



LARGE MYOMECTOMIES UNDER SPINAL ANAESTHESIA WITH EPIDURAL ROPIVACAINE INFUSION: A CASE SERIES

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ABSTRACT

Worldwide, uterine fibroids, which are also known as myomas or leiomyomas are the commonest form of benign pelvic tumours in women occurring during their child bearing ages¹.. The management of uterine fibroids thus depends on the number, size and its location.³. Surgery is facilitated by using multimodal anaesthesia, including General Anesthesia or Regional Anaesthesia⁴. While General Anesthesia was more commonly used earlier, with advancement of techniques and LA . CSE is preferred on present days⁵. The aim is to observe and establish the beneficial aspects of best possible RA.

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INTRODUCTION

Uterine fibroids are the most common benign pelvic tumour found in the females. An US study data shows prevalence of uterine fibroids ranges from 60% of cases by age of 35 years increasing to greater than 80% of cases by age of 50 years specifically in the case of African American women. In 30% of the cases morbidity is caused due to dysfunctional uterine bleeding (DUB) leading to anaemia and its consequences, increased pelvic pressure (urinary symptoms, constipation and tenesmus)⁸.

Globally there is a trend towards the increasing use of regional Anaesthesia (spinal, epidural and combined spinal/epidural anaesthesia) for removal of large uterine fibroids. However, the choice of anesthesia depends on the expertise of the anesthetists, patient's preference, surgeon's request, and duration of the procedure, availability of equipment, lifesaving drugs and anesthetic agents. The choice of anesthesia modulate the outcome of a major surgery with least chances of post operative complications.

Recently, there is a trend towards the increasing use of regional anaesthesia for procedures such as abdominal myomectomy and hysterectomy. A study on "anesthesia in underdeveloped world-present scenario and future challenges" noted that the use of Spinal Anesthesia is usually the choice in most of the surgical cases where it is feasible¹². Spinal Anesthesia, because of its distinct advantage in preventing airway related complications, less and its cost effectiveness which is well established in resource poor countries is the most

suitable one. Additional benefits of Regional anesthesia include but not limited to reduced incidence of postoperative nausea and vomiting, thromboembolic events, better postoperative analgesia, reduced blood loss and transfusion requirements when compared to General Anesthesia, length of hospital stay, incidence of complication rates as well as improvement in the overall outcome of surgery. General Anesthesia on the other hand may induce potential complications, such as increase pulmonary and airway related complication rates, severe hypotension, and postoperative nausea and vomiting¹ and increased morbidity.

In recent times, Combined Spinal Epidural Anesthesia (CSE) has emanated and has been used increasingly over the last decade. It combines the benefit of rapidity, density, and reliability that is characteristic of Single Shot Spinal Anesthesia with the flexibility of continuous epidural to vary the intensity of the block, control the duration of anaesthesia, and deliver postoperative analgesia¹³. It also averts all the airway related complications associated with General Anesthesia. Therefore, due to the benefits of Regional Anesthesia compared to General Anesthesia, the availability of equipment and skill for this procedure in our facility, we encourage its increased utilization for fibroid surgeries. This retrospective review over a period of two months seeks to audit the anaesthetic practice for fibroid surgeries, assess the role of Regional Anesthesia and to generate awareness with a view to increasing its utilization fibroid surgeries⁹.

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Table 1 Management of Fibroids from detection to treatment¹⁰

