Original Article

ISSN (O): 2456-7388; ISSN (P): 2617-5479

A Comparative Study of Epidural Anaesthesia Versus Spinal Anaesthesia for Inguinal Hernioplasty

Vivek Vaibhav

Assistant Professor, Department of Anesthesiologica, Rama Medical College, Hospital and Research Centre, Hapur, Uttar Pradesh, India.

Abstract

Introduction: Epidural administration is a method of medication administration in which a medicine is injected into the epidural space around the spinal cord. Spinal anaesthesia is a form of neuraxial regional anaesthesia involving the injection of a local anaesthetic or opioid into the subarachnoid space, generally through a fine needle, usually 9 cm (3.5 in) long. Hernia repair surgery, a single long incision is made in the groin. If the hernia is going down the inguinal canal (indirect), the hernia sac is either pushed back or tied off and removed. **Subjects and Methods :** The study has been conducted in 100 patients posted for elective inguinal hernia repair in the Dept. of Anaesthesia, at tertiary care teaching hospital over a period of six months. Pre anaesthetic evaluation was done along with all requisite blood and urine examination, Hb.BT, CT, ECG, 2D ECHO in pts above 50 yrs. All patients were assessed and they were graded according to the ASA physical status I and II. They were educated regarding the anaesthetic technique. **Result:** Total time taken for performing the procedure was significantly longer with Epidural Anaesthesia than that of Spinal Anaesthesia (8.24±0.32 Vs 4.23±0.52 minutes, $p<0.001$) but onset of action was comparable in both the groups (7.18±1.18 in Spinal Vs 11.428±0.37 min in Epidural $p<0.001$ Significant). Intraoperative fluid requirement was statistically higher in Spinal than Epidural (1654±193.2 ml vs 1158.22±78.27.16 ml) ($p<0.0001$). Duration of Surgery was significantly shorter in Spinal as compared to Epidural (91.24±8.41 vs 126.04±11.32 mins.) ($p=0.019$). 2 % patients had failure of Epidural block whereas no Spinal Anaesthesia failed in patients.

Keywords: Epidural Anaesthesia, Spinal Anaesthesia, Inguinal Hernioplasty.

Corresponding Author: Vivek Vaibhav, Assistant Professor, Department of Anesthesiologica, Rama Medical College, Hospital and Research Centre, Hapur, Uttar Pradesh, India.
E-mail: vivekdbest2019@yahoo.com

Received: 05 November 2020 **Revised: 18 December 2020** **Accepted: 25 December 2020** **Published: 12 February 2021**

Introduction

Epidural administration is a method of medication administration in which a medicine is injected into the epidural space around the spinal cord. The epidural route is used by physicians and nurse anesthetists to administer local anesthetic agents, analgesics, diagnostic medicines such as radiocontrast agents, and other medicines such as glucocorticoids.[1] Epidural administration involves the placement of a catheter into the epidural space, which may remain in place for the duration of the treatment. The technique of intentional epidural administration of medication was first described in 1921 by Spanish military surgeon Fidel Pagés. In the United States, over 50% of childbirths involve the use of epidural anesthesia.[2]

Spinal anaesthesia (or spinal anesthesia), also called spinal block, subarachnoid block, intradural block and intrathecal block, is a form of neuraxial regional anaesthesia involving the injection of a local anaesthetic or opioid into the subarachnoid space, generally through a fine needle, usually 9cm (3.5in) long.[3] It is a safe and effective form of anesthesia performed by anesthesiologists, certified anesthesiologist assistants and nurse anesthetists which can be used as an alternative to general anesthesia commonly in surgeries involving the lower extremities and surgeries below the umbilicus. The local anesthetic with or without an opioid injected into the cerebrospinal fluid provides locoregional anaesthesia: true analgesia, motor, sensory and autonomic (sympathic) blockade.[4] Administering analgesics (opioid, alpha2-adrenoreceptor agonist) in the cerebrospinal fluid without a local anaesthetic produces locoregional analgesia: markedly reduced pain sensation (incomplete analgesia), some autonomic blockade (parasympathetic plexi), but no sensory or motor block. Locoregional analgesia, due to mainly the absence of motor and sympathic block may be preferred over locoregional anaesthesia in some postoperative care settings. The tip of the spinal needle has a point or small bevel.

