

HOW UNSAFE IS MYOMECTOMY AT CAESAREAN SECTION?

Ehigiegba, A. E,^a Gagar, J. O^b, Aguwa, E. N^c, Umejiego, C^b, Ocheche, Uduak^d and Fajola, A^e

^a*Department of Obstetrics and Gynecology, University of Benin, Nigeria*

^b*Obio Cottage Hospital, Port Harcourt*

^c*Department of Community Health, University of Nigeria, (Enugu Campus), Enugu*

^d*Soldua Specialist Hospital, Port Harcourt*

^e*Community Health Department, Shell Petroleum Dev. Company, Port Harcourt*

ABSTRACT

Objective: To provide evidence on the safety or otherwise of the practice of myomectomy during Caesarean section.

Methods: This was a prospective, randomized, case controlled study conducted at the Obio Cottage Hospital, Port Harcourt, Nigeria, between November 2011 and October 2012. 42 Caesarean section patients, who also had myomectomy, were compared with those who had Caesarean section alone. The Caesarean myomectomy cases also had the number, location and size of the fibroids removed analyzed.

Results: 446 women were delivered by Caesarean section and 42 of these had Caesarean myomectomy. The mean ages were similar. Between 1 and 23, uterine fibroids were removed. The mean blood loss from the Caesarean myomectomy and Caesarean section was 584.72 and 695.71mls respectively. There was no statistical difference in the blood loss, Hematocrit deficit and length of hospital stay (p values of 0.053, 0.299 and 0.334 respectively) while the duration of surgery and number of sutures used were statistically different between the two groups (p value < 0.001 in both). The post-operative complications were similar.

Conclusions: This study found that Caesarean myomectomy is a safe procedure in experienced hands and has obvious advantages to the patient.

Keywords: Caesarean section, Myomectomy, Blood loss, Port Harcourt.

INTRODUCTION

Uterine fibroids represent the commonest tumor in the female reproductive tract, and is said to be 3-9times commoner in the Negroid race¹. The traditional teaching over the years has been for Obstetricians to avoid the fibroid during Caesarean Sections because of the fear of intractable hemorrhage. This teaching was however modified by Hawkins and Stallworthy (1974)² who first advocated that myomectomy can be done during Caesarean Sections in selected cases, especially when the myoma is

situated anteriorly in the lower segment and/or on the line of incision. In the recent past, many publications have appeared in scientific journals with the clear message that myomectomy done at the time of Caesarean section may not be as dangerous as once thought,³⁻⁶ is 'effective and

Corresponding Author:

A. E. Ehigiegba

E-mail: ehigiegba@hotmail.com

Tel: +2348023337676

safe²⁻⁶ and that future fertility and or subsequent pregnancy outcome was unaffected by it.⁷ Most studies on this topic, understandably, appear to have come from Africa where uterine fibroids are most common^{8,9}.

However, many of these reports were either descriptive or retrospective analysis of case/control studies and did not convincingly address the issue of the relative safety of the procedure and the contentious issue of blood loss. Many obstetric surgeons therefore feel reluctant accepting the evidence and the Royal College of Obstetricians and Gynaecology in 2009 conducted a survey to determine if myomectomy during cesarean section is recommended¹⁰. Therefore, more studies on this obstetric surgical procedure will be helpful.

This prospective randomized, case-controlled study, conducted during the one year Sabbatical period of the first author (who has a lot of experience with myomectomy during Caesarean section), is an attempt to further provide evidence on the safety or otherwise of the procedure. The setting gave him an opportunity to programme the study methodology and outcome variables aimed at resolving some of the contentious issues about the practice of removing uterine fibroids during a Caesarean section, especially blood loss and post-operative complications.

MATERIALS AND METHODS

This prospective study was carried out between October 2011 and September 2012. The setting was the Obio Cottage Hospital; a Shell Petroleum Development Company of Nigeria supported district hospital with a well organized and highly assessed Community Health Insurance Scheme. The first author was on a one year Sabbatical deployment by Shell Petroleum

Development Company to the district hospital to help in 'capacity building' and in sustaining the novel Community Health Insurance Scheme. He had done a lot of work on the topic.

Patients scheduled for either an emergency or elective lower segment Caesarean section.

Pregnant women scheduled for Caesarean section (emergency or elective), known pre-operatively or discovered intra-operatively to have uterine fibroids, counseled for the additional procedure of a myomectomy, formed the subjects. Informed consent was obtained from them and arrangement for possible blood transfusion was made. The control was made up of the next Caesarean section done by the same surgeon for the same or similar obstetric indication.

