
بسم الله الرحمن الرحيم

# Uterine fibroids : issues in pregnancy

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# INTRODUCTION

- Uterine fibroids (leiomyomas) are benign smooth muscle tumors of the uterus. The potential effects of fibroids on pregnancy and the potential effects of pregnancy on fibroids are a frequent clinical concern since these tumors are common in women of reproductive age.
- The reported prevalence of uterine fibroids in pregnancy varies between 1.6 and 10.7 percent , depending upon the trimester of assessment (first versus second) and the size threshold for reporting presence of a fibroid (range ≥0.5 to >3 cm)
- The prevalence of fibroids increases with maternal age and is higher in Black women than in White or Hispanic women Increasing parity and prolonged duration of breastfeeding are associated with a small, but statistically significant , reduction in prevalence

# CHANGE IN SIZE DURING PREGNANCY AND POSTPARTUM

- Change in size of fibroids may be affected by change in estrogen and progesterone levels, uterine blood flow, and, possibly, human chorionic gonadotropin levels.
- Antepartum :The body of evidence suggests that fibroid size remains stable (<10 percent change) across gestation in 50 to 60 percent of cases, increases in 22 to 32 percent, and decreases in 8 to 27 percent
- For those fibroids that increase in size, most of the growth occurs in the first trimester, with little if any further increase in size during the second and third trimesters
- Postpartum : Almost 90 percent of women with fibroids detected in the first trimester will have regression in total fibroid volume when re-evaluated three to six months postpartum, but 10 percent will have an increase in volume .Regression may be less in women who use progestin-only contraception.

# SYMPTOMS

- Uterine fibroids are usually **asymptomatic** during pregnancy
- In symptomatic women, symptoms include pain, pelvic pressure, and/or vaginal bleeding.
- **Pain** is the most common symptom. The frequency of pain increases with increasing size and is especially high in women with large fibroids
- Most patients have only localized pain without other signs and symptoms, although mild leukocytosis, fever, and nausea and vomiting can occur.
- **Fibroid pain typically presents in the late first or early second trimester**, which corresponds to the period of greatest fibroid growth and, in turn, propensity to degeneration. Pain also may result from partial obstruction of the vessels supplying the fibroid as the uterus grows and changes its orientation to the fibroid or from torsion.

# COMPLICATIONS

- Most pregnant women with fibroids do not have any complications during pregnancy related to the fibroids.
- When complications occur, painful degeneration is the most common complication.
- There also appears to be a slightly increased risk of complications such as miscarriage, preterm labor and delivery, fetal malpresentation , and placental abruption, but all studies do not show an increased risk of adverse events.

# COMPLICATIONS

- **Degeneration and torsion** : pain is one of the most common symptoms of fibroids in pregnant women and is typically due to **fibroid degeneration** or, rarely, **torsion**.
- Rapid growth of fibroids can result in a relative decrease in perfusion, leading to ischemia and necrosis (red degeneration) and release of prostaglandins .Pedunculated fibroids are at risk of torsion and necrosis, but this is much less common than degeneration.
- **Miscarriage** : In some patients, **submucosal fibroids** appear to adversely affect implantation, placentation, and ongoing pregnancy. The effects of intramural fibroids are more controversial, while fibroids that are primarily subserosal or pedunculated are unlikely to cause adverse outcomes.
- The fibroid may interfere with placentation and development of normal uteroplacental circulation
- Rapid fibroid growth with or without degeneration may lead to increased uterine contractility or altered production of catalytic enzymes by the placenta

# COMPLICATIONS

- **Preterm labor and birth** : Characteristics reported to increase this risk include multiple fibroids, placentation adjacent to or overlying the fibroid and size greater than 5 cm.
- **We do not consider fibroids an indication to monitor cervical length for shortening with ultrasound during pregnancy**.
- **Antepartum bleeding and placental abruption** : The location of the fibroid in relation to the placenta appears to be an important determinant and implies that bleeding is related to abruption.
- Submucosal and retroplacental fibroids and fibroids with volumes >200 mL (corresponding to 7 to 8 cm diameter) are associated with the highest risk of abruption

# COMPLICATIONS

- **Malpresentation** : Large submucosal fibroids that distort the uterine cavity have been consistently associated with high risk of fetal malpresentation
- Other characteristics associated with a particularly high risk of malpresentation include multiple fibroids, a fibroid located behind the placenta or in the lower uterine segment, or large fibroid (eg, over 10 cm)
- **Dysfunctional labor** : Theoretically, fibroids in the myometrium may decrease the force of uterine contractions or disrupt the coordinated spread of the contractile wave, thereby leading to dysfunctional labor and cesarean delivery.