Recently, pencil point needles have been made available (Whitacre, Sprotte, Gertie Marx and others).

Surgery remains the ultimate treatment for all types of hernias as they will not get better on their own, however not all require immediate repair. Elective surgery is offered to most patients taking into account their level of pain, discomfort, degree of disruption in normal activity, as well as their overall level of health.[5] Emergency surgery is typically reserved for patients with life-threatening complications of inguinal hernias such as incarceration and strangulation. Incarceration occurs when intra-abdominal fat or small intestine becomes stuck within the canal and cannot slide back into the abdominal cavity either on its own or with manual maneuvers.[6] Left untreated, incarceration may progress to bowel strangulation as a result of restricted blood supply to the trapped segment of small intestine causing that portion to die. Successful outcomes of repair are usually measured via rates of hernia recurrence, pain and subsequent quality of life.

Subjects and Methods

The study has been conducted in 100 patients posted for elective inguinal hernia repair in the Dept. of Anaesthesia, at tertiary care teaching hospital over a period of six months.

Selection of patients:

Inclusion criteria:

1. Patients undergoing inguinal hernia repair
2. Age 18– 70 years
3. Normal adults belonging to ASA Grade I and ASA Grade II
4. Patients below 18 and above 70 years
5. Patients with ASA Grade III and ASA Grade IV
6. Patients allergic to local anaesthetics
7. Presence of ischemic heart diseases, inability to climb a flight of stairs
8. Hypertension,
9. Symptomatic asthma,
10. Uncontrolled diabetes,
11. Epilepsy,
12. Renal problems,

Exclusion criteria:

1. Bleeding disorders,
2. Patients on chronic drug medications such as MAO inhibitors, acute substance abuse
3. Previous problem with anaesthesia,
4. Obesity,
5. Neurological deficit, infection at injection site, and patients unwilling to comply with instructions

Pre anaesthetic evaluation was done along with all requisite blood and urine examination, Hb.BT, CT, ECG, 2D ECHO in pts above 50 yrs. All patients were assessed and they were graded according to the ASA physical status I and II. They were educated regarding the anaesthetic technique. Consent for the same was obtained. Local anaesthetic test dose was carried out on the previous day of surgery. Patients were premedicated with oral Alprazolam 0.5 mg and Oral Ranitidine 150 mg on the night prior to surgery and 2 hours before the surgery.

Procedure: Each patient selected for the study was positioned laterally (on affected side) on the operation theatre table. With all aseptic precautions the epidural space was identified by loss of resistance technique at L1-L2 space, with 18G epidural needle, 5ml of 0.5% Bupivacaine is injected very slowly after negative aspirations for blood and C.S.F. Only to block the segments (T12-L2) involved in the field of surgery. Later epidural catheter was inserted and secured and patient positioned back to supine position. Level of analgesia was checked by needle prick. After conforming the adequacy and level of analgesia, the surgery was commenced. If the patient complained of pain during needle prick, then injected local anaesthetic (0.5% Bupivacaine) with an incremental dosage of 1ml at a time, till the complete onset of analgesia. 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 the surgery. Oxygen saturation and ECG monitoring was done continuously. Onset of analgesia, level of analgesia (pre & post operatively), duration of analgesia, total dosage of local anaesthetic used were recorded. Complications like bradycardia, hypotension, respiratory depression, shivering, nausea and vomiting, sweating and inadvertent dural puncture were recorded. Criteria for hypotension was taken as a fall in systolic Blood pressure more than 20% of patients basal reading and treated with vasopressors like Inj. Ephedrine 3-5 mg IV. Bradycardia as heart rate less than 60 and treated with Inj. Atropine 0.6 mg IV. If any inadvertent dural puncture occurred, those cases were excluded from the study and were given homologous epidural blood patch to prevent post dural puncture headache.

After confirming the onset of analgesia patient was sedated with Inj.midazolam 1 mg IV.

In the present study the following scale was adopted to grade quality of analgesia and relaxation.

1. **Excellent:** Patient comfortable, analgesia and surgical relaxation adequate, no supplementation required during surgery
2. **Good:** Analgesia and relaxation adequate, minimal discomfort present during surgical procedure. Additional top-ups of local anaesthetic at an incremental dose of 1 ml are given.

