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Myomectomy during Caesarean Section is Likely Feasible

Dianrong Song*

Department of Obstetrics and Gynecology, The Second Affiliated Hospital of Tianjin University Traditional Chinese Medicine, Tianjin, PR China

***Corresponding author:** Dianrong Song, Department of Obstetrics and Gynecology. The Second Affiliated Hospital of Tianjin University Traditional Chinese Medicine, Tianjin, PR China, Tel: 0086-22-60335422, 13602115295; E-mail: songdr58@126.com

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Myomectomy during Caesarean Section

Uterine leiomyoma is the most common uterine neoplasm of women. The latest statistics confirm that uterine leiomyomas are present in 20-50% women of reproductive age [1]. Indeed, they are found in up to 77% of women if the uterus is examined closely at autopsy [2]. The incidence of uterine leiomyomas in pregnancy varies from 1.6% to 10.7% according to the trimester of assessment and the size threshold [3-6], with fibroids being more frequent in women of advancing maternal age, as with other high risk obstetrical factors, there has been an increasing incidence of pregnancies complicated by uterine leiomyomas in recent years. The majority of leiomyomas are asymptomatic and might not need any therapy. However, uterine leiomyomas demonstrate their maximum growth during the reproductive period and have a definite impact on pregnancy and childbirth. Compared with normal unaffected gestations, pregnancies associated with uterine leiomyomas also result in a six fold increase in the rate of caesarean section [7]. However, the diagnosis of uterine leiomyomas during pregnancy is neither simple nor straightforward. Only 42% of large fibroids (>5 cm) and 12.5% of smaller fibroids (3-5 cm) can be found in physical examination [8]. The fibroids diagnosed by ultrasound in pregnancy are even more limited, because it is difficult to differentiate fibroids from physiologic thickening of the myometrium [9-11]. Qidwai et al researched 15,104 women underwent routine second trimester prenatal ultrasonography and 401 (2.7%) women were identified with at least 1 leiomyoma from 1993 to 2003 [12].

Obviously, the prevalence of uterine fibroids during pregnancy is likely underestimated. Therefore, the diagnosis of uterine fibroids during pregnancy is mostly to be definite at the time of caesarean section. The adequate management of leiomyomas, previously known or incidentally identified during caesarean delivery, is not as straight forward as once thought and poses a therapeutic dilemma for obstetricians.

The management of pregnant women with uterine leiomyomas sometimes can be challenging because the appropriate clinical management should assure the health of both the mother and fetus.

Some literatures suggested that caesarean myomectomy could be performed when specific factors such as the size and location of the uterine leiomyomas were taken into account. Some obstetricians have been discouraged to perform myomectomy at time of caesarean section due to the risks of intractable bleeding, massive hemorrhage, and the possibility of hysterectomy. Song, et al. [12] assessed the safety of myomectomy performed during caesarean section by meta-analysis for a series of case controlled trials published prior to June, 2012, the results showed hemoglobin levels dropped more in the caesarean myomectomy group versus the caesarean section group by 0.30 g/dL, but the difference was not significant. There was no significant difference in the caesarean myomectomy group versus caesarean section group for either estimated blood loss or incidence of hemorrhage. Operative time was longer in the caesarean myomectomy group versus the caesarean section group by 4.94 min, but the difference was not significant. It suggested that performing a myomectomy during caesarean section was feasible, though operative technique must be attended to, such as tourniquet, uterine artery occlusion, and uterine artery ligation. However, most of the studies included in the meta-analysis did not require any techniques beyond the use of oxytocin.

Unfortunately, no clear standards are available in the literatures considering the indication for and means of selecting appropriate candidates for caesarean myomectomy.

Some obstetricians advocate myomectomy during caesarean section only when the leiomyoma is pedunculated, others believe that caesarean myomectomy may be put into practice in select cases when the myomectomy can be performed reasonably, without massive haemorrhage or hysterectomy.

It becomes a common understanding that the optimal uterine myomas for removing are those which are easily accessible, such as subserosal or pedunculated at present. In 2015 Topcu, et al. [13] found the size of leiomyomas alone did not seem to have a significant impact on hemorrhage since the mean hemoglobin change and frequency of blood transfusions were similar in patients with or without myomectomy during caesarean section when they were grouped by the size of leiomyoma.