# COMPLICATIONS

- Cesarean delivery : The proposed increase in cesarean delivery rate is likely due to multiple factors , such as an increased risk of malpresentation ,dysfunctional labor ,obstruction of the birth canal, and fetal heart rate abnormalities related to placental abruption
- Postpartum hemorrhage : especially if the fibroids are >3 cm and located behind the placenta or the delivery is by cesarean.
- fibroids could predispose to postpartum hemorrhage by decreasing both the force and coordination of uterine contractions, thereby leading to uterine atony.

# COMPLICATIONS

- **Fetal deformities** : Spatial restrictions from uterine fibroids can cause fetal deformations, but this is extremely rare
- **Preterm prelabor rupture of membranes** : the greatest risk of preterm prelabor rupture of membranes appears to be when the fibroid is in direct contact with the placenta
- **Placenta previa** : Most studies that account for maternal age and prior uterine surgery failed to show any association between fibroids and placenta previa
- **Fetal growth restriction** : Fibroids have minimal, if any, effect on fetal growth

# COMPLICATIONS

- **Preeclampsia : The majority of studies do not support an association between fibroids and preeclampsia**
- **although one study noted that women with multiple fibroids were significantly more likely to develop preeclampsia than those with a single fibroid (45 versus 13 percent). The authors suggested that the increased risk was due to disruption of trophoblast invasion by the multiple fibroids leading to inadequate uteroplacental vascular remodeling leading to the development of preeclampsia.**

# Painful fibroids

- pregnant women with painful fibroids may require hospitalization for pain management.
- We suggest supportive care and administration of acetaminophen as the initial intervention.
- Short-term use of opioids in standard doses or a short course (ideally <48 hours) of nonsteroidal anti-inflammatory drugs (NSAIDs) can be given when pain is not controlled by these measures.
- Pain may be managed with a short course of ibuprofen or indomethacin 25 mg orally every 6 hours for up to 48hours [19]. NSAID therapy should be limited to pregnancies less than 32 weeks of gestation.

# Indications for myomectomy during pregnancy

- Given the potential for harm (hemorrhage, uterine rupture , miscarriage, or preterm delivery), myomectomy is avoided during pregnancy, especially if an intramyometrial incision is required, unless the procedure cannot be safely delayed.
- Inability to control hemorrhage during myomectomy is a real possibility and may necessitate hysterectomy.
- Rarely, myomectomy of pedunculated or subserosal fibroids has been performed antepartum for management of an acute abdomen or obstruction, and myomectomy may be required at cesarean delivery in order to close the hysterotomy.
- Abdominal pain was by far the most common preoperative symptom, reported by 80 percent of patients, and the most common indication for surgery. The second most common preoperative symptom was fever, which was observed in 12 percent of patients.

# Fibroids prolapsing into the vagina

- We generally advise against removal of prolapsed fibroids in pregnancy as the risks likely outweigh the benefits, unless there is an easily accessible pedunculated fibroid on a thin stalk. Removal may lead to hemorrhage, rupture of membranes, and/or pregnancy loss
- The need for resection should be assessed on a case-by-case basis. Clinically significant bleeding, excessive pain , urinary retention, and (rarely) infection during pregnancy due to a prolapsed fibroid are reasonable indications for resection.
- The procedure for transvaginal myomectomy depends on the origin of the fibroid (cervix versus submucosa) and thickness of the stalk/base, which can be determined clinically or by transvaginal ultrasound or magnetic resonance imaging, if necessary.
- An asymptomatic lower uterine segment submucosal prolapsed fibroid may become intrauterine with advance in gestation.