3. **Fair:** Analgesia and relaxation adequate, discomfort present even after additional top-up of epidural local anaesthetic, this was alleviated by analgesic dose of Ing. Fentanyl 1 Mcg/kg IV.
4. **Poor:** Patients complaining of severe intolerable pain during surgery without relaxation. These cases were supplemented with general anaesthesia.

Result

Demographic data and duration of surgery were comparable in both the groups [Table 1].

Total time taken for performing the procedure was significantly longer with Epidural Anaesthesia than that of Spinal Anaesthesia (8.24±0.32 Vs 4.23±0.52 minutes, p<0.001) but onset of action was comparable in both the groups (7.18±1.18 in Spinal Vs 11.428±0.37 min in Epidural p<0.001 Significant). Intraoperative fluid requirement was statistically higher in Spinal than Epidural (1654±193.2 ml vs 1158.22±78.27.16 ml) (p<0.0001). Duration of Surgery was significantly shorter in Spinal as compared to Epidural (91.24±8.41 vs 126.04±11.32 mins.) (p=0.019). 2 % patients had failure of Epidural block whereas no Spinal Anaesthesia failed in patients. Systolic and mean blood pressure showed statistically significant reduction in Spinal as compared to Epidural (24(40%) vs 6 (10%)) (p<0.001). Also, Urinary retention and Post Dural puncture headache (PDPH) was seen only in Spinal Anaesthesia. Whereas 5 patients had nausea and vomiting during spinal and only 1 patient during Epidural Anaesthesia. Duration of ambulation was significantly shorter in Epidural as compared to Spinal (4.18±3.14 vs 8.16±0.72 hours) (p<0.001).

In [Table 2], the surgeons and patients expressed satisfactory result as satisfy in both the groups. The both group of patients declared of having good comfort during surgery, reduced requirement of postoperative analgesia and thereby experience of less side effects. This difference between the groups is statistically insignificant.

In [Table 3], patients operated under Spinal Anaesthesia had less postoperative pain on day -0 (between 4-6 hrs 50% patients, 7-9hrs 62%, 10-12 hrs 80%) compared to Epidural Anaesthesia group (between 4-6 hrs 55% patients, 7-9hrs 70%, 10-12 hrs 85%). There was no significant difference in pain score in both the group of the patients.

In [Table 4], spinal anesthesia Group, 45 (75%) patients had no pain after inguinal hernioplasty, while 6 (10%) patients experienced mild pain and 9 (15%) patients experienced moderate pain after surgery. None had severe pain. In the Epidural Anesthesia Group, 9 (15%) patients had no pain after surgery, while 9 (18%) patients experienced mild pain and 33 (55%) patients experienced moderate pain after surgery. 6 (10%) patient had severe pain. The difference between the two groups was found to be statistically significant. (p<0.001).

In [Table 6]: Only 6 patients in Spinal Anaesthesia group (10%) & 1 patients (5%) in Epidural Anaesthesia group experienced nausea & vomiting. The difference was statistically significant. (p<0.001). In the present study, none of the patients who had urinary retention and headach in Epidural Anaesthesia, while 9 (15%) of patients had urinary retention and 3 patient had headache after Spinal Anaesthesia. This was statistically significant.

Discussion

Inguinal hernia repair which is the typical operation has been complete under general, spinal, epidural and local anaesthesia methods with variable achievement. As per the newest references of European Hernia Civilization, in condition of an open repair, resident anaesthetic must be measured for each adult patient complete a main reducible one-sided inguinal hernia.[7] Inspite of this, there is countless level of apathy in accepting this method amongst anaesthesiologists. Inguinal arena block is one of the eldest methods, in training since years. Primarily, resident anaesthesia was given by the physician at the site of process but do not carry whole anaesthesia. Ilioinguinal and iliohypogastric nerve block provide somatic block over the bottom of abdomen and visceral ache is often reassured by giving extra local anaesthetic at the time of sac segmentation. In this learning we appraised the effectiveness, possibility, care, benefits and problems of Spinal anaesthesia, as associated to Epidural Anaesthesia.