The safe delivery of the baby was always the primary surgical objective; even when the fibroid was on the line of the lower segment uterine incision. Closure of the uterine (Caesarean) incision in two layers was always completed before the myomectomy, except, of course, the fibroid was on or very close to the lower segment incision, in which case the fibroid is removed and the cavity is closed along with the uterine incision.

The myomectomy procedure was carried out under high dose oxytocin infusion (30 IU/500mls) and only in one case in this series was uterine artery tourniquet used. Myomectomy was done using the usual method with an incision over the false fibroid capsule and enucleation of the fibroid/s. The fibroid cavities were always meticulously closed, utilizing as many layers as indicated. Oxytocin infusion was always maintained for 24hrs after surgery. The blood loss was assessed by the Anesthesiologist from the suction bottle, and differential swab weight and linen.

The subjects and their control were analyzed with regards to age and parity, time required for surgery, intra-operative blood loss, pre and post-operative Haematocrit levels, need for blood transfusion, post-operative complications and length of hospital stay. Additionally, the Caesarean myomectomy cases had the number, location and size of the fibroids analyzed. Data were collected on a questionnaire and analyzed by appropriate test of significance.

RESULTS

There were 1939 deliveries and 446 cases of Caesarean sections (C/S) done in the facility during the period of the study out of which 42 had Caesarean myomectomy (C/M). The Caesarean section rate was 23% in the facility. The 42 cases of Caesarean myomectomy and corresponding Caesarean section cases were then comparatively analyzed.

The main indications for the two operation types, as shown in Table 1, were similar.

Table 2 shows the number, sizes and uterine location of the fibroids removed during Caesarean Myomectomy. The highest number removed was 23 the largest size was 18cm. This fibroid weighed 3.8kg!

The demographic variables of the two groups are reflected in Table 3, and it can be seen from the results that the two groups are similar in their age range and Parity. There were no significant differences between the two groups.

The measured variables between the two groups and their ranges are reflected in Table 4 while the details of the variables and their statistical significance are depicted in Table 5. From the result, it can be seen that whereas the Blood loss, Hematocrit deficit and Length of post-operative stay in hospital were not significantly

different in the two groups, the duration of surgery and number of surgical sutures used were significantly different ($p < 0.001$). However, comparing the mean values of these same variables (Table 6) gave a slightly significant Hematocrit deficit among the C/M group compared to the C/S group, ($p = 0.013$) even though the blood loss and blood replacement in both groups were not significantly different.

Blood transfusion was indicated in 4 women of the Caesarean Myomectomy group (3 of these 4 patients had a unit of blood replaced while the 4th had 7units). The 2 women in the Caesarean Section group had 3 and 5 units of blood replaced respectively (see Table 4). The patient who had seven units of blood had seven fibroids removed and was found to have extensive adenomyosis. She developed uterine atony four hours after surgery.

The duration of surgery and the consumables (sutures) used during the surgical procedures were, expectedly, significantly more with the C/M group than the C/S group. The highest number of leiomyomas removed from one uterus was 23.

Delayed wound healing was reported in three patients in the myomectomy group and in two of the control. All were discharged home within seven days. One patient in each group had post operative wound infection, two weeks after discharge from the hospital with subsequent delayed wound healing.

DISCUSSION

Caesarean myomectomy is a relatively new procedure and has become increasingly talked or written about since the last decade because of the risk of the complications of severe haemorrhage. However, the advantages of this procedure to the

woman, especially the avoidance of a repeat laparotomy and anaesthesia with their complications¹⁶ and the cost saving⁶ are attractive to many women and doctors, especially in low resource countries. Some authors have reported a higher incidence of post-partum haemorrhage, some life-threatening, in cases where the fibroid/s (especially when in the lower uterine segment) is/are not removed at Caesarean section.^{17,18}

The difference in the blood loss in both the Caesarean myomectomy and control was not statistically significant (584.72 + 319.33 and 695.71 + 293.90) and these values fall within the average loss after a Caesarean section of 500 – 1999ml²⁰

Interestingly, two women in each group requested for the specific procedure and were obliged. This practice is in line with the now acceptable trend of granting such requests. In a large, multiunit study, 15-79% of European obstetricians obliged the woman's request for an elective Caesarean section because that was 'her choice'. That study concluded that, until better evidence becomes available, individual obstetricians faced with a request for elective Caesarean delivery are charged with the delicate task of fostering their patients' autonomy and freedom of choice by exploring the motivation and fears underlying such requests and ultimately act according to what they believe to better promote the health and welfare of mother and fetus.¹⁴ This same argument holds true for women requesting Caesarean myomectomy.