# Route of delivery

- Most women with fibroids will have a successful vaginal delivery and thus **should be offered a trial of labor.** Cesarean delivery is reserved for standard obstetric indications
- Planned cesarean delivery may be considered because of concerns that fetal descent will be obstructed by a fibroid, but should be limited to women most likely to fail a trial of labor: **those with large cervical fibroids or with lower uterine segment fibroids that distort the uterine cavity and are located between the fetal vertex and cervix in the third trimester**

# Operative issues at cesarean delivery

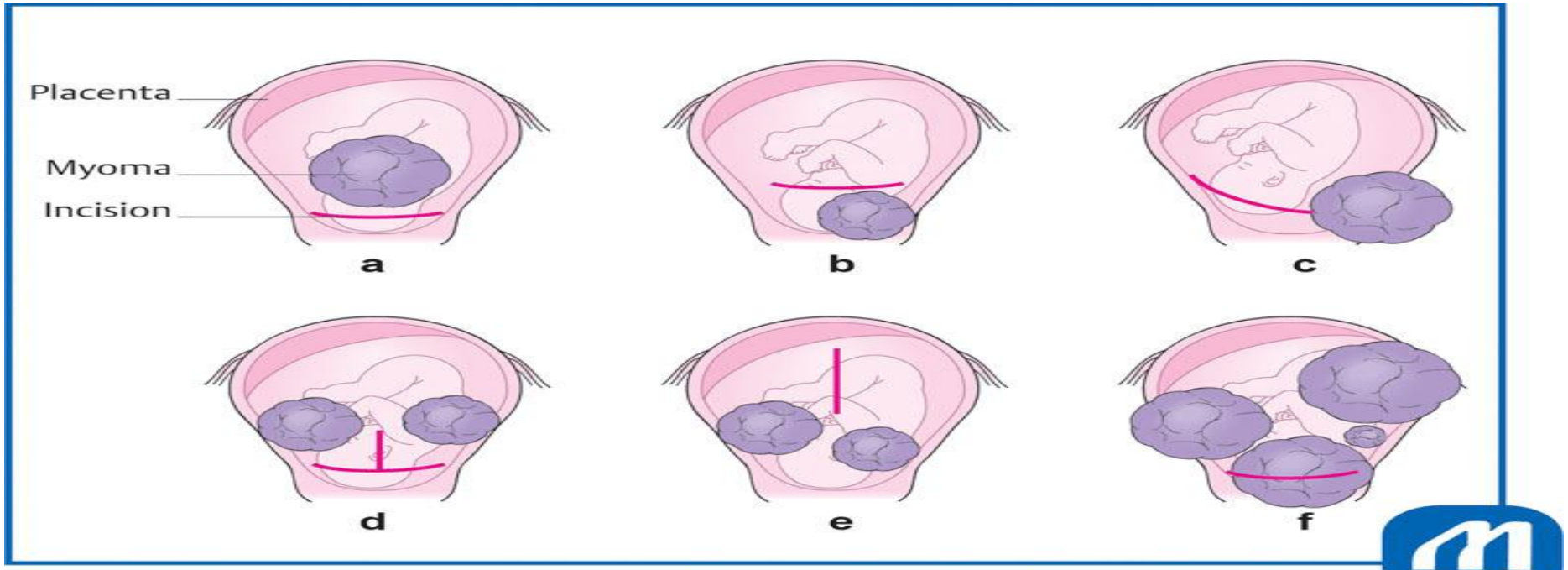
- Abnormal fetal lie or fetal position is likely to occur.
- Abnormalities in the placental attachment site are likely to occur.
- Multiple myomas or large subserosal myomas can cause the uterus to twist.
- The fetal lie may change simultaneously with rupture of the placental membranes.
- It is important to hold the lowest part or the fetus securely after the membranes have ruptured because the lowest part of the fetus is not fixed due to myoma.
- Thick uterine wall increases blood loss during incision, and it is difficult to expand incision.