In this learning, we perceived shorter anaesthesia onset time in Spinal Anaesthesia [Table 1] as associated to Epidural Anaesthesia. These significances are in consistence with outcomes shown by Davis et al. They see time to conquer extreme cephalad extent to be 13±7 min in spinal anaesthesia with 0.5% hyperbaric bupivacaine and 21±4 min in epidural anaesthesia with 0.5% bupivacaine.[8]

The mean intraoperative intravenous liquid necessity was essentially higher in Spinal Anesthesia than Epidural Anesthesia (1654±193.2 ml versus 1158.22±78.27 ml). The higher liquid prerequisite in Spinal Anesthesia group is expected to of thoughtful bar, which grows the intravascular compartment requiring quick intravascular mixture to keep the great intravascular volume and pulse. Subsequently, Epidural Anesthesia can be best procedure in patients with low ejection fraction.

There was no square disappointment during Spinal Anesthesia. In Epidural Anesthesia, 3 patients (5%) were block disappointment because of deficient square. In comparative examinations uncovered by Sultana An et al,[9] utilizing standard inguinal field block, intraoperative anxiety of moderate evaluation during the analyzation of hernia sac in 34% and 35%

Table 1: Intraoperative and postoperative comparison of various parameters

	Epidural Anesthesia n=60 (%)	Spinal Anesthesia n=60 (%)	p= value
ASA Grade (%)			
I	45 (75%)	39 (65 %)	0.781
II	15 (25%)	21 (35 %)	0.690
Mean duration for procedure (Min)	8.24±0.32	4.23±0.52	<0.001
Onset of action (Min)	11.428±0.37	7.18±1.18	<0.001
Intravenous fluid requirement (ml)	1158.22±78.27	1654±193.2	<0.001
Duration of surgery (min)	126.04±11.32	91.24±8.41	0.019
Block failure (%)	3 (5 %)	0 (0 %)	
Intraoperative Hypotension (%)	6 (10 %)	24 (40%)	0.013
Urinary retention	0	9 (15 %)	0.004
Nausea and Vomiting	3 (5 %)	6 (10%)	0.019
PDPH	0	3 (5%)	0.319
Duration of ambulation (hour)	4.18±3.14	8.16±0.72	<0.001
Bromage scores (3/2/1/0) $	0/41/8/7	41/8/5/0	<0.001*

Table 2: Operative condition, intra-operative discomfort and satisfaction with anaesthesia

Variables	Epidural Anesthesia (n=60)	SpinalAnesthesia (n=60)
Operative condition		
Excellent/Good/Poor	52/6/2	60
Intra-operative pain	12	0
Satisfaction with anesthesia	42	50
(Satisfy/Not satisfy) Surgeon Patients	55/5	60/0

Table 3: Post-operative pain (1st 12 hours)

Grade (Time)	Epidural Anesthesia (n=60)	SpinalAnesthesia (n=60)
0-3 hrs	0	0
4-6 hrs	33 (55%)	30 (50%)
7-9 hrs	42 (70%)	31 (62%)
10-12 hrs	51 (85%)	48 (80%)

Table 4: Intraoperative pain.

Intraoperative pain (VAS)	Epidural anaesthesia (n=60) (%)	Spinal anaesthesia (n=60) (%)
None (VAS=0)	9 (15%)	45 (75%)
Mild (VAS 1-3)	12 (20%)	6 (10%)
Moderate (VAS 4-6)	33 (55%)	9 (15%)
Severe (VAS>=7)	6 (10%)	0

Table 5: Recovery times and adverse events

Parameter	Group P (n=60)	Group S (n=60)	P
Time to first analgesic (min)	352±74	231±23	<0.001*
Time to complete sensory regression (min)	481±94	243±29	<0.001*
Total rescue analgesics (tramadol in mg)	82±23	79±15	0.943
Patients experiencing PONV (%)	3 (5 %)	6 (10%)	<0.001*
Urinary catheterization	0	9 (15 %)	<0.001*
Recovery room bypass (%)	24 (40)	0	<0.001*

Table 6: Post-operative observations

Complications	Epidural Anesthesia (n=60)	SpinalAnesthesia (n=60)	P value
Vomiting	3 (5 %)	6 (10 %)	<0.001*
Urinary retention	0	9 (15 %)	<0.001*
Headache	0	03 (5 %)	<0.001*

patients individually. Disappointment rate for nearby inguinal field block was 3.33% as expressed and for neighborhood penetration sedation, it was 3.17% as depicted and contrasted with 10% in our examination. The disappointment rate can be minimalized with more experience and expertise in this strategy.

