



International Journal of Medical Anesthesiology

E-ISSN: 2664-3774
P-ISSN: 2664-3766
IJMA 2020; 3(4): 14-17
Received: 11-08-2020
Accepted: 13-09-2020

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Bilateral lumbar hernia: challenges and anaesthetic considerations: A series of rare cases

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DOI: <https://doi.org/10.33545/26643766.2020.v3.i4a.159>

Abstract

Lumbar hernia is the protrusion of extraperitoneal or intraperitoneal contents through a defect in the posterolateral abdominal wall. Reported cases of primary lumbar hernias are very few, making it the rarest form of abdominal hernias. Though the surgical management of primary bilateral lumbar hernias have been often reported, the anaesthetic considerations are seldom discussed. Three cases of bilateral lumbar hernia in men aged between 55-70 years are presented here. Case 1 was operated laparoscopically under general anaesthesia. Case 2 underwent an open bilateral lumbar hernia repair under spinal anaesthesia and Case 3 was again operated laparoscopically under combined epidural-general anaesthesia. We used three different anaesthesia techniques to anaesthetise these patients. It was found that patients under general anaesthesia were much more comfortable on waking up from anaesthesia. An epidural analgesia proved to be a very good adjuvant to general anaesthesia to reduce postoperative pain.

Keywords: Spinal anaesthesia, general anaesthesia, rare, lumbar hernia, epidural analgesia

Introduction

Lumbar hernia is defined as the protrusion of either extraperitoneal or intraperitoneal contents through a defect in the posterolateral abdominal wall. The existence of lumbar hernias was first described by Cavallaro et al. ^[1], and the first case was reported by Moreno-Egea et al. ^[2] in 1731. Over the last 4 centuries, only about 300 cases of lumbar hernias have been reported in the world ^[2] and the cases of primary lumbar hernias are even fewer ^[3] making it the rarest form of abdominal hernias. It is the rarity of this condition that renders it enigmatic. Lumbar hernias manifest through two possible defects in the posterior abdominal wall- the superior lumbar triangle of Grynfeltt and the inferior triangle of Petit. Herniation through the superior lumbar triangle is more common than herniation through the inferior triangle. These hernias may be congenital (20%) or acquired (80%) ^[4]. They are more prevalent in males and more on the left side of the abdomen ^[4]. Surgical repair is the only definitive treatment option, prior to which a CT scan (the study of choice) is essential to confirm the diagnosis ^[4].

Objective

Comparison of different anaesthesia modalities for management of bilateral lumbar hernia cases operated with different surgical approaches.

Case Report

Case 1-A 70 year old well-built gentleman presented with complaints of swelling over bilateral lower back since 10 years, which was gradually increasing in size since 1 year. Patient was hypertensive since 20years, on regular treatment with Tab. Amlodipine 5mg OD. On examination his general and systemic examination were within normal limits, Mouth opening was adequate with Mallampatti class II. The patient had globular swellings bilaterally over lower back which measured 6x6cms on the right side and 3x3cms on the left side, with a positive cough impulse sign. Swellings were non-tender and produced a gurgling sound when attempts were made to reduce. Chest X-Ray and ECG was normal. All other investigations were within normal limits. A CT scan was done and the diagnosis was confirmed as B/L superior lumbar hernia. He was then posted for laparoscopic hernia repair under ASA II.



Fig 1: Protrusion over bilateral lower back

General anaesthesia (GA) was planned for this case. Intraoperative: after receiving the patient in operation theatre all the monitors were attached, the patient was pre-medicated with Inj. Midazolam 1mg, Inj. Ondansetron 4mg, Inj. Glycopyrrolate 0.2mg and Inj. Fentanyl 100µg intravenously. Pre-oxygenation was done with 100% O₂ for 3 minutes. Patient was induced with Inj. Propofol 2mg/kg intravenously. Inj. Vecuronium 0.08mg/kg was given as muscle relaxant. Patient was intubated with an endotracheal tube of size 8.5mm. Bilaterally equal air entry was confirmed and tube was fixed. Anaesthesia was maintained with 50% O₂, 50% N₂O and sevoflurane with mac of 0.8 %. We managed him with intermittent positive pressure ventilation on closed circuit and intermittent doses of Inj Vecuronium 1mg intravenously. Positioning is a major concern in these cases. Patient was made lateral to the opposite side so as the operative side faces upwards. This being a laparoscopic surgery, nearly 45 to 50 degree head low was also required. Also, a lateral tilt of the table was given, so as to aid in surgical exposure. With such difficult position maintaining adequate ventilation was a major challenge. A PEEP of 3 was set to achieve this goal. ETCO₂ was also continuously monitored. Surgery lasted for around 4h and hydration was maintained with crystalloids and urine output was constantly monitored through foley's catheter. After the surgery patient was made supine and the plane of anaesthesia was lightened.