# Operative issues at cesarean delivery

- A vertical skin incision is sometimes necessary
- Every effort should be made to avoid transecting a fibroid during hysterotomy as the incision may be impossible to close without first removing the tumor
- Ultrasound imaging can be used (either antepartum or intrapartum) to map out the optimal location for the hysterotomy incision at the time of cesarean

# site of the uterine incision

**the site of the uterine incision differs depending on the location, size, and number of myomas and the location of the placenta**



# Operative issues at cesarean delivery

- Women with large, retroplacental or anterior lower uterine segment fibroids are at high risk of intrapartum or postpartum hemorrhage at the time of cesarean delivery, so appropriate preparations should be taken
- Preoperative placement of bilateral iliac artery balloon catheters, use of a cell saver, and availability of blood products in a cooler should be considered on a case-by-case basis

# Cesarean myomectomy

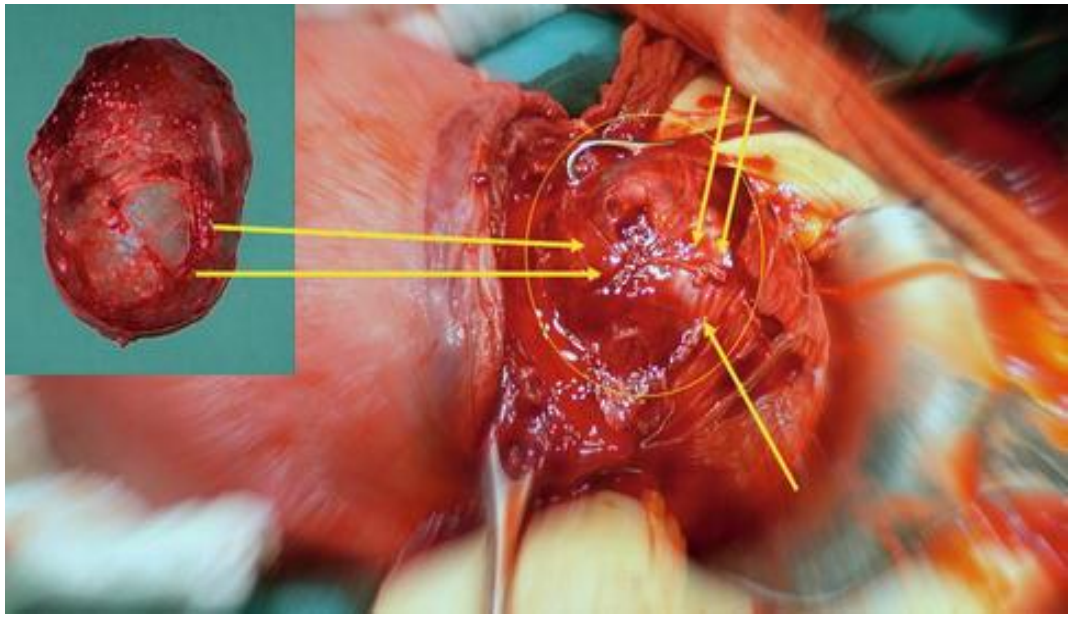
- Although we believe that cesarean myomectomy **generally should be avoided** , observational data suggest that it is possible without a high risk of life-threatening events as long as the surgeon has appropriate expertise, appropriate patients are selected (eg, symptomatic pedunculated fibroids), and blood products are available.
- This decision should be made with caution given the biases inherent to observational studies. We avoid intramyometrial myomectomy because of the risk of severe hemorrhage ,which is more likely in pregnant women since the term uterus receives 17 percent of cardiac output
- favorable results have been reported for removal of **pedunculated fibroids** at the time of cesarean delivery while removal of the single non pedunculated fibroid was associated with severe hemorrhage

# Cesarean myomectomy

- The human uterus may increase in volume and weight, 1000 times and 20 times respectively throughout. Thus, myomectomy during cesarean section produces less tissue damage compared to removal of a symptomatic myoma in normal sized uterus. Serosal scarring and myocyte damage during myomectomy in non pregnant uterus is more than that of cesarean myomectomy especially endometrial myomectomy
- In addition, myomectomy during C-section accelerates puerperal involution and reduces fibroid-related complications which can develop in later life, such as menorrhagia, anemia and pain.
- a patient who undergoes myomectomy during cesarean section will not require a second operation. This lowers the overall cost and prevents the risk of myoma-related complications in subsequent pregnancies