The results of this prospective study show that in experienced hands, Caesarean Myomectomy is not significantly more dangerous than Caesarean sections and can be encouraged. Specifically, neither the blood loss nor the length

of hospital stay was more significant than the C/S group. These important findings have been documented by many authors.^{6, 9-12.} In addition, no patient in this series (like many others^{6, 7, 10, 12, 13} and¹⁴) had significant blood loss to warrant a hysterectomy.

The results also showed that myomectomy added a mean time of 26minutes to the operating time of Caesarean section and about 3 sutures (double amount) to the number of sutures needed for a Caesarean section. The time added to the duration of surgery in this series is longer to what some researchers observed,⁶ and may be related to the higher number of fibroids removed in this series.

The enucleation of a myoma from a gravid uterus is technically more difficult than from a non-gravid uterus (increased blood supply to the uterus and the softness of the myometrium brought about by the pregnancy). The need to effectively control hemorrhage makes the closure of the myoma cavity more meticulous than the closure during the traditional myomectomy – the sutures should be closer and the repair should usually be done in more surgical layers. These factors are important in securing bleeding points during Caesarean myomectomy and should be noted by 'new comers' to this surgical procedure.

There is a school of thought among some obstetrician which finds it difficult to be convinced about the safety of this procedure and many 'doubters' still exist. This study was undertaken in a prospective manner for more convincing evidence about the safety of this procedure. However, convincing as the evidence are, the point must be made that Caesarean myomectomy is a procedure that should only be undertaken by experienced surgeons^{6, 15 -19.} The normal 'learning curve' for

expertise must be observed. One is even tempted to add that the old teaching of avoiding uterine fibroids during Caesarean Sections and arranging interval myomectomy after pregnancy should still be maintained, except that a proviso that 'uterine fibroids can now be safely removed during Caesarean Section in experienced hands' should always be added.

The point must also be made that just as a 'classical' C/S is universally avoided as a first line operation these days, there are known clinical situations where a woman's life is put more at risk if a classical C/S is not recognized and done as a 'safer' option, refusing to recognize an absolute indication for a C/M may endanger the life of a woman.

CONCLUSION / RECOMMENDATION

This prospective study has provided encouraging data for encouraging Caesarean myomectomy. The procedure has been found to be a safe, effective and beneficial to the patient in experienced hands. Finally, it must be emphasized that in most situations in life, the only constant philosophy is CHANGE.

ACKNOWLEDGMENTS

The authors are particularly grateful to the Community Health department of Shell Petroleum Development Company, and the Regional Community Health Manager, Dr. Babatunde Fakunle, for providing the first and third authors Sabbatical placement and the necessary logistics for the study. The staff of Obio Cottage Hospital provided all the support for this study and they are appreciated.

Disclosure of Interest

We declare no conflict of interest in this study.

Contribution to Authorship

Ehigiegba AE: Conceived and designed; collected data and drafted and critically revised article for intellectual content, final approval of the version to be published.

Gagar JO: Conceived and designed; collected data; drafted the article, final approval of the version to be published.

Aguwa EN: Analysis and interpretation of data; drafted and critically revised article for intellectual content, final approval of the version to be published.

Umejiego C: Conceived and designed; collected data and drafted the article, final approval of the version to be published.

Ocheche U: Conceived and designed; collected data and drafted the article, final approval of the version to be published.

Fajola A: Analysis and interpretation of data; critically revised article for intellectual content, final approval of the version to be published.

FUNDING: This study was not supported by any funding. However, the department of Community Health of Shell provided the data entry clerks.

Ethical Permit:

Ethical Permit was obtained from Ethics Committee of Obio Cottage Hospital on 12th of October 2012. Ref. No. Ob.11/12/005. Committee Chairman – Dr F. Anene

Table 1: Indications for Caesarean Myomectomy and Caesarean Section

Indication	Caesarean	Caesarean
	Myomectomy	Section only
Two or more Previous C/S	3	4
Cephalo-Pelvic Disproportion /Obstructed Labor	10	13
Primigravid Breech	8	5
Previous C/S + Another Indication	3	5
Failed Induction of Labor	4	3
Pregnancy Induced Hypertension	5	3
Unstable / Transverse Lie	3	3
Elderly Primip + Previous Infertility	4	3
Patients' Request	2	2
Placenta Praevia	2	1
Total	42	42

Table 2: Number, Sizes of Uterine Fibroids and their Location in the Uterus

No of Fibroids	No of Patients	Size of Fibroids	No of Patients	Type/s of Fibroid/s	No of Pts.	Location of Fibroid/s		No of Patients
						Fibroid/s	Patients	
1-5	18	Less than 6cm	12	Pedunculate d	5	Mainly in the upper segment	11	31
6-10	12	6-10cm	22	Subserous	20	Mainly in the Lower Segment	10	11
11-15	9	11-15cm	5	Intramural	12	Mainly in the Anterior Wall	10	32
Above 15	3	16-20cm	3	Submucous	5	Mainly in the Posterior wall	10	15

The highest number removed was 23 the largest size was 18cm. This fibroid weighed 3.8kg!

