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## Anaesthesia for fibroid surgeries: Experience from a tertiary institution

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### Abstract

**Background:** Clinical presentations of uterine leiomyomas include pelvic masses, pelvic pain, infertility and obstetric complications. Many fibroids are asymptomatic, but in 30-40% of cases, they show a variety of symptoms, depending on the location and size. Fibroids can cause heavy menstrual bleeding with subsequent anemia, which could be life-threatening.

**Materials and Methods:** The present study was conducted in the Department of Anesthesiology of MGM Medical College, Navi Mumbai. The Doctors and nurses theatre record of patients who had surgeries for fibroid were retrospectively reviewed for 5 years. The Nurses' and Doctors' theatre records were reviewed for Socio demographics, type of anaesthesia, type of surgery and uterine size.

**Results:** 53.6% patients had Regional anaesthesia (spinal 30.3%, combined spinal/epidural, 23.3% versus 41% for General anaesthesia. It shows a sustained increase in the use of combine spinal epidural anaesthesia, sustained decrease in the use of general anaesthesia while there was a marginal increase in the use of spinal anaesthesia.

**Conclusion:** There was a yearly increase in the use of RA, and a yearly decline in the use of GA. Regional Anaesthesia is the more commonly used mode of anaesthesia for fibroid surgeries in our institution.

**Keywords:** fibroid surgery, anaesthesia, combined spinal epidural, spinal, myomectomy, hysterectomy

### Introduction

Uterine fibroids (also known as leiomyomas or myomas) are the most common form of benign uterine tumors. They are monoclonal tumors of uterine smooth muscle, thus originating from the myometrium. They are composed of large amounts of extracellular matrix (ECM) containing collagen, fibronectin and proteoglycans. Leiomyomas occur in 50-60% of women, rising to 70% by the age of 50, and, in 30% of cases, cause morbidity due to abnormal uterine bleeding (heavy menstrual bleeding inducing anemia) and pelvic pressure (urinary symptoms, constipation and tenesmus) <sup>[1, 2]</sup>. Clinical presentations of uterine leiomyomas include pelvic masses, pelvic pain, infertility and obstetric complications. Many fibroids are asymptomatic, but in 30-40% of cases, they show a variety of symptoms, depending on the location and size. Fibroids can cause heavy menstrual bleeding with subsequent anemia, which could be life-threatening. African-American women have more severe symptoms in terms of heavy bleeding and anemia compared to white women <sup>[3, 4]</sup>. Large fibroids can also result in pressure symptoms (bulk symptoms) that may be responsible for bowel and bladder dysfunction, including urgency, increased daytime urinary frequency and urinary incontinence. Abdominal distention or distortion and pelvic pressure on the ureters (causing hydronephrosis) and pelvic blood vessels (particularly pelvic veins) could also interfere with quality of life (QoL) <sup>[5, 6]</sup>. Hence, the present retrospective study was to assess the role of regional anaesthesia and to generate awareness with a view to increasing its utilization for fibroid surgeries.

### Materials and Methods

The present study was conducted in the Department of Anesthesiology of MGM Medical College, Navi Mumbai. The ethical clearance for the study was approved from the ethical committee of the hospital. The study was conducted following approval by the Institution's Research Health and Ethics Committee. The Doctors and nurses theatre record of patients who had surgeries for fibroid were retrospectively reviewed for 5 years.

The Nurses' and Doctors' theatre records were reviewed for Socio demographics, type of anaesthesia, type of surgery and uterine size. The statistical analysis of the data was done using SPSS version 11.0 for windows. Chi-square and Student's t-test were used for checking the significance of the data. A p-value of 0.05 and lesser was defined to be statistically significant.

### Results

Table 1 shows the different types of Anaesthesia given. 53.6% patients had Regional anaesthesia (spinal 30.3%, combined spinal/epidural, 23.3% versus 41% for General anaesthesia. Table 2 shows yearly trends in the use of the different methods of anaesthesia. It shows a sustained increase in the use of combine spinal epidural anaesthesia, sustained decrease in the use of general anaesthesia while there was a marginal increase in the use of spinal anaesthesia. The use of Regional Anaesthesia increased from 2012 to 2016 and this was statistically significant while the use of General anaesthesia declined from 2012 to 2016. This was also statistically significant.

### Discussion

Trivedi P *et al.* [7] studied predisposing factors for fibroids and outcome of laparoscopic myomectomy in infertility. A retrospective research study was carried out on 2540 women at the National Institute of Laser and Endoscopic Surgery and Aakar IVF Centre, Mumbai, a referral centre in India. This study was done over a period of 14 years. Women varied in age from 23 to 51 years and infertility of at least more than three years. The woman had fibroids from one to seventeen in number and two centimeters to eighteen centimeters in size which were either submucous, intramural, serosal, cervical or broad ligament. The women requiring hysteroscopic myoma resection were excluded in this study and Laparoscopic myomectomy done in woman other than infertility are also excluded from the study. They found that the diet, weight, hypertension, habits had a bearing on incidence of fibroid. In one of the most promising research fact they found that fibroids itself produce prolactin and due to three times high level of aromatase had higher level of estradiol locally compared to normal myometrium. This was detrimental to fertility. A mild elevation of blood levels of prolactin usually in the range of 40 - 60 ng/ml was noticed in nearly 42% of the cases. Fibroids with infertility as a major complaint along with excessive vaginal bleeding in 33%, pain abdomen and dysmenorhea 10%, pressure symptoms in 3%, accidental finding of a large mass in 5% were the major indications for laparoscopic myomectomy. The pregnancy rate after removal of fibroids with active fertility treatment was 42 % and in donor oocyte IVF was 50%, abortion rate was 5%, 64% LSCS, 31% vaginal deliveries. There was no scar rupture in all pregnancies post laparoscopic myomectomy. They concluded that presence of fibroids in first degree female relative, predominantly red meat eating women, excess weight and high Blood pressure increased incidence of fibroids. Carranza-Mamane B *et al.* [8] provided recommendations regarding the best management of fibroids in couples who present with infertility. Management of fibroids in women wishing to conceive first involves documentation of the presence of the fibroid and determination of likelihood of the fibroid impacting on the ability to conceive. Treatment of fibroids in this instance is