# POTENTIAL INDICATIONS OF CESAREAN MYOMECTOMY

- Symptomatic myomas (mild pelvic pain)
- Myoma >5 cm
- Single myoma
- Anteriorly located myomas
- Tumor Previa
- Pedunculated myomas
- Avoiding extra surgical procedure
- Degenerative myomas
- Patient's desire



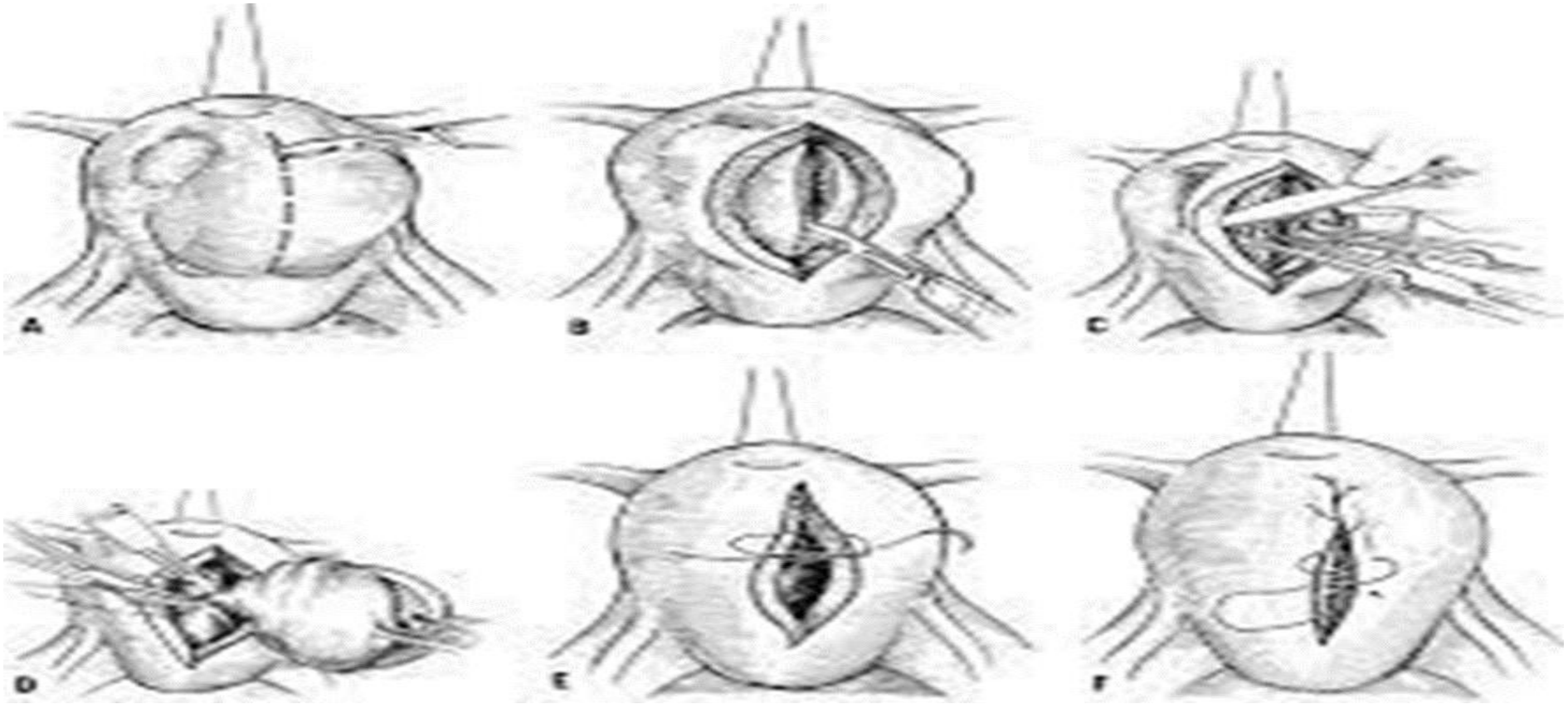
# CONTRAINDICATIONS OF CESAREAN MYOMECTOMY.

