

Rare Cases of Bilateral Lumbar Hernia: Anaesthesia Concerns and Lessons Learnt

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ARTICLE INFO

Article history:

Received 10 April 2021

Revised 02 May 2021

Accepted 17 May 2021

Keywords:

Bilateral lumbar hernia;

Low dose spinal anaesthesia;

Segmental epidural anaesthesia;

Segmental spinal anaesthesia

ABSTRACT

Bilateral lumbar hernias are rare. There is a paucity of literature regarding the anaesthesia techniques used and challenges faced. In the present era of minimally invasive surgery, laparoscopy has gained name and fame and is the modality of choice for hernia repairs. **Methods:** We report a series of 4 cases of bilateral lumbar hernia operated in our institute, using 4 different anaesthesia techniques over a period of 2 years and 9 months with the aim to focus on the varied anaesthetic techniques and the advantages and disadvantages of each. **Results:** General anaesthesia supplemented with epidural anaesthesia is recommended for laparoscopic repair, while in very high risk cases, combined segmental spinal- epidural anaesthesia may be a better option. Low dose segmental spinal provides commendable cardiovascular stability. It is a useful alternative in patients with multiple comorbidities, cardiac and respiratory diseases and aids early recovery and ambulation. **Conclusion:** Irrespective of the type of anaesthesia technique administered, patients' safety and comfort should be of prime importance, while maintaining optimum haemodynamics and physiology.

Lumbar hernia, like any other hernia is the protrusion of either extraperitoneal or intraperitoneal contents through a defect, but here, the defect being in the posterolateral abdominal wall adds to its complexity. The existence of lumbar hernias was first described by Cavallaro et al [1]. Over the last 4 centuries, only about 300 cases of lumbar hernias have been reported in the world [2] while primary bilateral lumbar hernias are even fewer [3]. Acquired pathology with elderly male predominance is the clenching demographic factor. Like any other surgery these hernias also have varied surgical approaches which in turn need different anesthesia techniques. Surgical aspects are very often discussed and reported but the anaesthetic considerations for these hernias are seldom put forth. To the best of our knowledge this is the largest collection of lumbar hernia cases focussing on different anesthesia techniques and the challenges encountered in administering each technique. We present this report with the primary objective to highlight the various anesthesia

options available that can be administered for lumbar hernia surgeries with emphasis on the advantages and short comings of each and with a secondary objective to look for any improvisation in any of the techniques.

Methods

With the written informed consent from all patients we report 4 cases of bilateral lumbar hernia, admitted in our institute from March 2017 to December 2019 who underwent bilateral lumbar hernia repair either via laparoscopic approach or by open technique. All our patients were farmers by occupation and shared the common ethnicity of our state. (Table 1) explains these.

Hypotension and hypertension was defined as 20% variation in systolic and/or diastolic blood pressure below/above the baseline blood pressure respectively. Tachycardia and bradycardia was defined as 20% variability in heart rate above/below the base line heart rate respectively. Patients comfort was defined in terms

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of stable position intraoperatively, complaints of any difficulty in breathing or pain at pressure points.

Surgeon's remarks were noted in terms of intraoperative blood loss, muscle relaxation, patient

movement intraoperatively causing disturbance during surgery, a talking patient causing interruption or limitation in terms of duration of anaesthesia as may be caused by wearing off of spinal anaesthesia.

Table 1- Demographic details, anaesthetic techniques, intraoperative and postoperative course

	Case 1	Case 2	Case 3	Case 4
DEMOGRAPHIC DETAILS				
Age/Sex	68y/M	58y/M	70y/M	70y/M
Area of origin	Maharashtra	Maharashtra	Maharashtra	Maharashtra
Occupation	Farmer	Farmer	Farmer	Farmer
Comorbidities	Bronchiectasis	Obesity	Obesity/COPD	HTN
INTRAOPERATIVE CHALLENGES				
Anaesthetic technique	Open Sx- segmental EA + Segmental Spinal	Lap- EA+GA	Open Sx- SAB	Lap- GA
Dose of drug	Inj Bupivacaine (H) 2.5ml + Inj Fentanyl 25mcg (0.5ml) in T12-L1 space , epidural top ups with 5ml of 0.25% bupivacaine	GA- according to institutional protocol, epidural top ups with 6ml of 0.25% Bupivacaine.	Inj Bupivacaine(H) 3ml+ Inj Fentanyl 25mcg (0.5ml)	GA given according to institutional protocol
Duration of surgery	3hrs	4.5hrs	3.5hrs	4hrs
Positioning	Lateral decubitus, changed from one side(left) to the other(right) intraoperatively	Lateral decubitus+ head low, position changed intraoperatively	Prone	Lateral decubitus+ head low, position changed intraoperatively
Haemodynamics	Stable	Stable	Post-spinal hypotension	Stable
Patient comfort	Positioning discomfort	Comfortable	Positioning discomfort	Comfortable
Surgeon's remark	Disturbed due to infrequent patient movement and verbalization	Satisfied	Disturbed due to infrequent patient movement and verbalization	Satisfied
POSTOPERATIVE PERIOD				
Waking up from surgery	Positional distress	Comfortable	Positional distress	Comfortable
Pain management When VAS>4/on demand, whichever earlier	Inj Bupivacaine 0.125% 6cc	Inj Bupivacaine 0.125% 6cc	Inj Tramadol 50mg IV	Inj Tramadol 50mg IV
Complaints	NIL	NIL	Headache	sore throat, PONV, pain abdomen
Recovery	Ambulated same day. Epidural catheter removed after 24hrs	Ambulated on D1. Epidural catheter removed after 24hrs	Ambulated on D1	Ambulated on D1

