

# FIBROMYOMAS

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# **FIBROMYOMAS** = leiomyomas = fibroids = myomas

- **Defnition** : Benign, uterine neoplasms, primarily composed of smooth muscle
- **arises from the** myometrium of uterine body but also can arise from cervix, broad ligaments

# Etiology of fibromyoma

It is **hormone-dependent** tumors- estrogen dependent (the estrogen receptors in Uterine fibroid tissue are higher than normal).

This is evidenced by :

a- rarely found before puberty.

b- Occurs in reproductive age 35-45 years.

c-.progesterone inhibits the growth .

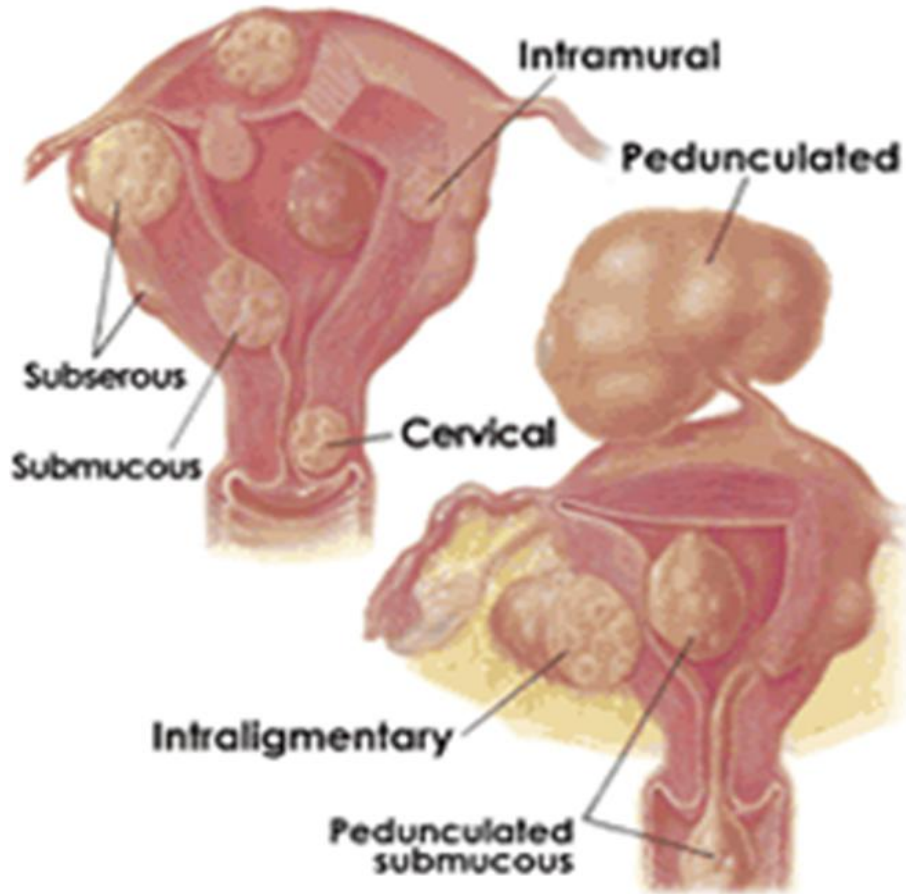
d- After the onset of menopause, uterine fibroids stop growing and even atrophy.