Table 3: Demographic Variables

Age range	Number of cases	
	Caesarean myomectomy (N = 42)	Caesarean section (N = 42)
• 21 - 30	17	15
• 31 - 40	24	26
• 41 - 50	1	1
$\chi^2 = 1.08$; p value = 0.582 (no t significant)		
Parity		
• 1 - 4	40	38
• 5 and above	2	4
$\chi^2 = 0.00$; p value = 0.984 (not significant)		

Table 4: Variables and Their Ranges between Caesarean Section and Caesarean Myomectomy

Variables	Ranges	
	Caesarean Myomectomy	Caesarean Section
Age (years)	23 - 43	21 - 38
Parity	1 - 5	1 - 5
Blood loss (ml.)	250 - 1600	200 - 2000
Duration of surgery (min.)	25 - 155	21 - 70
Number of sutures used	2 - 14	2 - 3
Length of hospitalization (days)	2 - 13	2 - 11
Hematocrit Deficit (%)	2 - 16	1 - 11
Blood Transfusion*	4 pts (1 - 7units)	2 pts (3-5 units)

*For Caesarean Myomectomy, 3 of the 4 patients had a unit of blood replaced while the 4th had 7. The 2 patients in the Caesarean Section group had 3 and 5 units respectively

Table 5: Details of Variables Related To Surgery

Variable	Number of cases	
	Caesarean	Caesarean
Myomectomy (%)	Section (%)	
N = 42	N = 42	
Blood loss (mls)		
• 200 – 500	15(35.7)	27 (64.3)
• 510 – 800	20(47.6)	10 (23.8)
• 801 – 1100	3 (7.1)	2 (4.8)
• 1101 and above	4 (9.5)	3 (7.1)
$\chi^2 = 7.70$; p value = 0.053 (not significant)		
Duration of surgery (min)		
• 0 – 30 min	6 (14.3)	23 (54.8)
• 31 – 60 min	24 (57.1)	18 (42.9)
• 61 -90 min	12 (23.8)	1 (2.4)
• Above 90 min	2 (4.8)	
$\chi^2 = 19.70$; p value = 0.000 (significant)		
Number of sutures used		
• 2	3 (7.1)	29 (69.0)
• More than 2	39 (92.9)	13 (31.0)
$\chi^2 = 27.53$; p value = 0.000 (significant)		
Length of hospitalization (days)		
• 2 – 3	24 (57.1)	27 (64.3)
• 4 – 5	12 (28.6)	13 (31.0)
• 6 – 7	3 (7.1)	1 (2.4)
• Above 7 days	3 (7.1)	1 (2.4)
$\chi^2 = 3.40$; p value = 0.334 (not significant)		
Change in Hematocrit (%)		
• 1 – 3	11 (26.2)	19 (45.2)
• 4 – 6	15 (35.7)	13 (31.0)
• 7 – 9	9 (21.4)	7 (16.7)
• 10 and above	7 (16.7)	3 (7.1)
$\chi^2 = 2.42$; p value = 0.299 (not significant)		

Table 6: Comparing the Mean Values of Variables in Caesarean Section and Caesarean Myomectomy

Variables	Caesarean Section (N = 42)		Caesarean Myomectomy (N = 42)		T – test (P value)
	Mean	SD	Mean	SD	
Age of patients (years)	31.17	3.44	31.51	4.25	0.37 (0.712)
Parity	1.83	1.11	1.23	0.65	2.77 (0.007)*
No. of sutures used	2.31	0.47	4.49	2.29	5.59 (0.000)*
Duration of operation (min)	32.78	11.87	58.89	27.28	5.25 (0.000)*
Blood loss (ml)	584.72	319.33	695.71	293.90	1.52 (0.132)
Change in Hematocrit (%)	4.53	2.80	6.40	3.39	2.54 (0.013)*
Length of hospitalization	3.47	1.54	4.17	2.48	1.43 (0.156)