Figure 1- Protrusion of bilateral lower back**Figure 2- lateral position for repair of lumbar hernia**

Discussion

Lumbar hernia by name may appear to be a simple just like any other hernia but from an anaesthetist's point of view no surgery is simple and no anaesthesia is easy to administer. These being rare hernias [4-5], there is not

much literature available regarding anaesthesia techniques and its implications. These four cases of bilateral lumbar hernia were operated in single setting. Repairing bilateral hernias in one setting prolongs the duration of surgery by many folds which in turn requires prolonged anaesthesia.

Also there needs to be change in position while shifting from one operative side to other. For which the anaesthetised patient needs to be changed from one decubitus to another requiring skilled manpower, while still maintaining the physiology of patient at optimum. We in our institute have well trained staff and students hence change of position was not a difficult task but this may be challenging in isolated centres.

With the advent of laparoscopic surgical repair, challenges with pneumoperitoneum, alterations in normal physiology and extremes of positioning (reverse Trendelenburg) are few among the several intraoperative challenges. Extreme head low position with pneumoperitoneum causes very high peak airway pressures, leading to V/Q mismatch in the dependent lung. We managed this physiological alteration with PEEP (positive end expiratory pressure), keeping the tidal volume low and with an increased respiratory rate, upto 16/min.

Peripheral nerve injuries need to be prevented while handling patients in odd positions. In both, cases 2 and 4, the pressure points were well padded.

Moreno-Egea A et al. [6] concluded that the laparoscopic approach was more safe, effective and more efficient than open repair. Advantages of laparoscopic hernia repair when compared to conventional open approach include reduced postoperative pain, fewer perioperative complications, shorter hospital stay, a faster recovery to normal activity with a similar recurrence rate. GA in these patients provides better muscle relaxation with a faster onset of action. GA avoids the side effect of shoulder pain and respiratory discomfort which is often associated with laparoscopic techniques. But the concern to keep the airway secured while changing position is always of prime importance. It is often easier to teach and learn with this modality since it is not time bound. Retching and PONV following general anaesthesia can be taken care of with monotherapy or combination of anti-emetics [7].

While under spinal anaesthesia, although there is no concern regarding airway manipulation, the long duration of surgery in lateral decubitus is often cumbersome for the patient and may specifically affect the respiration in obese patients (BMI >28). There is minimal incidence of PONV with regional techniques. Also these are cost effective anaesthetic modalities. We recommend it to be considered in cases with anticipated difficult airway (as securing airway in odd position may be difficult) and when regional anaesthesia should be preferred over

general anaesthesia (cases with severe respiratory compromise, BMI>30).

According to literature, the addition of epidural analgesia to both subarachnoid and general anaesthesia improves the perioperative outcome by reducing the physiologic stress (due to postoperative pain), surgical complications (due to intraoperative hypertension) [8-10].

Segmental spinal with segmental epidural is another recent modality which can be implemented and administered in very high risk cases where only the desired lower lumbar segments need to be blocked. Segmental spinal enables limited and controlled anesthesia to the desired area with lower concentrations and doses of local anaesthetics and provides remarkable cardiovascular stability [11-12]. CASE 1 had excellent results with segmental spinal anaesthesia and our patient was very much satisfied in terms of intraoperative comfort and postoperative pain relief.

Our report has limitations of its own as it presents only 4 cases of lumbar hernia. But since these are rare cases, the duration of study needs to be very long to collect larger sample size. Further data needs to be collected. Also we did not follow up our patients after 24 hrs.

Conclusion

Different anaesthesia techniques go hand in hand with different surgical techniques while operating bilateral lumbar hernias and each has its own short comings. Maintaining ventilation-perfusion ratio along with hemodynamics and keeping the patient comfortable throughout the surgery are the major concerns. Above all, administering adequate and safe anesthesia to every patient should be the primary goal.

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