Kwon's study [14] also supported that there were no differences in preoperative and postoperative hemoglobin changes, operative time, postoperative fever, and hospitalized days of caesarean myomectomy in pregnancy women with the large myomas (>5 cm), compared with those of myoma ≤5 cm, uterine artery embolization was not used during operation and no case needed peripartum hysterectomy in women with myoma >5 cm.

Tinelli, et al. [15] evaluated the outcome of intracapsular caesarean myomectomy by a prospective case-control study on 68 patients underwent intracapsular caesarean myomectomy, compared with a control group of 72 patients underwent only caesarean section. Mostly of removed myomas were subserous or intramural, fundal in 37 women (54.4%), corporal in 22 (32.3%) and peri-low uterine segment in 9 women (18.7%). The average myoma' size was 8 cm (1.5-20), in 40 women, with 8 myomas measuring 4-6 cm, 14 myomas between 10 and 12 cm and >13 cm in 6 patients. The result showed that differences on blood loss and surgical outcome in intracapsular caesarean myomectomy were no statistically significant (p >0.05) (Table 1). There were some case reports about caesarean myomectomy in large myomas. Leanza, et al. [16] reported a successful caesarean

myomectomy in a large myoma with 22 cm in diameter, and 3,000 g in weight.

Ma, et al. [17] reported to successfully remove the huge intramural myoma of 40 cm in diameter during a classical caesarean section; estimated total blood loss was 1,400mL. Maternal hemoglobin level dropped from preoperation 10.5 g/dL to postoperation 9.4 g/dL without a blood transfusion. Postpartum uterine contraction occurred without incident. It is critical that the uterine defect was sutured without leaving any death place and the uterine serosa was closed cautiously for removing large intramural myoma successfully. Additionally, it was recommended that oxytocin should continue to dropping intravenously during the postoperative period to prevent the massive bleeding. Uterine rupture after abdominal myomectomy occurs extremely rare. Brown' study [18] showed the uterine cavity was not entered, and there was no case to have uterine rupture in 120 women delivering at term following abdominal myomectomy. In conclusion, caesarean myomectomy for large myomas is a safe procedure performed by experienced surgeons.

	Caesarean Myomectomy (CM) 68 patients	Control group (CS) 72 patients	ρ Value
Post-operative hemoglobin values (g/dl) (mean ± S.D.)	12.1 ± 1.5	11.8 ± 1.3	NS
Pre-operative hemoglobin values (g/dl) (mean ± S.D.)	10.6 ± 1.8	10.2 ± 1.4	NS
Mean change in hemoglobin cvalues (g/dl)	1.5 ± 0.3	1.6 ± 0.1	NS
Incidence of intraoperative hemorrhage (>1 L of blood)	3 (4.4%)	4 (5.5%)	NS
Frequency of blood transfusion	4 (5.8%)	4 (5.5%)	NS
Frequency of postoperative fever	5 (7.3%)	3 (4.1%)	NS
Duration of operation (minutes) (mean ± S.D.)	50.5 ± 19.2	41.6 ± 8.2	> 0.05
Length of hospital stay (days) (mean ± S.D.)	5.0 ± 1.4	4.4 ± 0.7	> 0.05
NS: Non significant; SD: Standard deviation			

Table 1: Blood tests and outcome differences among Intracapsular Caesarean Myomectomy (ICM) and Caesarean Sections, as control group.

Turgal, et al. [19] evaluated the difficulty of repeat caesarean section due to postoperative adhesion formation following myomectomy in the previous caesarean section. There were four groups of patients underwent caesarean section in the study, myolysis was performed by electric cauterization for small superficial fibroids less than 2 cm in group 1 (n=21); myomectomy was performed for pedunculated fibroids in group 2 (n=18); myomectomy was performed for intramural/subserous fibroids less than 5cm in group 3 (n=23); control group was repeat caesarean sections without myomectomy in group 4 (n=19). The incidence of adhesion between omentum and uterus (p=0.278), adnexial area adhesions (p=0.831) and incision area adhesions (P = 0.804) were similar between the intervention groups and the control. There were no statistically significant difference in cumulative incidence of all adhesions between group 1,2,3 and 4 (Table 2).