- Age > 40 years
- Multiple myomas
- Cornual located myomas
- Posteriorly located myomas
- Asymptomatic myomas
- Tendency to bleed
- Previous history of uterine rupture

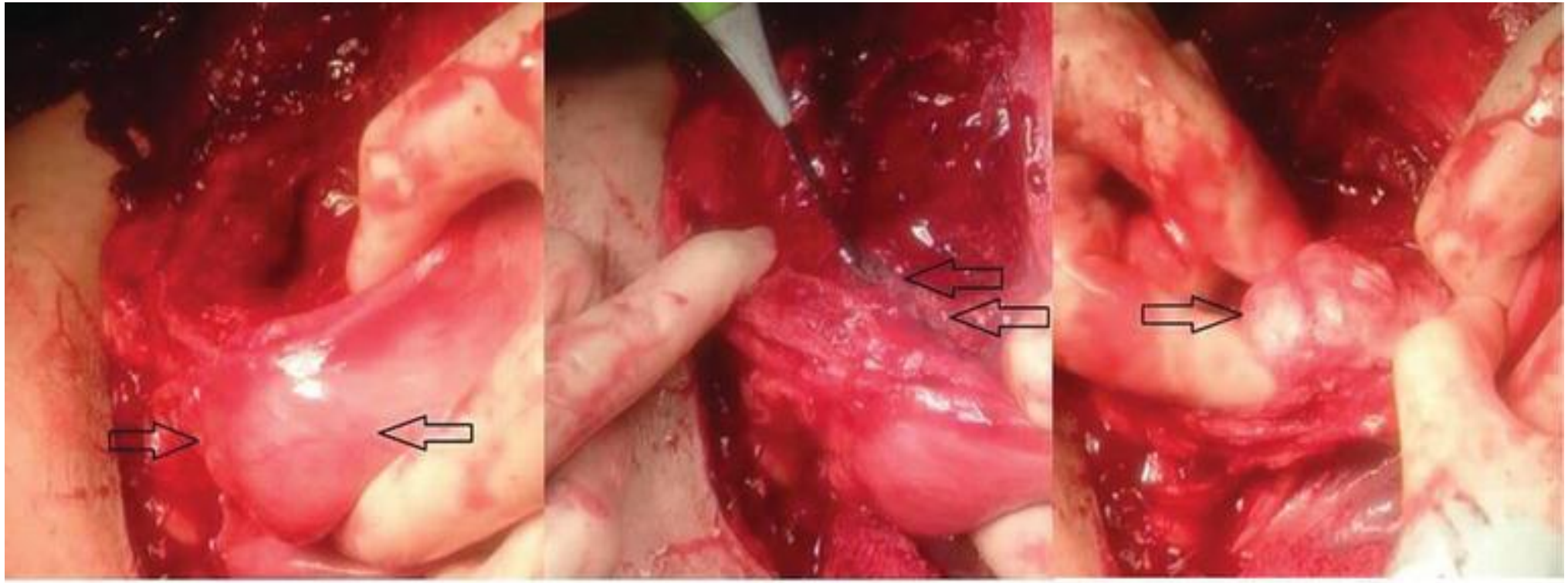
# Techniques of cesarean myomectomy

- There are two approaches for removing the leiomyomas during cesarean section
- one is the well-known serosal myomectomy and second is the novel technique recently published endometrial myomectomy.
- Both techniques use the same principle of intracapsular myoma removal, but the only difference is the route of myoma removal. Removing myomas by endometrial route have some advantages over the serosal myomectomy
- Asherman syndrome at any level was not recorded in studied cases.

