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## Research Article

# Retrospective study of 53 cases of caesarean myomectomy regarding its safety and feasibility

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### ABSTRACT

**Background:** In recent era, many studies have come up stating the safety and feasibility of caesarean myomectomy. With the advances in surgical techniques, the risk is very minimum. Our primary objective is to evaluate the safety of caesarean myomectomy and to analyse the blood loss according to the size, site of fibroids and with various methods used to prevent blood loss and postoperative morbidity.

**Methods:** Retrospective studies of 53 women were included in our study who underwent caesarean myomectomy in the period of June 2006 to June 2015. Site, Size and number of myomas removed were noted down. Hemoglobin difference between pre and postoperative levels also noted down.

**Results:** There is no significant blood loss difference according to the type, number and methods used to prevent blood loss. But as the size increases, there is significant blood loss difference- P value 0.006.

**Conclusions:** Caesarean myomectomy can be safely undertaken by experienced surgeons. Single or multiple, smaller subserosal and intramural myomas can be safely removed. Though larger fibroids have increased blood loss intraoperative, with the prophylactic measures, we can safely remove them too. Submucosal, cornual myomas have to be dealt with caution.

**Keywords:** Caesarean myomectomy, Mean haemoglobin difference, Blood loss

### INTRODUCTION

The pioneer in the myomectomy Victor Bonney, though in his earlier days deprecated the surgery of caesarean myomectomy, later in his remarks of this surgery, he has accepted the option and believed that caesarean myomectomy be performed as an elective procedure in the absence of sepsis.<sup>1</sup> In recent era, many studies have come up stating the safety and feasibility of caesarean myomectomy. During pregnancy, the vascularity of uterus increases many fold and at term it receives 17% of the cardiac output, putting the myomectomy during pregnancy at risk which may even necessitate hysterectomy. But with the advances in surgical techniques, the risk is very minimum.

Another commonly held belief was that the myomas enlarge during pregnancy and regress during postpartum. But study by Neiger, et al and Hammoud, et al showed that they decrease in size or never grow during pregnancy.<sup>2</sup> Instead of waiting for its regression or advocating one more surgery later, the option of caesarean myomectomy is a reasonable and can be practiced safely. In our study we present the series of caesarean myomectomy cases and evaluate the blood loss and postoperative complications.

### Aim

Our primary objective is to evaluate the safety of caesarean myomectomy by observing the hemoglobin difference between preoperative and postoperative levels and the need for Packed RBC transfusion and to analyze

the blood loss according to the size, site of fibroids and with various methods used to prevent blood loss and postoperative morbidity.

## METHODS

Study design is retrospective.

### Setting

Obstetrics and Gynaecology department of Amrita institute of medical sciences, Amrita School of medicine, Amrita Viswavidyapeetham.

53 women were included in our study that underwent caesarean myomectomy in the period of June 2006 to June 2015. Myomectomy done along with elective as well as emergency caesarean section were included. After informed consent and arranging adequate blood, the procedure was started under regional anesthesia. For four women who had huge fibroids that were planned to be removed, and one mother with Placenta previa, general anesthesia was given. Abdomen was opened through Pfannensteil incision, except for four women for whom midline vertical incision was made. One patient had classical caesarean section in view of the huge anterior wall lower segment myoma.

After the delivery of the baby, uterine closure was done. 5 units of Oxytocin intramuscularly and 10 units of oxytocin infusion were given for prophylaxis against atonic postpartum hemorrhage. Then the fibroids were located. Depending on the surgeon's preference and prior planning, various methods to prevent blood loss were used- Vasopressin instillation around the myoma, Use electrocautery for dissection, Step wise devascularisation, Uterine artery ligation, Internal iliac artery ligation and uterine artery embolisation. Once the procedure was over, patient was monitored in ICU for six hours and the postoperative hemoglobin also was checked to know the difference from the preoperative level. Any postoperative febrile morbidity and the need for intraoperative and postoperative blood transfusion were noted down.

The data is taken from the Case sheets and Electronic records and analysis was done using SPSS software version 20. Frequency, Students independent T test and one way Anova tests were used for analysis.

