is having high risk for the surgery as conservative treatment has failed to relieve the patient symptoms.

On examination the patient is diagnosed as having obstructed left inguinal hernia and posted for emergency surgery.

Patient referred to pre anaesthetic checkup for fitness for surgery. History of cardiac disease present since 5 years and is on irregular treatment. Palpitations, exertional dyspnea grade 3 were present.

Treatment history of Digoxin 0.25 mg O.D. 5 days a week, Tab. Enalapril 5 mg O.D., Tab. Atenolol 25 mg Bid, Tab. Clopidigril 75 mg OD was present.

Patient stopped Clopidigril since 5 days after starting of present complaints himself. Inj Enoxoparin 40 mg given Subcutaneously twice/day.

The patient was evaluated in the pre anaesthetic checkup for fitness for surgery with investigations like complete blood picture, renal profile, Prothrombin time, INR, chest X Ray, X ray Abdomen, ECG, 2 D Echo and Ultra sound abdomen. On investigations we found that the patient is suffering with coronary heart disease with severe left ventricular dysfunction.

Systemic examination revealed normal heart sounds, normal breath sounds and tenderness and guarding present over left lower abdomen and in left inguinal region.

ECG shows Atrial ectopics, poor R wave progression, Right ventricular hypertrophy and no acute ST segment changes present (Figure 1).

X ray chest PA view shows cardiomegaly and congestive heart failure (Figure 2).

2 D Echo shows RWMA, mild MR, mild TR, severe LV dysfunction with Ejection fraction of 25%.

Ultra sound abdomen revealed bowel loops in the left inguinal region suggesting left inguinal hernia.

Prothrombin time and INR were 15 seconds and 1.1 respectively.

After obtaining high risk consent from patient and attendants in view of old age, Coronary artery disease,

severe left ventricular dysfunction we opted for emergency surgery under combined low dose segmental epidural and ilioinguinal nerve block.³⁻⁵

Patient shifted to the OT and pre medication of Ondansetron 4 mg, Midazolam 1mg IV given before epidural anaesthesia. In operating room NIBP is 154/86 mmHg, Pulse rate 60/minute regular in rhythm, respiratory 16/minute, Spo2 97%.

100% Oxygen inhalation by face mask given. Multichannel monitoring⁶ of SpO2, pulse rate, NIBP, 6 lead ECG, temperature started. Input and output chart maintained.

CVP was used as a guide to administer intravenous fluids and was maintained around 10 cm of H2O. volume overload was avoided as it could easily precipitate heart failure in such cases.

PROCEDURE

Patient in sitting posture under aseptic precautions low dose segmental epidural anaesthesia achieved by injecting 4 ml of 2% Xylocaine at L3-L4 epidural space with loss of air resistance technique and hanging drop test.⁷ Epidural catheter passed and 2 ml of 2% Xylocaine given through epidural catheter. Effect adequate after 10 minutes of epidural anaesthesia and inguinal swelling decreased facilitating for ilioInguinal nerve block. Under aseptic precautions ilioInguinal nerve block.⁸⁻¹¹ achieved with 30 ml of 0.25% Bupivacaine. Effect adequate for surgical anaesthesia.

Maintenance fluids of 500 ml Ringer lactate and 500 ml DNS are administered. After 15 minutes of epidural and ilioInguinal block there was sudden fall of blood pressure from 156/84 to 82/46 mmHg. This was managed by ephedrine administration. Haemodynamics were well maintained and Surgery lasted for 55 minutes (Figure 3).

After satisfactory recovery from anaesthesia patient shifted to post operative intensive care unit.

In post operative intensive care unit the patient was continuously monitored for SPO2, NIBP, pulse rate, temperature. ECG monitoring was continued for 48 hours.

Digoxin 0.25 mg O.D. 5days a week, Tab. Enalapril 5 mg O.D., Tab. Atenolol 25mg were continued in the post operative period. Post operative analgesia maintained with 0.125% Bupivacaine 6 ml 4th hourly and Buprenorphine 60 micro grams B.D epidurally for 48 hours. Epidural catheter was removed after 48 hours. Inj Enaxoparin stopped

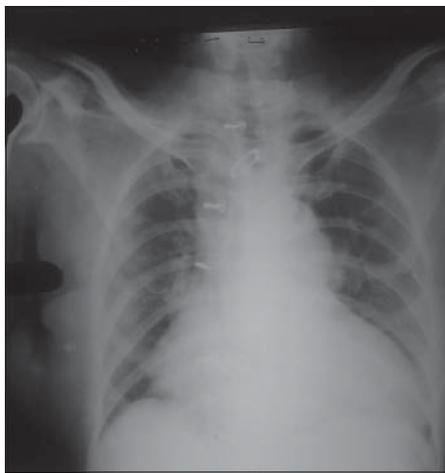
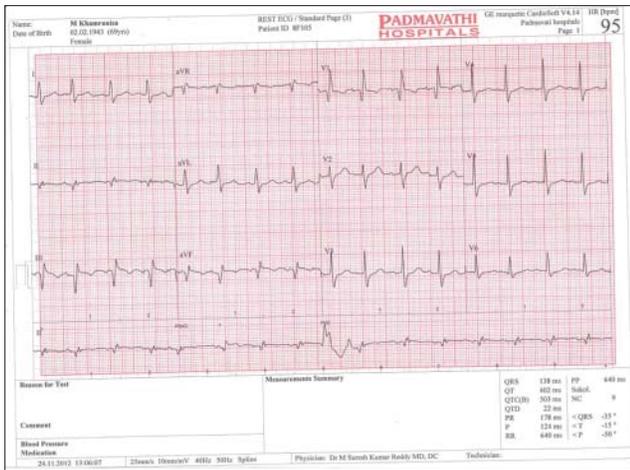


Figure 2: Patient chest X ray showing Cardiomegaly and CHF changes



Figure 3: Intra operative photo

after 72 hours of surgery and Tab. Clopidigril 75 mg OD started. On 5th post operative day patient shifted to post operative ward and rest of her hospital was uneventful.