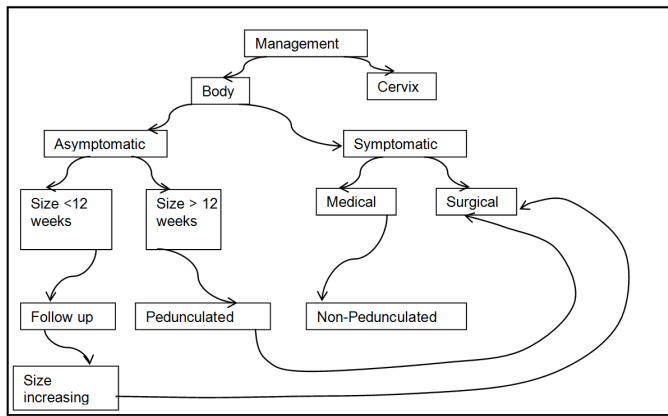
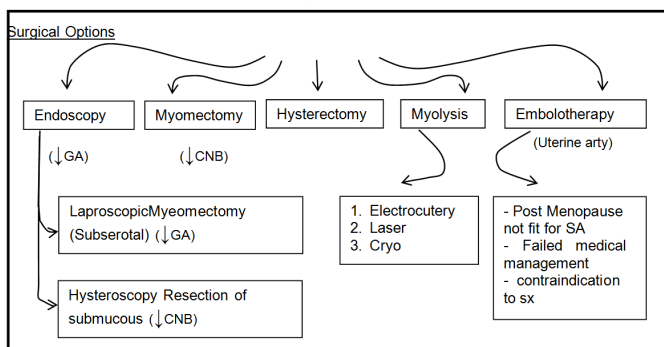


Table 2 : Surgical Options¹¹



Case Series

In our Institution, in past couple of months we had five cases of fibroids. All these cases have been published with written consent of the patients or their next of kin.

Case 1

A 42 year old woman, 63 kgs, P2L2, presented with difficulty in micturition and abdominal rigidity, diagnosed with intramural fibroid and planned for TAH. The patient has a history of tubal ligation 20 years back under General Anesthesia. Preoperative investigations were within WNL, Blood group A+ve. Preoperative vitals were stable and normal. Cross matched blood was reserved preoperatively. Epidural with Spinal Anesthesia was planned for TAH. A 16 gauge epidural needle was inserted at L2 – L3 level and epidural catheter was fixed at 9.5 cms mark. Spinal Anesthesia was given at L3 – L4 level with bupivacaine heavy 0.5 % 3ml. Motor and sensory blockade was achieved up to T6 level. 1 mg midazolam was given intravenously for anxiolysis. The epidural catheter was checked for correct placement with test dose of 2 % 3 ml Loxicard with adrenaline. After 30 mins from surgical incision, a continuous infusion of Ropivacaine 0.25 % was started via epidural catheter at 3ml/hr in view of a large intramural fibroid which required a larger incision. 1 unit of packed red cell and total 1200ml ringer lactate were given intraoperatively with a urine output of 400 ml throughout the surgery. Patient was comfortable with stable vitals. No further complications were noted. Postoperative vitals were WNL. Postoperative analgesic dose was given with Ropivacaine 0.25 % at 3 ml/hr with constant monitoring. The infusion was continued another 48 hours. The epidural catheter was removed and bluetip was seen subsequent to VAS Score of 2/10 to 3/10 after 48 hours.

Case2

A 36 year old woman, 65 kgs was electively planned for open myomectomy. She undergone two previous normal deliveries and spontaneous miscarriage once. Preoperative investigations were WNL except low Hb - 8.1, blood group O+ve. Preoperative vitals were all WNL. Cross matched blood was reserved preoperatively. Epidural with Spinal Anesthesia was planned for open myomectomy. Two wide bore IV line secured, slow pre loading was done. A 16gauge epidural needle was inserted at L2 – L3 level and epidural catheter was fixed at 9 cms mark. Spinal Anesthesia was given at L3 – L4 level with bupivacaine heavy 0.5 % 3.2 ml with fentanyl 20 mcg intrathecally. Motor and sensory blockade was achieved upto T6 level. The epidural catheter was checked for correct placement with test dose of Loxicard with adrenaline 2 % 3 ml. After 30 mins, a continuous infusion of Ropivacaine 0.25 % was started via epidural catheter at 4 ml/hr in view of a largemyometrial fibroid which required a larger incision. 2 pint packed cell volume and 1000 ml ringer lactate were given intra operatively with a urine output of 400 ml throughout the surgery. Patient was comfortable with stable vitals. No further complications were noted. Postoperative vitals WNL. Postoperative analgesic dose was given with Ropivacaine 0.25 % at 4 ml/hr with constant monitoring. The top up was continued for 2 days. The epidural catheter was removed and bluetip was seen subsequent to VAS Score of 2/10 to 3/1