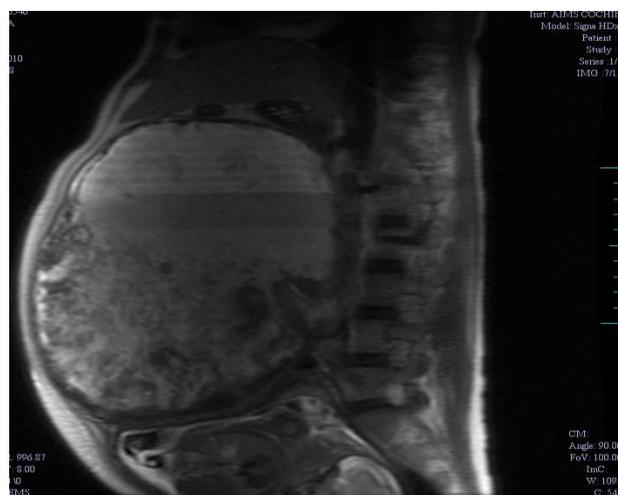
## RESULTS

Mean age of the pregnant women, parity, myoma characteristics regarding size, site and type are described in Table 1. Out of 53 caesarean procedures, 6 were done in preterm period. In 8 women, due to the fibroids caesarean delivery was done. One of the fibroid was in the cervix causing soft tissue dystocia. Others were in the body and fundus of the uterus. The size of the myoma varied from 2cm to 24cm. The largest fibroid with cystic and myxomatous degeneration was almost equal to the

size of 24 weeks gravid uterus-24cm fibroid and the MRI picture of the same is shown in the Figure 1. Fluid from the cystic degeneration of myoma was aspirated under Ultrasound guidance twice during antenatal period to allow for the fetal growth. At 35 weeks, she had gone for premature rupture of membranes and underwent Emergency caesarean section along with myomectomy.

**Table 1: Patient demographics and distribution of fibroids.**

Mean age in years	32.66±4.81
Parity-Primi	32 (60.4%)
Multi	21 (39.6%)
Mean size of fibroid in cm	6.12±4.921
Number of Fibroids	
Single	38 (71.7%)
Multiple	15 (28.3%)
Size of fibroids in cm	
1-5cm	31 (58.5%)
5.1-10cm	15 (28.3%)
>10cm	7 (13.2%)
Types of Fibroids	
Subserous	37 (69.8%)
Intramural	10 (18.9%)
Multiple sites	6 (11.3%)
Methods used to prevent blood loss	
Yes	40 (75.5%)
No	13 (24.5%)
Need for Packed RBC transfusion	7.5%



**Figure 1: Huge fibroid with cystic degeneration and pregnancy.**

Almost 70% of the myomas were single and sub serous and around 60% were of the size less than 5cm. Subserous fibroids were not pedunculated favoring easy removal. They all needed one or few layers of haemostatic suturing. Regarding the methods used to prevent blood loss, out of 53 women, for 30 patients vasopressin was instilled surrounding the myoma. 6 women underwent stepwise devascularisation and 2 had only uterine artery

ligation bilaterally. For one woman tourniquet was used around the bilateral uterine arteries and for another woman with Lt cornuofundal 13cm myoma, prophylactic uterine artery embolisation was done after the delivery of the baby. For 75% of the women, vasopressin or other measures had been done to prevent blood loss, but statistically there is no significant difference in the mean hemoglobin (Hb) difference between the groups. 4 women received blood transfusion and the patient with the largest fibroid received two units of packed RBC transfusion. As the size of the myoma increases, there is significant increase in mean Hb difference. But no one ended up in hysterectomy. There was no increased incidence of atonic postpartum haemorrhage and postoperative febrile morbidity.

**Table 2: Blood loss according to the number, size, types of fibroids.**

	Mean Hb difference in grams%	P value
Number of fibroids		
Single	1.276±0.92	0.481
Multiple	1.086±0.86	
Size of fibroids in cm		
1-5	0.913±0.53	0.006
5.1-10	1.533±1.22	
>10	1.914±0.94	
Types of fibroids		
Subserous	1.214±0.86	0.435
Intramural	1.010±0.52	
Multiple sites	1.617±1.56	
Methods used to reduce blood loss		0.376
No	1.415±0.81	
Yes	1.158±0.93	

**Table 3: Prophylactic methods used in our study to prevent blood loss.**

Methods	Number of procedures
Vasopressin instillation	30
Uterine Artery ligation	8
Cornuotubal ligation	6
Uterine Artery Embolisation	1
Tourniquet application	1
Internal iliac artery ligation	1

## DISCUSSION

Considered an absolute contraindication in the past, caesarean myomectomy is becoming a safe and indicated procedure in appropriately selected women having fibroids complicating pregnancy. In recent studies no women has lost her uterus by doing this procedure, thanks to many prophylactic measures taken during the surgery to reduce blood loss. Few prospective studies done during pregnancy shows that if at all fibroids grow, larger fibroids are more likely to grow and smaller

fibroids tend to remain stable in size. Increase in size due to the effect of hormones occurs during the first trimester and regress in third trimester.<sup>3,4</sup> Even a 2-3cm fibroid is relatively bigger in a normal sized uterus than in a pregnant uterus and if it can be removed safely, smaller fibroids warrant removal. Bigger fibroids are associated with more antepartum and intrapartum complications and needs removal to prevent future pregnancy complications and to avoid another procedure.