e-increase size in pregnancy

f-decrease size with medical hypogonadism

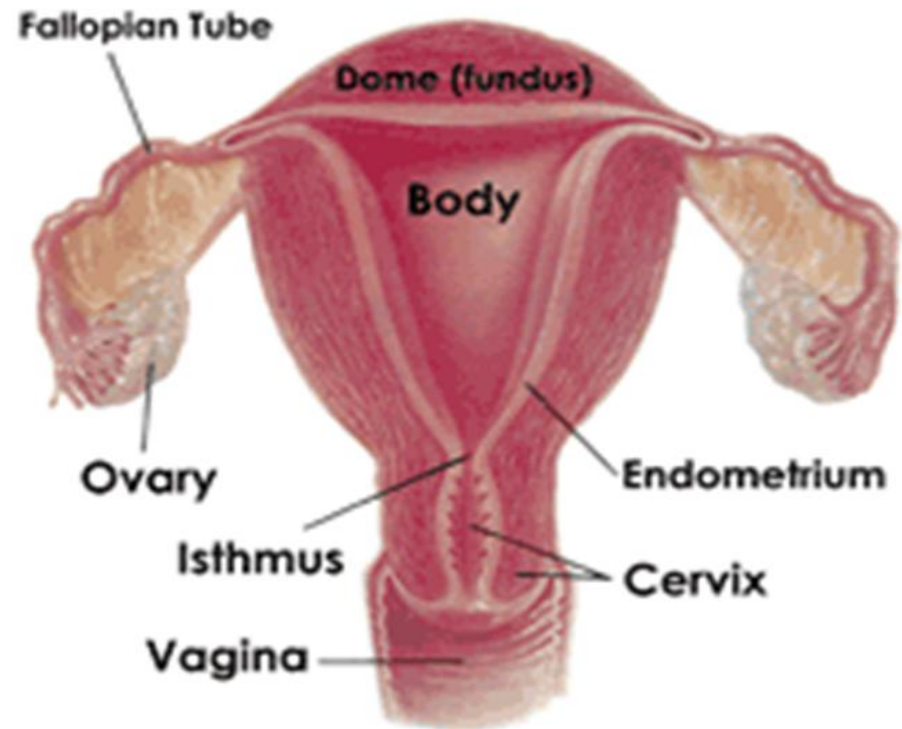
# Types of fibromyoma

## FIBROID TUMORS



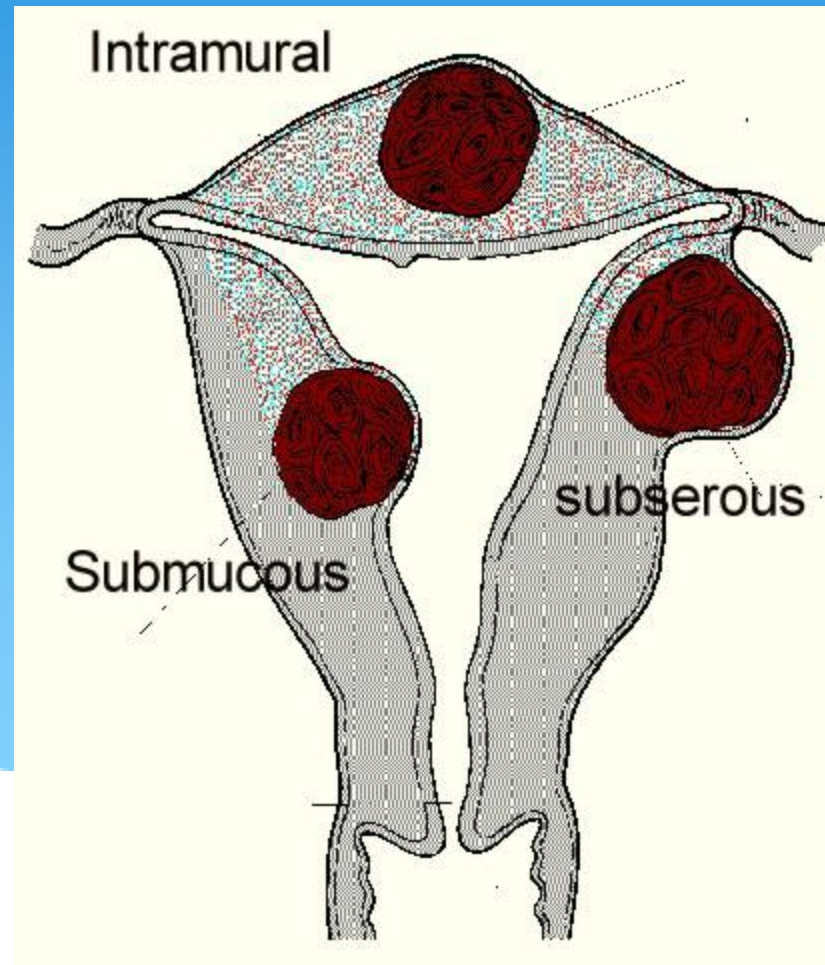
Front/Interior view with fibroids

## NORMAL UTERUS

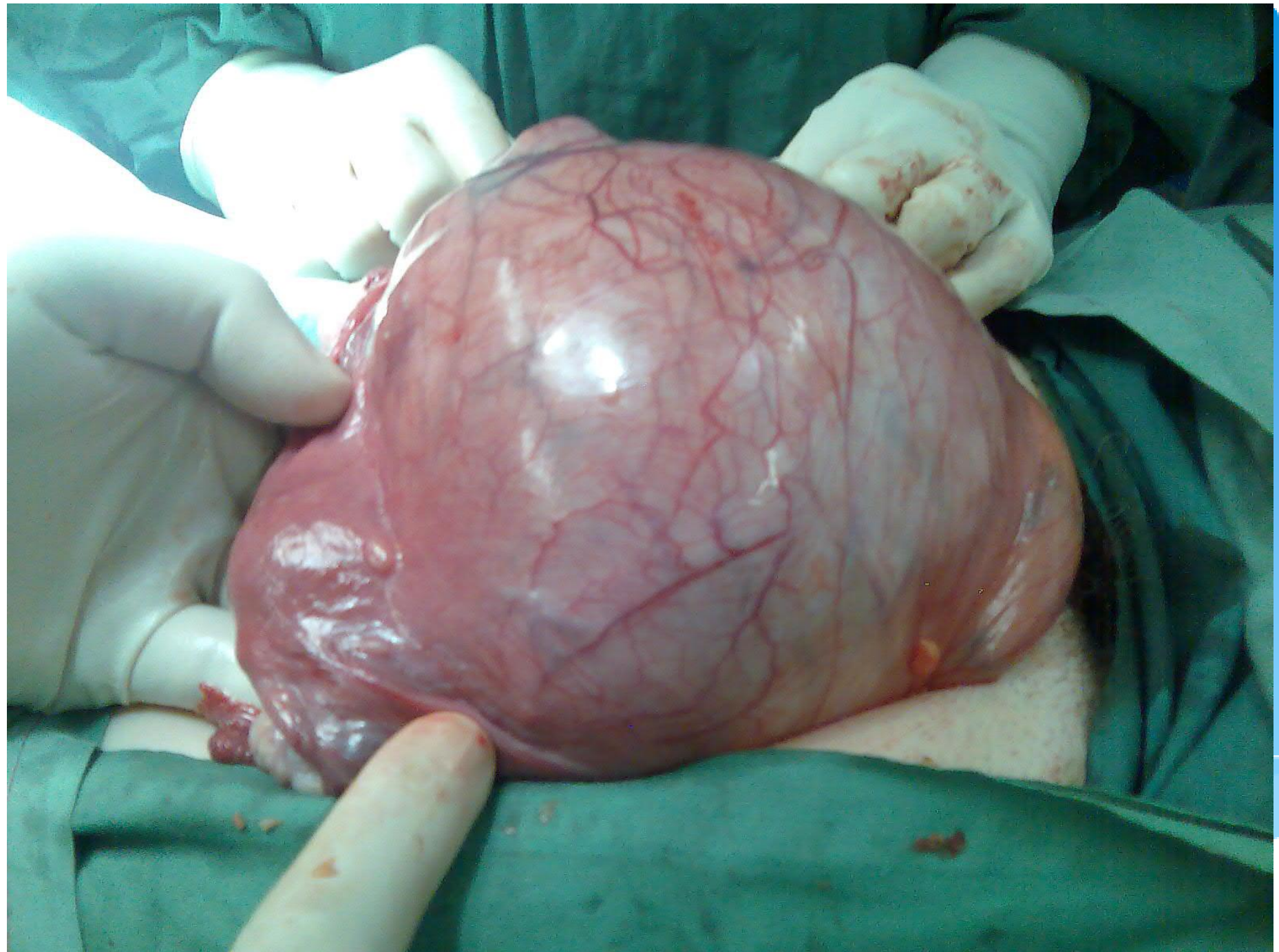


Front view of healthy uterus

# Types of fibromyoma







# Submucosal leiomyoma





# Subserous fibromyoma



# Types of fibromyoma

1. **Intramural or interstitial** – 75% ,  
tumour grow symmetrically , within the  
myometrial wall .
2. **Subserous** – 10% , tumour grows out  
wards, towards the peritoneal surface .
  - Subserous
  - Pedunculated subserous (abdominal)

# Types of fibromyoma

**3. submucous-** 15% , myoma grow towards cavity of uterus , Uterine contractions can force the myoma towards the cavity where it is covered by a thin endometrium.

-either :

- sessile submucosal fibromyoma i.e it has no pedicle.

- pedunculated submucosal fibromyoma if have pedicle.

