

# Cesarean Myomectomy

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## Abstract

Contrary to previous belief, many studies published now have shown that myomectomy during cesarean section is a safe procedure with no significant increased risk of intra- and postoperative complications such as hemorrhage or need for hysterectomy.

**Keywords:** Cesarean myomectomy, Myomectomy, Comparative, Fibroids, Pregnancy.

## INTRODUCTION

Uterine leiomyomas (i.e. fibroids or myomas) are benign clonal tumors arising from muscle cells of uterus and contain an increased amount of extracellular matrix. Uterine myomas are the commonest pelvic tumors over the age of 30 years.<sup>1</sup> As their growth is related to exposure to circulating estrogens, fibroids obtain their maximum dimensions during the female reproductive period.

Uterine myomas are observed in pregnancy more frequently than in the past as many women are delaying childbearing till late thirties. Moreover, the use of ultrasonography has improved diagnostic capability of detecting small myomas, which has improved our understanding of myomas in pregnancy. Uterine leiomyomas are found in approximately 2% of pregnant women.<sup>2</sup>

## EFFECT OF MYOMAS ON PREGNANCY

The impact of uterine myomas on pregnancy depends on the size, number and location of myoma. They can be asymptomatic or associated with serious complications. For example, myomas located in lower uterine segment increase the likelihood of malpresentation, cesarean birth and postpartum hemorrhage.<sup>3</sup> Major complications, such as spontaneous abortion, preterm labor, abruption and postpartum hemorrhage are more frequently related to the fact whether the placenta is adjacent to or in contact with the myoma.<sup>3</sup> The overall risk of major complications is 71%.<sup>3,4</sup> A marked increase in abruption has been observed in pregnant women with myomas of volume greater than 200 cm<sup>2</sup>.<sup>4</sup> In view of these, frequent ultrasound evaluations are necessary throughout the course of pregnancy to monitor fetal growth and the presentation and size of myoma.<sup>5</sup> Less common or rare complications associated with uterine myomas during pregnancy include disseminated intravascular coagulation, cervical pregnancy, spontaneous hemoperitoneum, uterine inversion, urinary retention in first trimester, L5 radiculopathy and fetal anomalies, such as limb reduction anomalies and head deformities related to compression.<sup>5</sup>

## SURGICAL MANAGEMENT

Once diagnosis of myoma is confirmed by ultrasound, management of fibroids encountered during cesarean delivery poses a therapeutic dilemma. The operating surgeon has to make decisions if fibroid myomectomy is needed during the time of cesarean section. Earlier publications<sup>6,7</sup> have reported that myomectomy during pregnancy may be associated with increased risk of hemorrhage and subsequent pregnancy loss.

Adverse events concerning delivery of fetus or suturing of uterine incision caused by the presence of myomas may require their removal during cesarean section (CS). A patient may request removal of previously diagnosed myoma during CS. Many times while doing a CS, one is faced with myomas and obstetrician has to decide, if myomectomy is needed during CS, how safe is the procedure and is it wise to do cesarean myomectomy to avoid second surgery. The size and blood supply of myomas increase in pregnancy with risk of hemorrhage, intra- and postpartum complications may require hysterectomy.

Even though there is a theoretical risk of excess hemorrhage in intrapartum phase, the uterus in postpartum phase may be better adapted physiologically to control hemorrhage. With contraction of muscle fibers blood vessels get closed. Also vascular changes associated with clot formation in placental bed help to stop the bleeding. Hence, myomectomy during CS would have the above advantages.

Enucleation of the fibroid could be technically easier in gravid uterus owing to greater looseness of the capsule. Retraction of the uterine muscles can be enhanced by oxytocic agents to help control the hemorrhage. Additional benefits of surgical management of uterine fibroid during CS include reduction in risk of anesthesia as well as cost.

## SHOULD CESAREAN MYOMECTOMY BE AVOIDED?

In the past myomectomy at the time of CS has been discouraged. In practice many surgeons might be hesitant doing the

combined procedure of CS and myomectomy because of potential complications. The most serious potential complication is hemorrhage.

Earlier studies have reported that it is better to avoid myomectomy during CS with the exception of small pedunculated fibroids.<sup>8-10</sup> Some authors consider that there is a risk of uterine atony and severe hemorrhage that could lead to hysterectomy and subsequent impairment of fertility.<sup>11-13</sup> In a study by Exacoustos and Rosati<sup>12</sup> out of 9 cases, 3 had severe hemorrhage requiring hysterectomy. Also myomas become smaller with postpartum involution, hence older textbooks have recommended myomectomy after the occurrence of uterine involution.<sup>14-16</sup> Multiple fibroids may be unfavorable for myomectomy.<sup>5,7,8,10,11</sup>

## NEW EVIDENCE

In contrast to previous studies, now the strategy of avoiding CS is gradually changing. Several studies now have been published in the literature supporting the concept that CS combined with myomectomy can be considered a safe procedure.