Fig 2: Positioning of patient for laparoscopic surgery.

Post-operatively- Inj. Neostigmine 2.5mg and Inj. Glycopyrrolate 0.4mg was administered slowly intravenously for reversal of neuromuscular blockade following which patient was extubated. Post operatively patient complained of sore throat (prolonged intubation) which was treated with warm salt water gargles, nausea and vomiting for which he was give inj ondansetron4mg intravenously. Patient also complained of pain abdomen which was treated with inj tramadol 2mg/ kg.

Case 2- 70yr old gentleman, obese, presented with complaints of bilateral lower back swelling that was progressively enlarging in size since 6 months. A chronic bidi smoker and alcoholic since more than 30years and diagnosed with COPD since 8years, on regular medications. General examination was within normal limits. Systemic examination revealed bilaterally reduced air entry. Pulmonary function test showed FeV₁ of 40%. ECG was within normal limits. Mouth opening was restricted to 2 fingers. Mallampatti score could not be assessed. All routine lab investigations were within normal limits. Bilateral swellings were 5x4cm on the right and 6x5cm on the left side. Cough impulse was positive. CT scan abdomen pelvis confirmed the diagnosis of bilateral superior lumbar hernia.



Fig 4: Bilateral lower back protrusion

Patient was posted for bilateral open hernia repair. Since the patient was obese, a chronic bidi smoker and a k/c/o COPD with restricted mouth opening, and anticipated difficult mask ventilation, a plan of regional anaesthesia was made. Once the monitors were attached in the operation theatre, an anti-emetic, Inj. Ondansetron 4mg intravenously was given. Patient was made to sit upright for SA after being preloaded with 500ml of ringer lactate solution. Under all aseptic precautions, lumbo-sacral region of the back was painted and draped. Inj Bupivacaine (Heavy) 3cc with Inj Fentanyl 25µg was injected into L₂-L₃ interspace after checking the free flow of CSF. Patient was made supine after this procedure. The level of anaesthesia was assessed within three to five minutes of injection of spinal drug. An adequate level of T₆ was achieved. Intraoperative patient positioning was a concern. After 15min of spinal anaesthesia patient was made prone. Adequate cushioning was given below the thorax and head to assure the patient was comfortable. Intraoperative hypotension was noted following spinal anaesthesia. Baseline B.P of 140/92mmHg

dropped to 86/56mmHg and was managed with Inj. Ephedrine 5mg IV stat.

Post-operative level of spinal anaesthesia was T₈. The patient was counselled regarding post-operative numbness over abdomen and lower limbs that would fade away eventually. Inj tramadol 50mg in 100 ml normal saline BD intravenously was given for post-operative pain.

Case 3- 58yr old thin built gentleman, presented with complaints of swelling over bilateral lower back since 5years. Physical and systemic examination were within normal limits. ECG showed no significant changes. Mouth opening was adequate with Mallampatti class I. The swellings measured 5x5cm on the right side and 4x7cm over the left side. A CT scan confirmed the diagnosis of bilateral superior lumbar hernia. Patient was posted for laparoscopic repair of hernia under GA. We decided to place an epidural catheter in-situ for intra operative as well as post-operative analgesia. The patient was made to sit upright for insertion of epidural catheter, after attaching monitors. Under all aseptic precautions 18G Tuohy's needle was inserted into the L₃-L₄ interspace, using the loss of resistance to air technique. Epidural catheter was inserted and fixed at 9cm mark. The patient was then made to lie supine and was pre-medicated with Inj. Midazolam 1mg, Inj. Ondansetron 4mg, Inj. Glycopyrrolate 0.2mg and Inj. Fentanyl 2µg/kg intravenously. Pre-oxygenation for three minutes and induction with Inj. Propofol 2mg/kg intravenously was given. Inj. Vecuronium 0.08mg/kg intravenous was used as muscle relaxant following which mask ventilation was done for four minutes. Intubation with an endotracheal tube of size 8.5mm was done. Bilaterally equal air entry was confirmed, cuff inflated and tube was fixed. Anaesthesia was maintained with 50% oxygen, 50% N₂O and sevoflurane with a MAC of 0.6%. Patient was ventilated using closed circuit providing intermittent positive pressure ventilation with intermittent doses of Inj. Vecuronium 1mg intravenous. Patient positioning was the same as the previous two cases. PEEP was not used in this patient since the patient was thin built and could be adequately ventilated. The epidural catheter was activated using Inj. Lignocaine + Adrenaline 3ml and its position in the epidural space was hence confirmed. Inj. Bupivacaine 0.25% 6cc was given through the epidural catheter prior to closure of the case. For reversal of residual neuromuscular blockade Inj. Neostigmine 2.5mg and Inj. Glycopyrrolate 0.4mg was