Groups (n)	Adhesion between omentum and uterus	Adnexial area adhesions	Incisional area adhesions	All adhesions	Surgical difficulty due to severe adhesions
I (21)	1 (4.8%)	2 (9.5%)	1 (4.8%)	4 (19.0%)	0 (0%)
II (18)	4 (22.2%)	3 (16.7%)	2 (11.1%)	9 (50%)	0 (0%)
III (23)	3 (13.0%)	4 (17.4%)	1 (4.3%)	8 (34.8%)	1 (4.3%)
IV (19)	1 (5.3%)	2 (10.5%)	1 (5.3%)	4 (21.1%)	1 (5.3%)
Total (81)	9 (11.1%)	11 (13.6%)	5 (6.2%)	25 (30.9%)	2 (2.5%)
p value (Pearson Chi-Square)	0.278	0.831	0.804	0.139	0.585
Group I: myolysis; Group II: myomectomy performed for pedunculated fibroids; Group III: myomectomy performed for intramural/subserous fibroids less than 5 cm; Group IV: control group.					

Table 2: Postoperative adhesion formation areas in operative and control groups.

Myomectomy has not been performed during caesarean section in popular, because of the risk of massive hemorrhage and the likelihood of hysterectomy. However, if myomas are not removed, complications such as preterm labor, intrauterine growth restriction, placenta previa, and postpartal bleeding may be induced easily in the future pregnancies. Pregnant women with fibroids are more likely to develop preterm labor than those without fibroids (16.1% vs 8.7%) [20]. Multiple fibroids and fibroids near to the placenta appear to be independent risk factors for preterm labor [21,22]. The association between fibroids and placenta previa has been examined, which suggested that the fibroids made risk of placenta previa in future pregnancy increased with a 2-fold [10,20,23]. Reports on the relationship between fibroids and postpartum hemorrhage are conflicting [20,24,25], pooled cumulative data suggested that postpartum hemorrhage with 2.5% was significantly more likely in women with moymas compared with control subjects with1.4%, because fibroids may distort the uterine architecture and interfere with myometrial contractions result in uterine atony and postpartum hemorrhage.

Additionally, according to data from one survey, changes in fibroid size ranged from 89% shrinkage to 138% growth, with a median of 9% change in volume in a 6-month period, moreover, fibroids can have growth spurts [26,27]. If the moymas was leaved in place during caesarean section, the possibility of repeat operation for increasing growth myomas was higher in future.

Of course, caesarean myomectomy has always not been encouraged. For example, myomas located broad ligament, uterus-rectum fossa, cornua and cervix might not be good candidates for removing at the time of caesarean section due to massive hemorrhagerate. If doing so, should be performed with caution. It is better not to perform myomectomy for pregnant women complicated with cardiopathy, cardiac failure, eclampsia, disseminated intravascular coagulation (DIC), uterine inertia and so on, in order to shorting opertive time.

Overall, myomectomy during caesarean delivery may be a reasonable and safety option by experienced obstetrician with a very quick technique in handling amount of intraoperative hemorrhage.