Michalas et al<sup>17</sup> reported 18 cases of myomectomy during pregnancy, 16 of whom delivered uneventfully at term. In one case eight fibroids obstructing lower part of uterus were recovered without any complications.

Burton et al<sup>11</sup> reported that myomectomy at CS may be safe in carefully selected patients. They reported 13 CS myomectomies of which only one was complicated with intraoperative hemorrhage.

Ehigieba et al<sup>18</sup> reported 25 cases of cesarean myomectomy in 12 women without any complications. In their study, anemia was the most common morbidity and no case required hysterectomy.

Kwawukume<sup>19</sup> reported myomectomy in 12 patients without any complications. The mean operative time was 62.08 minutes. 85% fibroids were intramural within the body of uterus. There was no significant difference in intra- and postoperative morbidity and blood loss in performing CS alone and CS with myomectomy when a tourniquet was applied.

Roman and Tabsh,<sup>20</sup> in a large retrospective 10 years experience involving 111 women with myomectomy at CS and 257 women with CS alone, noted no significant difference in intraoperative hemorrhage, postpartum fever, operative time and length of hospital stay. No patient required hysterectomy or embolization. Size of fibroid did not affect the outcome.

Two cases were reported by Omar et al<sup>21</sup> where myomectomy was needed to facilitate delivery of baby during CS without any significant intra- and postoperative complications.

Anita et al<sup>22</sup> reported nine cases of CS myomectomy and noted no significant difference in relation to mean time for surgery, amount of blood loss, postoperative pain and mean duration of hospital stay. One patient had multiple myomas. None of the patient required hysterectomy.

Hassiakos et al<sup>23</sup> in a retrospective case control study reported 47 patients with cesarean myomectomy compared with

94 women with uterine myomas who had surgical delivery without removal of fibroids. Myomectomy added mean 15 minutes time to operative time of CS. There were no significant differences between complication rate, need for blood transfusion and length of hospitalization. No hysterectomy was performed.

Kaymak et al<sup>24</sup> found no significant difference in studied parameters between study and control groups although 60% myomas measured more than 6 cm and more than 30% were intramural.

Brown et al<sup>25</sup> compared 16 women treated with myomectomy and results showed no significant increased risk to patients (need for blood transfusion, postoperative morbidity, length of hospital stay) as compared from 16 controls treated with CS alone.

Li H et al<sup>26</sup> in a large retrospective case control study included 1242 pregnant women with fibromyomas undergoing myomectomy during CS and 3 control groups of 200 pregnant women without myomas who underwent CS deliveries, 145 patients with myomas who underwent CS deliveries without removal of fibromyomas and 51 patients with fibromyomas who had hysterectomy during CS found no significant difference in hemoglobin change, incidence of postoperative complications and length of hospital stay amongst groups.

A prospective nonrandomized study included 29 women and found that future fertility and subsequent pregnancy outcome was unaffected by cesarean myomectomy.<sup>27</sup>

## REDUCING BLOOD LOSS

Use of uterine tourniquet,<sup>19,28</sup> electrocautery<sup>29</sup> and bilateral uterine artery ligation<sup>30</sup> and other intraoperative techniques<sup>31</sup> can minimize blood loss during surgery. Oxytocin infusion has been used by several authors.<sup>18,23,26,31,32</sup>

## LOCATION OF MYOMAS

Results from recent literature indicate that in experienced hands, myomectomy during CS delivery is a safe procedure in majority of cases. However, factors such as uterine contractility, anatomic location, number and size of myoma, proximity to large vessels would have to be kept in mind. The decision to intervene would not only depend on surgeon's experience but also location of fibroid. If myoma is located in the area of uterine incision, it can be safely removed. Large fundal, intramural fibroids in vicinity of tubes need to be avoided.<sup>23</sup> Fibroids in cornual region of uterus may affect fertility and are best not removed.<sup>33</sup>

## CONCLUSION

Myomectomy at the time of CS has been traditionally discouraged in the past with the exception of small pedunculated fibroids due to the theoretical risks of intractable hemorrhage and increased morbidity. However, over the last few years several studies have been published in the literature that cesarean myomectomy can be safely performed in majority

of patients with myomas without any serious or life-threatening complication under experienced hands. Depending on the size and location of myomas, a detailed discussion should be undertaken with the patients regarding the associated risks which are similar to those of CS surgery. For any operation to be successful, adequate patient preparation, adequate plan of surgery and adequate plans to manage anticipated complications is essential. There is benefit of one surgery rather than 2 operations as only one scar is produced. Also this would allow a trial of normal labor in next pregnancy. Moreover, it is beneficial to the health sector by avoidance of interval pregnancy, hence justifying cost-effectiveness of the procedure.

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