given intravenously following which the patient was extubated. Inj Bupivacaine 0.125% 6cc was given undertaking aseptic precautions through the epidural catheter up to three times a day for post-operative analgesia until second postoperative day.

Discussion

Primary bilateral lumbar hernias are rare making this series of cases reportable. Burick AJ et al. and Obregón L et al. [5,6] concluded in their studies that open hernia repair, which is used as the conventional approach was a safe and effective treatment option. However, with the development of laparoscopic technology, laparoscopic hernioplasty is increasingly being used for the treatment of lumbar hernias. Moreno-Egea A et al. [7] concluded that laparoscopic approach was more safe, effective and more efficient than open repair. The advantages of laparoscopic hernia repair when compared with the conventional approach include mild postoperative pain, fewer perioperative complications, a shorter hospital stay, a faster recovery to normal activity with a similar recurrence rate. GA provides better muscle relaxation, ensures a faster onset of action and it is often easier to teach and learn when under this effect with no restriction of time. It also has better cosmetic results. Laparoscopic procedures commonly employ the Trendelenburg (head-up) or the reverse Trendelenburg (head-down) position. This can further worsen the adverse effects of pneumoperitoneum. When under spinal anaesthesia, although all possible measures are taken to make patients comfortable while lying down in lateral decubitus position, it is the long duration of surgery which makes it cumbersome for the patient. However, there is no concern regarding airway manipulation as the patient is conscious and maintains spontaneous respiration. There is minimal incidence of post-operative nausea and vomiting and it is also a cost effective anesthetic modality. Literature review suggests that epidural anaesthesia and analgesia has the potential to reduce or eliminate the perioperative physiologic stress responses to surgery and thereby decrease surgical complications and improve outcomes, in addition to providing pain relief [8, 9, 10]. The use of Epidural catheter for post-operative analgesia proved to be of much relief to both the patient and the anaesthetist. Spinal anaesthesia may be considered in anticipated difficult airway cases and in case of absolute contraindication for GA.

Table 1: Salient features of the 3 cases

Salient features	Case 1	Case 2	Case 3
Choice of anaesthesia	Lap under GA	Open surgery under SAB	Lap under EA+GA
Intraoperative complications	NIL	Hypotension Managed with Inj. Ephedrine 5mg IV	NIL
Waking up from anaesthesia	Comfortable	Positional discomfort experienced	Comfortable
Pain management	Inj Tramadol 50mg IV TDS	Inj Tramadol 50mg IV BD	Inj Bupivacaine 0.125% 6cc TDS
Post-operative complications	Complaints of sore throat, PONV, pain abdomen	B/L LL heaviness for 4-6h	NIL
Post-operative recovery	Ambulated on D1, discharged on D3	Ambulated on D1, Discharged on D4	Ambulated on D1, Discharged on D3 after removal of epidural catheter
Advantages	Easier awakening from anaesthesia. Adequate muscle relaxation Better cosmetic results Ideal to teach and learn Not time bound	No concern of airway manipulation Spontaneous respiration Minimal nausea, vomiting Cost-effective technique	Same as case 1 with better post-operative analgesia. patient is much more comfortable and no PONV.
Disadvantages	Airway management and tube handling Nausea, vomiting Sore throat Laryngeal edema	High spinal required Hypotension PDPH	Same as case 1

Conclusion

Laparoscopic repairs should be done under general anaesthesia for both patient's as well as surgeons' comfort but maintaining intraoperative position and patient's ventilation are major challenges, especially when the patient's BMI is on the higher side. These limitations can be overcome using adequate cushioning and PEEP. Better postoperative outcomes can be obtained with the addition of Epidural catheter to either anaesthetic technique.

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