# serosal myomectomy



# endometrial myomectomy

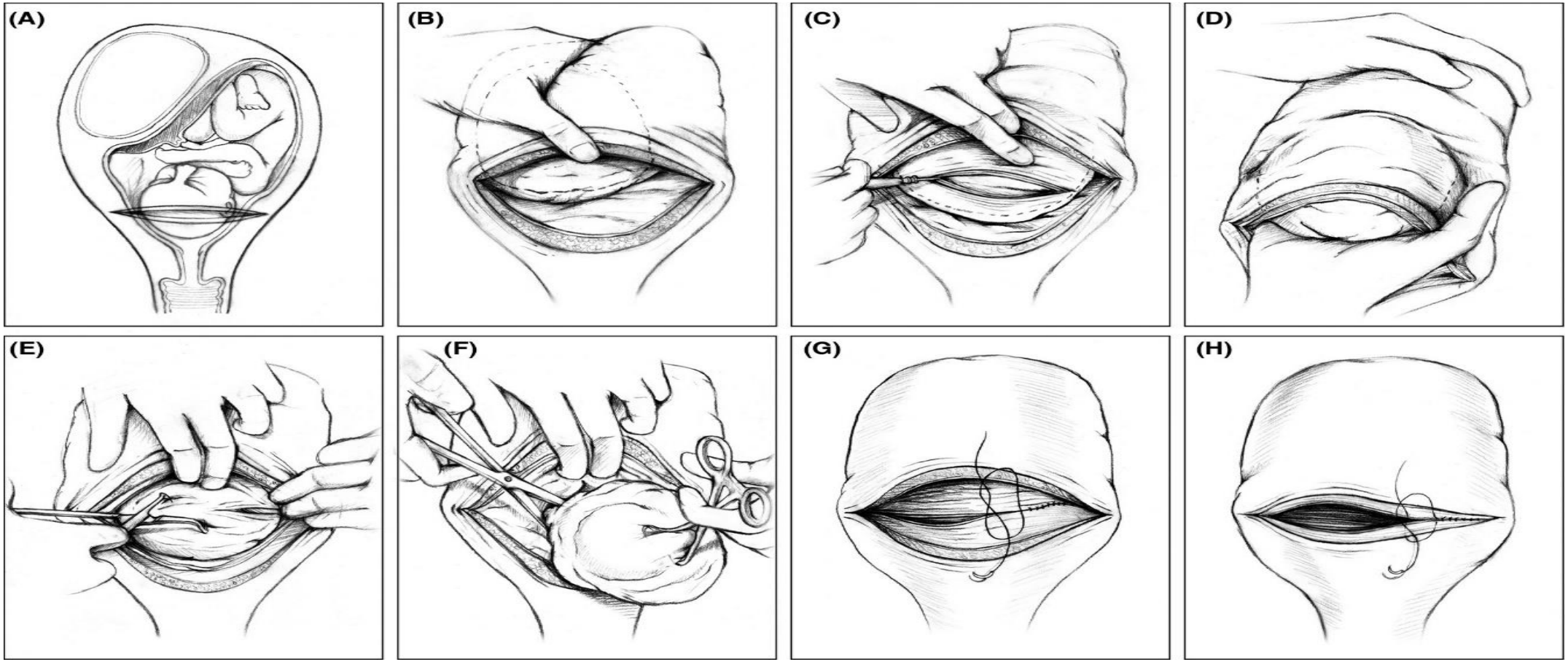


Picture 1: Leiomyoma located close to the low uterine incision site

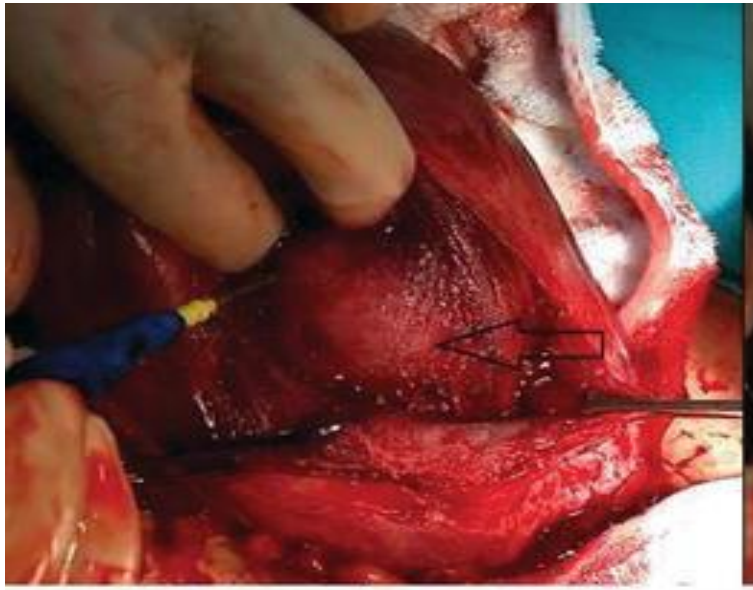
Picture 2: İncision to subendometrial - intramyometrial area