Having convinced with the need of caesarean myomectomy, the next decision to be made is the type and site of fibroids which can be removed safely. Smaller Subserosal fibroids and Intramural fibroids can be safely removed. Studies by Li Hui, et al, Dam hye kwon, et al, Roman et al showed no increase in intraoperative blood loss in types of smaller 3-6cm subserosal and intramural fibroids.<sup>5-7</sup> In our study the mean Hb change is not statistically significant in different types of fibroids and we had only one 8cm submucous fibroid which needed an unit of PRBC transfusion. In other studies also, submucous fibroids were encountered in very less numbers (2-13%) and blood loss was not significant compared to other types except the risk of entering the cavity which becomes a risk factor in future pregnancies. Regarding the site, anterior, posterior, fundal and lower segment fibroids have been encountered in all the studies. Fibroids in these locations need separate incision except lower segment fibroids. Cornual fibroids are dealt with caution. The largest study by Li hui, et al had 3.9% cornual fibroids. Their control group had more cornual fibroids in which only caesarean section was done without venturing into myomectomy. In our study we had two Lt cornual fibroids and for safe removal, step wise devascularisation in one woman and uterine artery embolisation in another were done. Broad ligament fibroids removal has not been mentioned elaborately in the studies except in the study by Mahnaaz Roohi, in which two broad ligament myomectomy had been Done. n his study the fibroids were bigger and 100% of the women had received blood transfusion.<sup>8</sup> Accessibility of the myomas in different location like posterior wall and cervix should not be a problem as the postpartum abdominal wall is pliable and easily accessible.

The mean diameter of the myoma in our study is 6.12cm±4.92cm. In the largest study by Li hui, et al, the mean size was 7.3±4.6cm and in the study by Roman, et al, median size was 3.6cm. Mean Hb difference postoperatively is statistically significant as there is increase in the size of the myoma in our study. There is increasing trend in the incidence of haemorrhage with increase in size, in the study by Roman, et al, but the same pattern is not reflected in the study by Dam hye kwon et al in which there is no increased blood loss between <5cm and >5cm myomas. About the prophylactic measures, 75% of the women had either vasopressin usage (30) or other Devascularisation methods like Uterine artery ligation, Cornuotubal ligation, uterine artery embolisation, application of tourniquet.<sup>1,2,6</sup> But

there is no difference in blood loss between the users and nonusers. In the study by Li Hui, et al, for larger myomas, tourniquet had been used and Adesiyun, et al routinely used Foleys tourniquet around broad ligament and ovarian arteries, Alexander, et al also used tourniquet around the base of broad ligament avoiding the tubes.<sup>9,10</sup> Most of the studies have shown the routine usage of high dose of oxytocin infusion intraoperatively and 24hours postoperatively. Frequency of haemorrhage is only 1.1% for Li hui, et al, Adesiyun, et al had 9.1% blood transfusion rate and Alexander, et al had 9% rate of blood transfusion in their study. Kwawukume EY, et al, showed no significant difference in blood loss between caesarean myomectomy of mean size 6cm and caesarean section alone when tourniquet was used.<sup>11</sup> In another larger study by Roman, et al, in which no prophylaxis was used, the incidence of haemorrhage was 12% and the frequency of blood transfusion was 0.9%. In another study by Mahnaaz, 90% women had 2 units blood transfusion, and no prophylaxis was used. The smaller myomas with or without vasopressin can be safely removed. But for larger fibroids, with the use of preventive measures, intraoperative blood loss and frequency of blood transfusion can be brought down significantly.

## CONCLUSIONS

Caesaren myomectomy can be safely undertaken by experienced surgeons. Single or multiple, smaller subserosal and intramural myomas can be safely removed. Though larger fibroids have increased blood loss intra operatively, with the prophylactic measures, we can safely remove them too. Submucosal, cornual myomas have to be dealt with caution.

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