- pedunculated and protruding from vagina

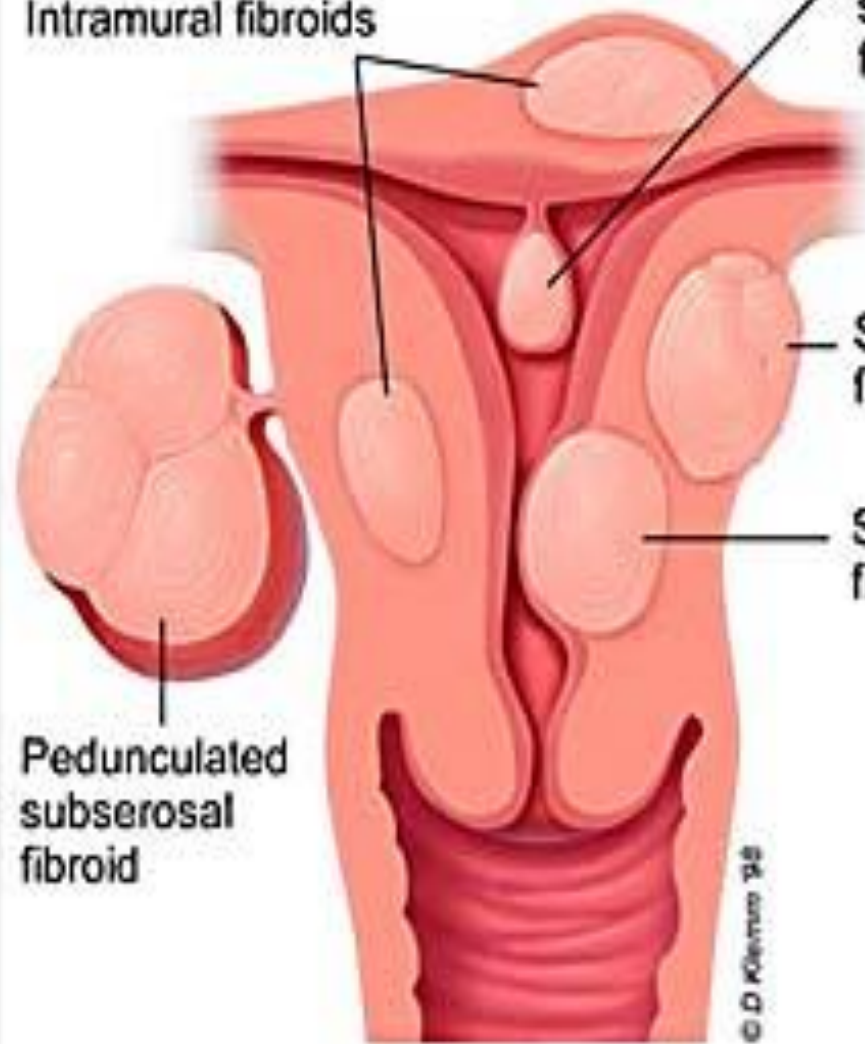
Intramural fibroids

Pedunculated submucosal fibroid

Subserosal fibroid

Submucosal fibroid

Pedunculated subserosal fibroid



# Gross pathology

1- **Number** :Myomas are frequently multiple specially the subserous type as the number is between 5-10.

The submucous , cervical and broad ligament myomas are usually single

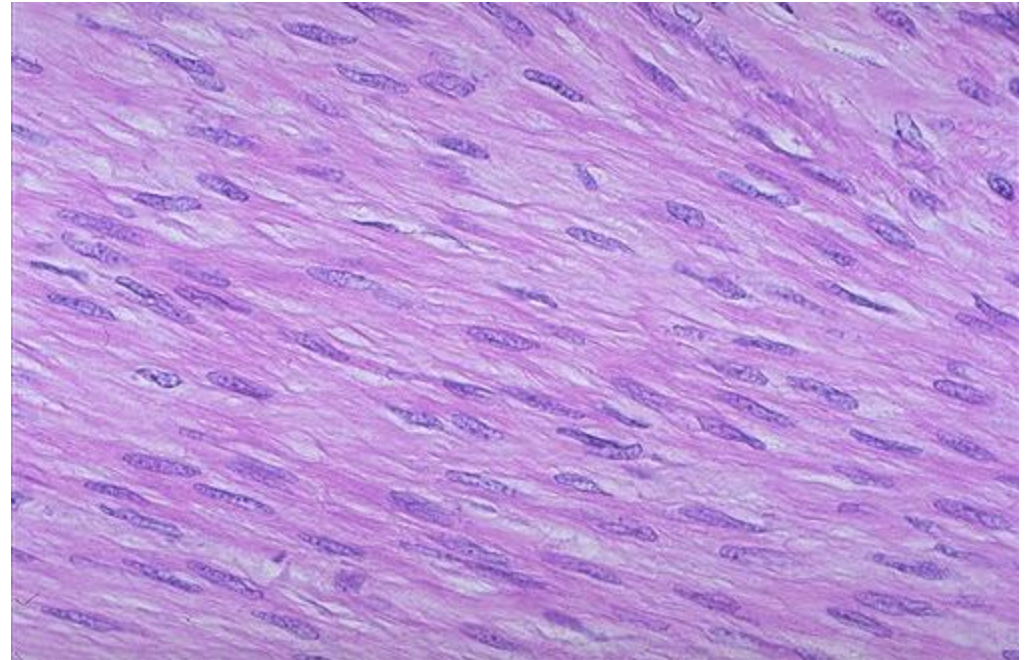
2- **shape** :typical myoma is a well circumscribed tumor with a pseudocapsule formed by compression of adjacent healthy uterine muscle by tumor mass.