Case 3

A 31 year old woman, 60 kgs, primigravida with BD 37.3 weeks BS 38.4 weeks presented USG abdomen s/o two fibroids, both involving anterior uterus wall measuring 7 x 6 x 6 cms and another larger 13.8 x 13 x 12cms. Patient is a known case of thalassemia trait since 6/8/20. She was planned for elective LSCS with myomectomy. Preoperative investigations were Hb - 9.1, TLC – 9600, PLT – 3.2, PT INR – 15/1, Blood group O+ve. Preoperative vitals were BP 130/80 mmHg, Pulse rate – 88/min, regular, SpO2 –99 % on RA. Cross matched blood was reserved preoperatively. Positive FHS was ensured before induction. Epidural Anesthesia with Spinal Anesthesia was planned for LSCS with myomectomy. A 16 gauge epidural needle was inserted at L2 – L3 level and epidural catheter was fixed at 10cms mark. Spinal Anesthesia was given at L3–L4 level with bupivacaine heavy0.5% 2.4 ml with fentanyl 20 mcg intrathecally. Motor and sensory blockade was achieved up to T6 level. After the baby was delivered, pitocin 20 IU was given diluted in 500 ml ringer lactate for uterus contraction. The epidural catheter was checked for correct placement with test dose of Loxicard with adrenaline 2 % 3 ml. At the starting of uterus closure, a continuous infusion of Ropivacaine 0.25 % was started via epidural catheter at 2 ml/hr in view of a longer duration of surgery. 1 pint packed cell volume and 1000 ml ringer lactate were given intraoperative with a urine output of 350 ml throughout the surgery. Patient was comfortable with stable vitals. No further complications were noted. Postoperative period was uneventful. Postoperative analgesic dose was given with Ropivacaine 0.25 % at 3-4 ml/hr with constant monitoring. The top up was continued for 2days. The epidural catheter was removed and blue tip was seen subsequent to VAS Score of 2/10.

Case 4

A 39 year old, 65 kgs, presented with pain, bloating and heaviness in abdomen which had increased gradually over a period of 15 days. Her USG abdomen was suggestive myometrial fibroid measuring 12 x 11 x 10 cms. She was electively planned for open myomectomy. She has a previous surgical history of LSCS with tubal ligation done 18 years back under Spinal Anesthesia with history of blood transfusion intraoperatively. She has a past surgical history of left ear surgery 2 yrs back. Preoperative investigations and vitals were WNL. Cross matched blood was reserved preoperatively. FHS was heard before induction. Epidural Anesthesia with Spinal Anesthesia was planned for laparotomy with oophorectomy. Two wide bore IV cannula secured. A 16 gauge epidural needle was inserted at L2 – L3 level and epidural catheter was fixed at 10 cms mark. Spinal Anesthesia was given at L3 – L4 level with Bupivacaine heavy 0.5 % 2.4 ml with fentanyl 20 mcg intra the cally. Motor and sensory blockade was achieved upto T6 level. 1mg Midazolam was given intravenously for anxiolysis. The epidural catheter was checked for correct placement with test dose of Loxicard with adrenaline 2 % 3 ml. After 30 mins, a continuous infusion of Ropivacaine 0.25 % was started via epidural catheter. One pint packed cell volume and 1500 ml ringer lactate were given intra operatively with a urine output of 450 ml throughout the surgery. Patient was comfortable with stable vitals. No further complications were noted. Postoperative vitals were WNL. Postoperative analgesic dose was given with Ropivacaine 0.25 % at 3.5 ml/hour with constant monitoring. The top up was continued for 2 days. The epidural catheter was removed and blue tip was seen subsequent to VAS Score of 2/10 to 3/10.