Our outcomes are comparably for affirmation with study appeared by Nehme et al who found that the occurrence of Intraoperative hypotension was greatest in spinal sedation (24 patients),[10] while it was seen uniquely in 3 patients of Epidural Anesthesia, which stayed unimportant in instances of Epidural Anesthesia. Practically identical results were likewise uncovered. This outcome is because of the thoughtful bar created by spinal anaesthesia, prompting vasodilatation, fringe venous pooling of blood and decreased heart yield. Aysun Yilmazlar et al found a critical diminish in mean blood vessel pressure in spinal sedation gathering (pre-70.3±10.3 mmHg and post 52.3±9.3 mmHg) and no such decline in ilioinguinal and iliohypogastric nerve block group.[11]

In Spinal anaesthesia (15%) patient and in Epidural Anesthesia (0%) patients had urinary retention (i.e., full bladder on palpation and inability to micturition 8 hours postoperatively and corresponding with trouble). Davis et al,[12] expressed in his examination contending spinal and epidural sedation expressed 7 (out of 32) patients in spinal gathering and 14 (out of 30) in epidural group who required catheterization. Low existence of urinary retention in our examination when contrasted with this because of lower dosage of anaesthetic utilized in spinal group (3 mg) and utilization of single shot method for epidural anaesthesia. Moreover, their mean catheterization time was 4.2 ±1.7 hours in spinal group and 4.7±2.3 hours in epidural group and we hung tight for in any event 8 hours for patient to micturition unreservedly and before that catheterization was done just whenever showed clinically.

Post Dural cut puncture headache (PDPH) in youthful muscular patients utilizing 27 G needles (whittcre and Quincke's), discovered event of 9.3% in both the groups. In our examination just single patient in spinal group created PDPH which reacted adequately to intravenous liquids and oral analgesics. Lower incidence of PDPH is inferable from use of fine dressing (25 number quincke) needle in our examination.

Term of ambulation was longer in Spinal Anesthesia when contrasted with Epidural Anesthesia (9.58±0.8 2vs 3.95±2.57 hours) (<0.001). Song D et al found that opportunity to-home eagerness in Epidural block was smallest (133±68 min) when contrasted with Spinal Anesthesia (280±83 min). Ding Y and White PF additionally expressed that the ambulation time in block group was (86 ±18 min) and fit to release time was (112±49 min).[13] He additionally uncovered that the interim till release was 6.85 h in block group and settled that it should be an ideal technique in nations with a low Gross National Product (GNP) like in Africa.

The postoperative VAS score was essentially higher in Spinal Anesthesia when contrasted with Epidural Anesthesia. Period of Postoperative absense of pain was altogether more (5.163±0.4542 versus 3.871±0.4801 hours) in Epidural Anesthesia when contrasted with Spinal Anesthesia. Practically identical results were likewise taken note.

Postoperative difficulties - 3 patients had nausea, and vomting which reacted to IV ondansetron, 7 patients created urinary maintenance and 1 patient had cerebral pain in Spinal Anesthesia. None of patients in Epidural Anesthesia had any of these challenges. Comparative results were additionally seen (urinary maintenance 15%) and created wound haematoma or neighborhood disease. Less nausea and vomiting in our investigation are because of low level chose on the grounds that nausea and vomiting during local anaesthesia are more normal when sympathetic block past 6th thoracic fragment. [14]

Patient's satsifaction scores as seen telephonically was similar between two groups. Patients having score of 4 (fulfilled) or 5 (extremely fulfilled) were taken as fulfilled with the end goal of numerical investigation and it was tracked down that 98% of patients who got spinal anaesthesia and 96% of patients who got epidural anaesthesia were fulfilled from method utilized. Correspondingly, in investigation by Pollock looking at spinal and epidural sedation for outpatient knee arthroscopy expressed 92% patients of epidural gathering and 97% of spinal gathering were additionally gigantically or exceptionally fulfilled from their anaesthetic method utilized. [15]

Conclusion

From the present study, we resolve that spinal block produces an early and significantly more effective analgesia and additional intense motor blockade than epidural block. The haemodynamic variations and side effects following the two techniques are more in Spinal than in Epidural Anaesthesia. Two blocks are different as per total duration of the surgery. Thus, both spinal and epidural anaesthesia can be reasonably used for day care surgery. Spinal anaesthesia with 25 gauze quincke's needle and 3ml 0.5% hyperbaric bupivacaine offers extra benefit of early onset and whole relaxation. Epidural Anaesthesia has less urinary retention, less haemodynamic variability, less incidence of nausea and vomiting, hypotension and ambulation. Hence can be use anaesthesia of choice in elderly patients and CVD patients.