References

1. Okolo S (2008) Incidence, aetiology and epidemiology of uterine fibroids. Best Pract Res Clin Obstet Gynaecol 22: 571-588.
2. Cramer SF, Patel A (1990) The frequency of uterine leiomyomas. Am J Clin Pathol 94: 435-438.
3. Laughlin SK, Baird DD, Savitz DA, Herring AH, Hartmann KE (2009) Prevalence of uterine leiomyomas in the first trimester of pregnancy: an ultrasound-screening study. Obstet Gynecol 113: 630-635.
4. Strobelt N, Ghidini A, Cavallone M, Pensabene I, Ceruti P, et al. (1994) Natural history of uterine leiomyomas in pregnancy. J Ultrasound Med 13: 399-401.
5. Exacoustòs C, Rosati P (1993) Ultrasound diagnosis of uterine myomas and complications in pregnancy. Obstet Gynecol 82: 97-101.
6. Qidwai GI, Caughey AB, Jacoby AF (2006) Obstetric outcomes in women with sonographically identified uterine leiomyomata. Obstet Gynecol 107: 376-382.
7. Coronado GD, Marshall LM, Schwartz SM (2000) Complications in pregnancy, labor, and delivery with uterine leiomyomas: a population-based study. Obstet Gynecol 95: 764-769.
8. Muram D, Gillieson M, Walters JH (1980) Myomas of the uterus in pregnancy: ultrasonographic follow-up. Am J Obstet Gynecol 138: 16-19.
9. Burton CA, Grimes DA, March CM (1989) Surgical management of leiomyomata during pregnancy. Obstet Gynecol 74: 707-709.
10. Rice JP, Kay HH, Mahony BS (1989) The clinical significance of uterine leiomyomas in pregnancy. Am J Obstet Gynecol 160: 1212-1216.
11. Cooper NP, Okolo S (2005) Fibroids in pregnancy--common but poorly understood. Obstet Gynecol Surv 60: 132-138.
12. Song D, Zhang W, Mark C, Guo J (2013) Myomectomy during caesarean section: A systematic review and meta-analysis. International Journal of Gynecology and Obstetrics 121: 208-213.
13. Topcu HO, Iskender CT, Timur H, et al. (2015) Outcomes after caesarean myomectomy versus caesarean alone among pregnant women with uterine leiomyomas. International Journal of Gynecology and Obstetrics 130: 244-246.
14. Kwon DH, Song JE, Yoon KR, Lee KY (2014) The safety of caesarean myomectomy in women with large myomas. Obstet Gynecol Sci 57: 367-372.
15. Tinelli A, Malvasi A, Mynbaev OA, Barbera A, Perrone E, et al. (2014) The surgical outcome of intracapsular caesarean myomectomy. A match control study. J Matern Fetal Neonatal Med 27: 66-71.
16. Leanza V, Fichera S, Leanza G, Cannizzaro MA (2011) Huge fibroid (g. 3.000) removed during caesarean section with uterus preservation. A case report. Ann Ital Chir 82: 75-77.
17. Ma PC, Juan YC, Wang ID, Chen CH, Liu WM, et al. (2010) A huge leiomyoma subjected to a myomectomy during a caesarean section. Taiwan J Obstet Gynecol 49: 220-222.
18. Brown AB, Chamberlain R, Te Linde RW (1956) Myomectomy. Am J Obstet Gynecol 71: 759-763.
19. Turgal M, Ozgu-Erdinc AS, Beksac K, Ozyuncu O, Karaagaoglu E, et al. (2015) Myomectomy during caesarean section and adhesion formation as a long-term postoperative complication. Ginekol Pol 86: 457-460.
20. Klatsky PC, Tran ND, Caughey AB, Fujimoto VY (2008) Fibroids and reproductive outcomes: a systematic literature review from conception to delivery. Am J Obstet Gynecol 198: 357-366.
21. Lev-Toaff AS, Coleman BG, Arger PH, Mintz MC, Arenson RL, et al. (1987) Leiomyomas in pregnancy: sonographic study. Radiology 164: 375-380.
22. Winer-Muram HT, Muram D, Gillieson MS (1984) Uterine myomas in pregnancy. J Can Assoc Radiol 35: 168-170.
23. Vergani P, Locatelli A, Ghidini A, Andreani M, Sala F, et al. (2007) Large uterine leiomyomata and risk of caesarean delivery. Obstet Gynecol 109: 410-414.
24. Vergani P, Ghidini A, Strobelt N, Roncaglia N, Locatelli A, et al. (1994) Do uterine leiomyomas influence pregnancy outcome? Am J Perinatol 11: 356-358.
25. Ohkuchi A, Onagawa T, Usui R, Koike T, Hiratsuka M, et al. (2003) Effect of maternal age on blood loss during parturition: a retrospective multivariate analysis of 10,053 cases. J Perinat Med 31: 209-215.
26. Laughlin SK, Stewart EA (2011) Uterine leiomyomas: individualizing the approach to a heterogeneous condition. Obstet Gynecol 117: 396-403.
27. Stewart EA (2015) Clinical practice. Uterine fibroids. N Engl J Med 372: 1646-1655.