In all cases, adequate postoperative care was provided and patients were comfortable throughout the stay in the hospital. Postoperative pain was well controlled with an epidural infusion of 0.25% Ropivacaine.

DISCUSSION

Fibroids are monoclonal tumours of uterine smooth muscle, thus originating from the myometrium. Fibroids are composed of large amounts of extracellular Matrix (ECM) containing collagen, fibronectin and proteoglycans¹². The patient can have a single fibroid or multiple ones. Uterine fibroids may also be classified according to their location namely submucous, intramural and sub serosal. The management of uterine fibroids thus depends on the number, size and its location. Clinical presentations include abnormal bleeding, pelvic masses, pelvic pain, infertility, bulk symptoms and obstetric complications¹³. Current management strategies for symptomatic uterine fibroids mainly involve surgical interventions, but the choice of treatment is guided by patient’s age and desire to preserve fertility or avoid radical surgery such as hysterectomy. Types of surgery for large uterine fibroids were abdominal myomectomy (85%), total abdominal hysterectomy (14%) and vaginal hysterectomy (1%). Surgery is facilitated by using multimodal anaesthesia, including General Anesthesia or Regional Anaesthesia Abdominal myomectomy is surgical removal of fibroid from any part of uterus. The surgery is facilitated either by general or regional Anaesthesia. Anaesthetic management for myomectomy of huge fibroid remains a challenge for Anaesthesiologist for various factors in developing countries, which include malnutrition and anaemia due to poor socioeconomic

condition, late reporting to hospital, unoptimized co-morbidities, insufficient number of trained physician anesthetists, nurse anesthetists and technicians, poor operation theatre infrastructure and unavailability of equipment, lifesaving drugs and anesthetic agents etc.

Several surgical options exist for treatment of uterine fibroids which include hysteroscopic or laparoscopic or open myomectomy, abdominal or transvaginal hysterectomy or myolysis depending on the duration, symptoms of the disease, size and location of the leiomyoma, physical condition, affordability and choice of the patients. Anesthesia service for abdominal myomectomy can also be multimodal including general, spinal, or epidural anesthesia or a combination as well. We discovered that for larger fibroid surgeries best option could be combined spinal epidural anaesthesia with continuous epidural infusion.

Ropivacaine is a long acting amide local anaesthetic which has a pKa of 8.07, protein binding of 95%, but a lower lipid solubility than Bupivacaine, hence a potentially better safety profile when compared to bupivacaine according to minimum local anaesthetic concentration (MLAC) studies, based on effective analgesia in 50% of patients. The quality of Ropivacaine produce a well-tolerated and effective analgesia throughout the intra operative period, the sensory block is virtually identical with increased mass of the drug to that of Bupivacaine. But with its lower toxicity, especially cardiovascular toxicity, and less intense motor blockade, Ropivacaine seems to have advantages over Bupivacaine in epidural pain relief. In our present study, we used Ropivacaine 0.25 % infusion in a titrated dose and obtained adequate analgesia even after weaning from effects of spinal anesthesia. The sensory level recession after spinal anesthesia up to two dermatomal level also noted and we found that with continuous infusion Ropivacaine could provide with adequate sensory block and analgesia but patients were hemodynamically in better position.

The sensory level was assessed by three points scale,
 0 = absent
 1 = reduced
 2 = normal
 Face is taken as control.

The motor functions were assessed by modified Bromage scale The onset of sensory block will be taken from the time of intra the cal injection to loss of pin prick sensation at T 10 dermatomal level.