primarily surgical, but must be weighed against the evidence of surgical management improving clinical outcomes, and risks specific to surgical management and approach. The outcomes of primary concern are the improvement in pregnancy rates and outcomes with management of fibroids in women with infertility. They recommend that in women with infertility, an effort should be made to adequately evaluate and classify fibroids, particularly those impinging on the endometrial cavity, using trans-vaginal ultrasound, hysteroscopy, hysterosonography, or magnetic resonance imaging. (III-A). Preoperative assessment of submucosal fibroids should include, in addition to an assessment of fibroid size and location within the uterine cavity, evaluation of the degree of invasion of the cavity and thickness of residual myometrium to the serosa. A combination of hysteroscopy and transvaginal ultrasound or hysterosonography are the modalities of choice. (III-B) Submucosal fibroids are managed hysteroscopically. The fibroid size should be < 5 cm, although larger fibroids have been managed hysteroscopically, but repeat procedures are often necessary. (III-B) A hysterosalpingogram is not an appropriate exam to evaluate and classify fibroids. (III-D). In women with otherwise unexplained infertility, submucosal fibroids should be removed in order to improve conception and pregnancy rates. (II-2A) 6. Removal of subserosal fibroids is not recommended.

Vilos GA *et al.* [9] provided clinicians with an understanding of the pathophysiology, prevalence, and clinical significance of myomata and the best evidence available on treatment modalities. The areas of clinical practice considered in formulating this guideline were assessment, medical treatments, conservative treatments of myolysis, selective uterine artery occlusion, and surgical alternatives including myomectomy and hysterectomy. The risk-to-benefit ratio must be examined individually by the woman and her health care provider. Implementation of this guideline should optimize the decision-making process of women and their health care providers in proceeding with further investigation or therapy for uterine leiomyomas, having considered the disease process and available treatment options, and reviewed the risks and anticipated benefits. The majority of fibroids are asymptomatic and require no intervention or further investigations. For symptomatic fibroids such as those causing menstrual abnormalities (e.g. heavy, irregular, and prolonged uterine bleeding), iron deficiency anemia, or bulk symptoms (e.g., pelvic pressure/pain, obstructive symptoms), hysterectomy is a definitive solution. However, it is not the preferred solution for women who wish to preserve fertility and/or their uterus. The selected treatment should be directed towards an improvement in symptomatology and quality of life. The cost of the therapy to the health care system and to women with fibroids must be interpreted in the context of the cost of untreated disease conditions and the cost of ongoing or repeat investigative or treatment modalities. Tinelli A *et al.* [10] assessed surgical complaints and reproductive outcomes of laparoscopic intracapsular myomectomies by a prospective observational study run in University affiliated hospitals. Between 2005 and 2010, 235 women underwent subserous and intramural laparoscopic myomectomy of fibroids (4-10 cm in diameter) for indications of pelvic pain, menstrual disorders, a large growing myoma or infertility. The main outcome measures were post-surgical parameters, including complications, the need for subsequent surgery or

symptomatic relief, resumption of normal life and reproductive outcome. Pelvic pain occurred in 27%, menorrhagia or metorrhagia in 21%, a large growing myoma in 10% and infertility in 42% of women. Single fibroids occurred in 51.9% of patients while 48.1% had multiple myomas. Of all patients, 58.2% had subserosal and 41.8% had intramural myomas. No laparoscopies were converted to laparotomy. In 3 years, 1.2% of patients had a second laparoscopic myomectomy for recurrent fibroids. The mean total operative laparoscopic time was 84 min (range 25-126 min), with mean blood loss of 118 ± 27.9 ml. By 48 h after surgery, 86.3% were discharged with no major post-operative complications. No late complications, such as

bleeding, urinary tract infections or bowel lesions, occurred. Of the women who underwent myomectomy for infertility, 74% finally conceived. At term, 32.9% of patients underwent Caesarean section, 24.8% delivered by vacuum extractor and 42.2% had spontaneous deliveries. No case of uterine rupture occurred. They concluded that intracapsular subserous and intramural myomectomy saving the fibroid pseudocapsule showed few early and no late surgical complications, enhanced healing by preserving myometrial integrity and allowed a good fertility rate and delivery outcome. In young patients suffering fibroids, laparoscopic intracapsular myomectomy is a potential recommended surgical treatment.

**Table 1:** Techniques of anesthesia

Anesthesia	Frequency	Percentage (%)
Spinal	91	30.3
General anesthesia	123	41
Combined spinal/epidural anesthesia	70	23.3
Spinal/GA	16	30.3
Total	300	5.4

**Table 2:** Yearly trend with no and percentages for the different types of anaesthesia

Type of anesthesia	Years					Total
	2016	2017	2018	2019	2020	
Spinal	20	17	16	17	21	91
General anesthesia	36	41	17	22	7	123
Combined spinal/epidural anesthesia	2	3	5	21	39	70
Spinal/GA	3	4	3	4	2	16

**Conclusion**

Within the limitations of the present study, it can be concluded that increased utilization of RA for fibroid surgeries for the benefits it confers which among other others includes improved proficiency and the benefit of better intra and post postoperative analgesia.

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