*Significant

REFERENCES

- Ogedengbe OK. Uterine fibroids. In: Okonofua F, Odunsi K (eds.), Contemporary Obstetrics and Gynaecology for developing Countries, Benin City: Women's Health and Action Research Centre. 2003; 202-213. [Book]
- Howkins J, Stallworthy J. Bonney's Gynecological Surgery, 8th edn. London. Bailliere Tindall. 1974:421. [Book]
- Ehigiegba AE, Ande AB, Ojobo SI: Myomectomy during caesarean section. Int J Gynecol Obstet 2001, 75:2-5. [Journal]
- Sudhir A. and Sebanti G. Cesarean myomectomy- A study of 14 cases. J Obstet Gynecol India. 2006; 56 (6):486-488. [Journal]
- Ande A.B. Ehigiegba A.E. and Umeora O.U. Repeat myomectomy at caesarean section. Arch Gynaecol Obstet. 2004; 270 (4):296-8. [Journal]
- Alexander T. Owolabi, Oluwafemi K.i,

- Olabisi M., Oluwafemiwa N. M, Adebajo B. A. Caesarean myomectomy - a safe procedure: A retrospective case controlled study. *Nepal J. Obstet. Gynaecol* 2007 Nov-Dec; 2 (2): 59–62. [Journal]
7. Adesiyun AG. Ojabo A. Durosinlorun-Mohammed A. Fertility and obstetric outcome after caesarean myomectomy. 2008. *Journal of Obstetrics & Gynaecology*. 28(7):710-2, [Journal].
 8. Kwawukume EY. Caesarean section in developing countries. *Best Pract Res clin Obstet Gynaecol* 2001; 15(1):165–78. [Journal]
 9. Li Hui, Du Juan, Jin Liangyi, Shi Zhan and Liu Mingying: Myomectomy during Cesarean Section. *Obstetrical and Gynecological Survey*. June 2009; Vol. 64. Issue 6. 363–364. [Journal]
 10. Royal College of Obstetricians and Gynaecologists Guidelines: Myomectomy during caesarean section – query bank. May 2009. Myomectomy during caesarean section - query bank | Royal College ... www.rcog.org.uk › Guidelines › Search for a guideline [Online]
 11. Kwawukume, E Y: Caesarean Myomectomy. *African Journal of Reproductive Health*, Dec 2002. Vol. 6, No. 3, Pp 38–43 [Journal]
 12. Hasan F, Armugam V, Sivanesaratnam V: Uterine leiomyomata in pregnancy. *Int J Gynecol Obstet*. 1990; 34: 45–48 [Journal]
 13. Davis J L, Ray-Mazumder S, Hobel C J, Baley K, Sassoon D: Uterine leiomyomas in pregnancy: A prospective study. *Obstet Gynecol* 1990; 75: 41–44 [Journal]
 14. Habiba M, Kaminski M, Da Fre` M, Marsal K, Bleker O, Librero J, Grandjean H, Gratia P, Guaschino S, Heyl W, Taylor D and Cuttini M: (2006) Caesarean section on request: a comparison of Obstetricians' attitudes in eight European countries. *BJOG. An International Journal of Obstetrics & Gynaecology*, 113: 647–656. [Journal]
 15. Ashley S Roman and Khalil MA Tabsh: Myomectomy at time of Cesarean Delivery: a retrospective cohort study. *BMC Pregnancy and Childbirth*. 2004, 4:14 or <http://www.biomedcentral.com/1471-2393/4/14> 15 [Online]
 16. Hassiakos d, Christopoulos P, Vitoratos N, Xarchoulakou E, Vaggos G and Papadias K: Myomectomy during Cesarean section: a safe procedure? Dec. 2006. 1092:408-13 [Journal]
 17. Park BJ, and Kim YW: Safety of Cesarean Myomectomy. Oct. 2009. *J Obstet Gynaecol Res*. 35(5): 906-11. [Journal]
 18. Argawal Kiran, Argawal Lata, Argawal Ashok, Argawal VK and Argawal Kanupriya: Caesarean Myomectomy: Prospective Study. *National Journal of Integrated Research in Medicine*. 2011; Vol. 2(3) Pp 11-14 [Journal]
 19. Lovina SM Machado, Vaidyanathan Gowri, Nihal Al-Riyami and Lamya Al-Kharusi. Caesarean Myomectomy – Feasibility and Safety. *Sultan Qaboos University Medical Journal*. May 2012. Vol. 12, Issue 2, Pp 190-96. [Journal]
 20. Beazley JM. Caesarian section. In *Obstetric* Turnbull A, Chamberlain G., eds. Churchill Livingstone, Edinburgh, 1989; pp 857-65. [Chapter in book]