References

1. Gaiser RR. Changes in the Provision of Anesthesia for the Parturient Undergoing Cesarean Section. Clin Obstet Gynecol. 2003;46(3):646–656. Available from: https://dx.doi.org/10.1097/00003081-200309000-00017.
2. Martin JA, Hamilton BE, Sutton PD, Ventura SJ, Menacker F, Munson ML. Births: final data for 2003. Natl Vital Stat Rep. 2005;54(2):1–116.
3. Stamer UM, Wiese R, Stuber F, Wulf H, Meuser T. Change in anaesthetic practice for Caesarean section in Germany. Acta Anaesthesiol Scand. 2005;49(2):170–176. Available from: https://dx.doi.org/10.1111/j.1399-6576.2004.00583.x.
4. Stamer UM, Grond S, Schneck H, Wulf H. Surveys on the use of regional anaesthesia in obstetrics. Curr Opin Anesthesiol. 1999;12(5):565–571. Available from: https://dx.doi.org/10.1097/00001503-199910000-00013.
5. Ng KW, Parsons J, Cyna AM, Middleton P. Spinal versus epidural anaesthesia for caesarean section. Cochrane Database Syst Rev. 2004;Available from: https://dx.doi.org/10.1002/14651858.cd003765.pub2.
6. Practice guidelines for obstetrical anesthesia: a report by the American Society of Anesthesiologists Task Force on Obstetrical Anesthesia. Anesthesiology. 1999;90:600–611. Available from: https://doi.org/10.1097/ALN.0000000000000935.
7. Riley ET, Cohen SE, Macario A, Desai JB, Ratner EF. Spinal versus epidural anesthesia for cesarean section: a comparison of time efficiency, costs, charges, and complications. Anesth Analg. 1995;80(4):709–712. Available from: https://doi.org/10.1097/00000539-199504000-00010.
8. Woolf CJ. Evidence for a central component of post-injury pain hypersensitivity. Nature. 1983;306(5944):686–688. Available from: https://dx.doi.org/10.1038/306686a0.
9. Melzack R, Coderre TJ, Katz J, Vaccarino AL. Central neuroplasticity and pathological pain. Ann N Y Acad Sci. 2001;933:157–174. Available from: https://doi.org/10.1111/j.1749-6632.2001.tb05822.x.
10. Curatolo M, Petersen-Felix S, Arendt-Nielsen L, Fischer M, Zbinden AM. Temporal summation during extradural anaesthesia. Br J Anaesth. 1995;75(5):634–635. Available from: https://dx.doi.org/10.1093/bja/75.5.634.
11. Curatolo M, Petersen-Felix S, Arendt-Nielsen L, Zbinden AM. Spinal anaesthesia inhibits central temporal summation. Br J Anaesth. 1997;78(1):88–89. Available from: https://dx.doi.org/10.1093/bja/78.1.88.
12. Kissin I. Preemptive Analgesia: Why Its Effect Is Not Always Obvious. Anesthesiology. 1996;84:1015–1019. Available from: https://doi.org/10.1097/00000542-199605000-00001.
13. Holmgren G, Sjoholm L, Stark M. The Misgav Ladach method for cesarean section: method description. Acta Obstet Gynecol Scand. 1999;78:615–621.
14. Altman DG, Schulz KF, Moher D. The revised CONSORT statement for reporting randomized trials: explanation and elaboration. Ann Intern Med. 2001;134:663–694. Available from: https://doi.org/10.7326/0003-4819-134-8-200104170-00012.
15. Rawal N. Acute pain services revisited: good from far, far from good? Reg Anesth Pain Med. 2002;27:117–121. Available from: https://doi.org/10.1053/rapm.2002.29110.

How to cite this article: Vaibhav V. A Comparative Study of Epidural Anaesthesia Versus Spinal Anaesthesia for Inguinal Hernioplasty. Acad. Anesthesiol. Int. 2021;6(1):5-11.

DOI: dx.doi.org/10.21276/aan.2021.6.1.2

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