DISCUSSION

The prime consideration in managing our case was to maintain hemodynamic stability during surgery and prevention of ischemic attacks during surgery and in postoperative period. The case study shows the safety of combined continuous low dose segmental epidural¹² and ilioinguinal nerve block in patients with coronary heart disease with severe left ventricular dysfunction in emergency surgery for obstructed inguinal hernia who have higher morbidity and mortality under general anaesthesia and spinal anaesthesia.¹³

Postoperatively patient have absolute pain free period for 48 hours provided by low dose 0.125% bupivacaine administration through epidural catheter, which reduces the incidence of ischemic attacks.

In patients with coronary heart disease with severe left ventricular dysfunction who were given general and spinal anaesthesia required more prolonged I.C.U stay when compared to combined continuous low dose segmental epidural and inguinal nerve block.

We used incremental low volumes of Xylocaine as incremental low volumes has higher cardiovascular stability when compared to single higher volume administration, lower systemic toxicity in case of subarachnoid spread. Incremental low volume administration of Xylocaine has lesser incidence of sudden onset of hypotension and bradycardia which is detrimental in patients with coronary heart disease with severe left ventricular dysfunction.

Low concentration of 0.25% bupivacaine is used for inguinal nerve block¹⁴ because of low cardiac toxicity, low systemic toxicity in case of inadvertent intravascular spread. Use of higher volume and low concentration of drug has more successful rate of inguinal nerve block than low volume higher concentration of drug.

CONCLUSION

Combined continuous low dose segmental epidural and inguinal nerve block is a safe anaesthesia technique for high risk coronary heart disease patients with severe left ventricular dysfunction undergoing elective and emergency inguinal hernia surgeries.

REFERENCES

1. Goldman L, Caldera DL, Southwick FS, Nussbaum SR, Murray B, O'malley TA, Slater EE. Cardiac risk factors and complications in non-

- cardiac surgery. *Medicine* 1978;57(4): 357.
2. Larsen SF, Olesen KH, Jacobsen E, Nielsen H, Nielsen AL, Pietersen A, Nyboe J. Prediction of cardiac risk in non-cardiac surgery. *European heart journal* 1987;8(2):179-185.
 3. Jin F, Chung F. Minimizing perioperative adverse events in the elderly. *British Journal of Anaesthesia* 2001;87(4):608-624.
 4. Beliveau MM, Multach M. Perioperative care for the elderly patient. *Medical Clinics of North America* 2003;87(1):273-289.
 5. American college of physicians. Guidelines for assessing and managing the perioperative risk from coronary heart disease associated with major non-cardiac surgery. *Ann Intern Med* 1997;125:309-10.
 6. Huntsman LL, Stewart DK, Barnes SR, Franklin SB, Colocousis JS, Hessel EA. Noninvasive Doppler determination of cardiac output in man. Clinical validation. *Circulation* 1983;67(3):593-602.
 7. Arai F, Kita T, Maki N, Sasaki S. Anesthetic management for patients with compromised left ventricular function due to coronary artery disease in non-cardiac surgery. *Masui*. 2007;56(5):560-5.
 8. Spinal UASU. European Society of Regional Anaesthesia & Pain Therapy (ESRA) Congress 2013 Late Breakers. *Regional Anesthesia and Pain Medicine* 2013;38 (5 Supplement 1).
 9. Dittrick GW, Ridl K, Kuhn JA, McCarty TM. Routine ilioinguinal nerve excision in inguinal hernia repairs. *The American journal of surgery*. 2004;188(6):736-740.
 10. Bærentzen F, Maschmann C, Jensen K, Belhage B, Hensler M, Børghlum J. Ultrasound-guided nerve block for inguinal hernia repair: a randomized, controlled, double-blind study. *Regional anesthesia and pain medicine*. 2012;37(5):502-507.
 11. Varshney PG, Varshney M, Bhadoria P. Comparison Of Total Intravenous Anaesthesia, Spinal Anaesthesia And Local Block For Day Care Inguinal Herniorrhaphy. *Internet Journal of Anesthesiology*. 2009;22(1).
 12. Bernards CM. Epidural and spinal anesthesia. *Clinical Anesthesia*. 4th ed. Philadelphia, Pa: Lippincott Williams & Wilkins 2001;689-713.
 13. Akhtar S, Silverman DG. Assessment and management of patients with ischemic heart disease. *Critical care medicine* 2004;32(4):S126-S136.
 14. Ronald D. Miller 7th edition *Miller's Anaesthesia* Churchill Livingstone Elsevier, 2010; 1927-1929.

How to cite this article: Avvaru NK, Jagadeesha CS. Anaesthesia Management of Elderly Woman with Coronary Heart Disease and Severe Left Ventricular Dysfunction Suffering from Left Obstructed Inguinal Hernia Posted for Emergency Surgery Under Combined Continuous Low Dose Segmental Epidural and Ilioinguinal Nerve Block. *Int J Sci Stud*. 2014;2(4):73-76.

Source of Support: Nil, **Conflict of Interest:** None declared.