Table 4

Grade 0	Free movement of hips, legs and feet
Grade I	Able to flex knee with free ankle movement
Grade II	No flexion of knees with reduced feet movement
Grade III	No movement of entire lower limbs

Modified Bromage Scale

CONCLUSION

Most of the fibroid surgeries at our institution were performed using Combined Spinal Epidural (CSE) Anesthesia. Continuous epidural infusion with Ropivacaine 0.25% in titrated rate provided the patient with adequate anesthesia and post operative analgesia and surgeon with comfort as a result

of relaxed abdomen. Epidural with Spinal Anesthesia avoided the necessity of General Anesthesia as the patient had pain relief intra operatively as well as postoperatively. Finally, this study shows and supports increased utilization of regional Anesthesia for myomectomies with the benefits it confers compared to General Anesthesia or a Single Shot Spinal Anesthesia.

Acknowledgements

All cases have been published with written consent of the patients or their next of kin.

References

1. Walker CL, Stewart EA. Uterine fibroids: the elephant in the room. *Science*. 2005;308:1589–1592. [PubMed] [Google Scholar]
2. Ryan GL, Syrop CH, Van Voorhis BJ. Role, epidemiology, and natural history of benign uterine mass lesions. *Clin Obstet Gynecol*. 2005;48:312–324.
3. S. Bettocchi, A. Di Spiezio Sardo, O. Ceci *et al.*, “A new hysteroscopic technique for the preparation of partially intramural myomas in office setting (OPPIuM technique): a pilot study,” *Journal of Minimally Invasive Gynecology*, vol. 16, no. 6, pp. 748–754, 2009. View at: Publisher Site | Google Scholar
4. Schwartz SM, Marshall LM, Baird DD. Epidemiologic contributions to understanding the etiology of uterine leiomyomata. *Environ Health Perspect*. 2000;108(Suppl 5):821–827. [PubMed] [Google Scholar]
5. Okolo S. Incidence, aetiology and epidemiology of uterine fibroids. *Best Pract Res Clin Obstet Gynaecol*. 2008;22(4):571–588. [PubMed] [Google Scholar]
6. Wegienka G, Baird DD, Hertz-Picciotto I, *et al.* Self-reported heavy bleeding associated with uterine leiomyomata. *Obstet Gynecol*. 2003;101(3):431–437. [PubMed] [Google Scholar]
7. Ropivacaine, Interleukin-6 and Tumor Necrosis Factor Alpha Plasma Levels during Intermittent Epidural and Continuous Wound Infusion of Ropivacaine for Analgesia after Hysterectomy or Myomectomy: An Observational Study
8. Sophia L Markantonis¹, Aikaterini Melemeni, Marina Markidou, Stefania Irene Haikali, Vangelis Karalis, Argyro Fassoulaki
9. Gupta A, Perniola A, Axelsson K *et al.* Postoperative pain after abdominal hysterectomy: A double-blind comparison between placebo and local anesthetic infused intraperitoneally. *Anesth Analg* 2004;99:117
10. *Pain Medicine*, Volume 15, Issue 9, September 2014, Pages 1603–1608, <https://doi.org/10.1111/pme.12523> Published: 19 September 2014
11. Uterine Fibroid Management from the present to the future by Jacques Donnez and Marie Madeleine Dolmans in *Advanced Access Publication Human Reproduction Update Vol 22, No 6* pp665-686, 2016.
12. Epidural Anesthesia and Myomectomy associated bleeding by Abdelrady SIbrahim, Assiut University US National Library of Medicine, Clinical Trials.gov Identifier: NCT04629573.
13. Intramural Myomas: To treat or not to treat by Mayra Thompson and Bruce Carr in *International Journal of Women's Health* 2016.8pgs145-149.
14. Anesthesia for Fibroid Surgeries: Experience from a Nigerian Tertiary Institution by Asudo FD and Abdullahi H I in *International Journal of Contemporary Medical Research*, Vol7, Issue1, A24-A29.
15. Abdominal myomectomy in women with very large uterine size by Stanley West, Reginald Ruiz, and William H. Parker, *American Society for Reproductive Medicine*, doi:10.1016/j.fertnstert.2005.05.073.

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