Picture 3: Removing the myoma

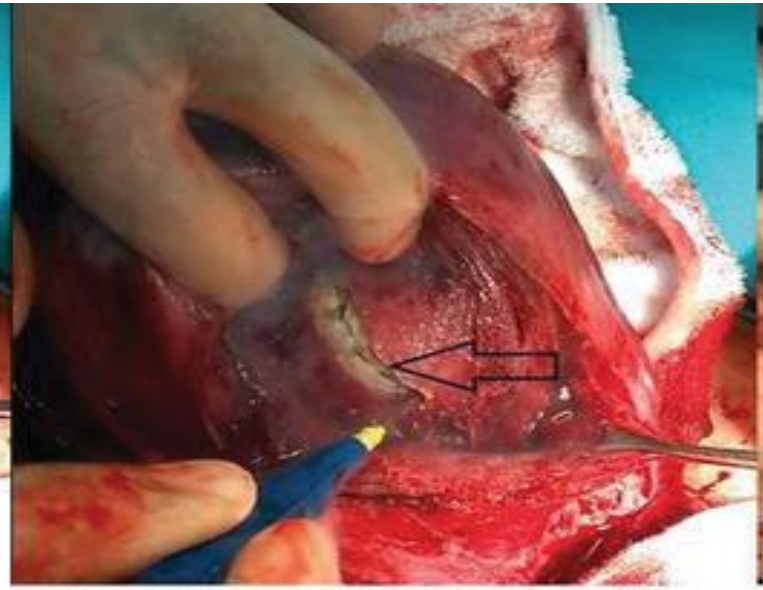
# endometrial myomectomy



# endometrial myomectomy



Picture 4: Palpation and localization of myoma



Picture 5: Endometrial-transmyometrial incision by electrocoutery

Picture 6: Removing leiomyoma

# Management of patients with prior myomectomy

- Route of delivery and timing of scheduled cesarean delivery : Timing and route of delivery must be individualized based on the degree and location of the prior uterine surgery, as described in the operative report.
- we take a conservative approach and suggest cesarean delivery prior to the onset of labor in patients who underwent an extensive or complicated myomectomy, similar to patients who have had a previous classical cesarean delivery.
- Such patients are delivered at 36+0 to 37+0 weeks of gestation since they appear to be at risk for preterm labor [34], whereas patients with less extensive prior surgery may be delivered as late as 38+6 weeks

# Management of patients with prior myomectomy

- For patients who have had an intramyometrial myomectomy that was unlikely to have significantly compromised the myometrium, we suggest a trial of labor with continuous intrapartum fetal monitoring, early access to obstetric anesthesia, and the ability to perform an emergency cesarean delivery, if it becomes necessary
- Patients who have had a pedunculated fibroid removed would not be expected to have compromised the integrity of the myometrium and do not require special monitoring during labor.
- Available data, although limited, suggest that the risk of uterine rupture after myomectomy is not significantly greater than that for a patient attempting trial of labor after cesarean

# Management of patients with prior myomectomy

- Abnormal placentation : Prior hysteroscopic removal of a submucosal fibroid may increase the risk of abnormal placentation, especially placenta accrete
- We suggest ultrasound screening for possible placenta accreta in the late second or early third trimester

# Take home massage

- It seems to be safe to perform myomectomy during cesarean section if surgeon is experienced and the size and location of myoma is considered.
- routine myomectomy during cesarean section should be avoided and should only be carried out in carefully selected patients.
- The decision to perform myomectomy is based on the localization of the myoma, the diameter of the myoma, and the impact on uterine contractility. **when opting for myomectomy, the experience of the surgeon and the proximity to a tertiary center must be taken into account.**


Thank
you