3- **Cut surface** : is white and has a whorled appearance . Central portion of the tumor receives least blood supply leading to early degeneration in this part of the tumor, also Calcification may be present .

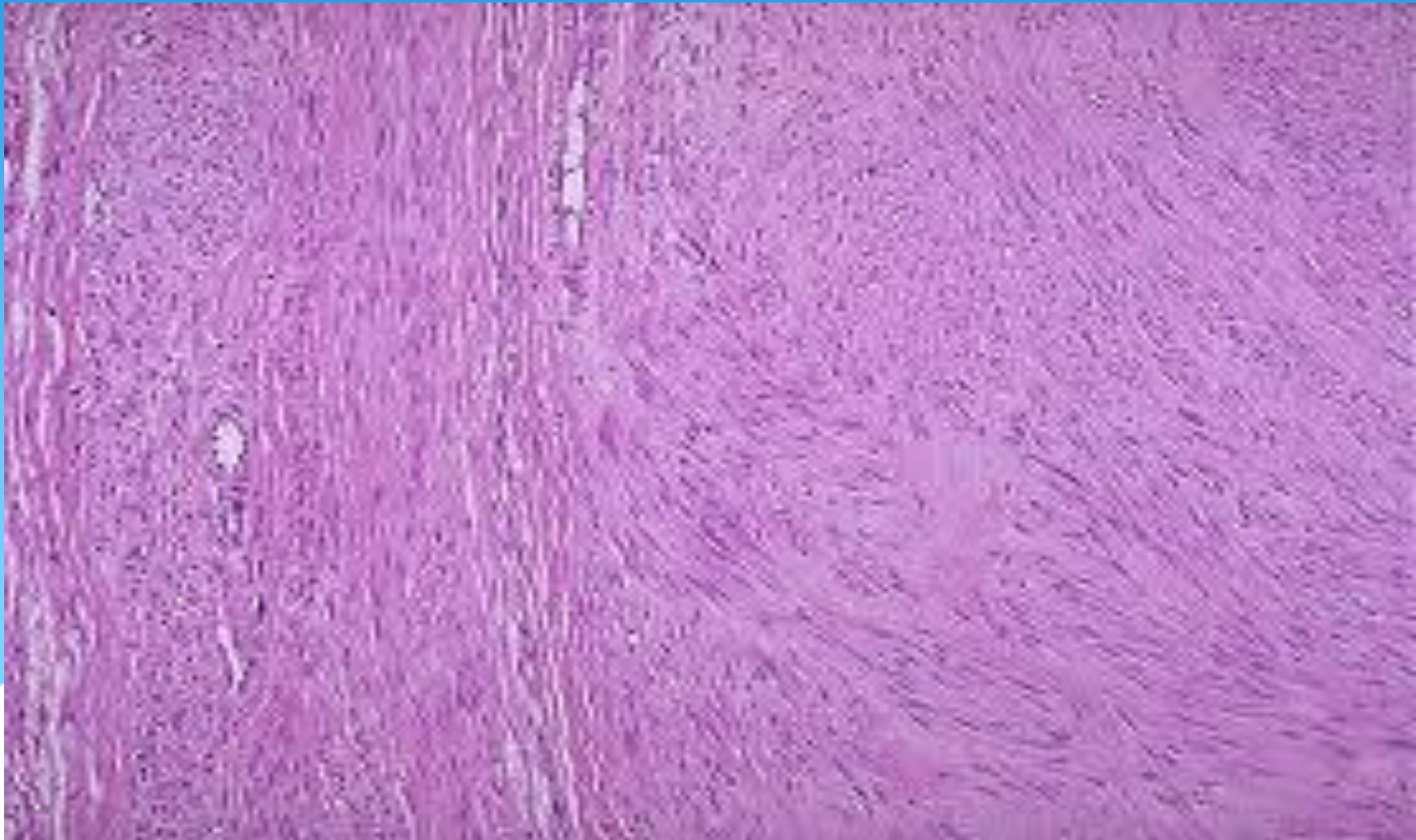
# Microscopic pathology

Fibromyoma consists of bundles of spindle red muscle cells , separated by pink fibrous strands .

# Leiomyoma

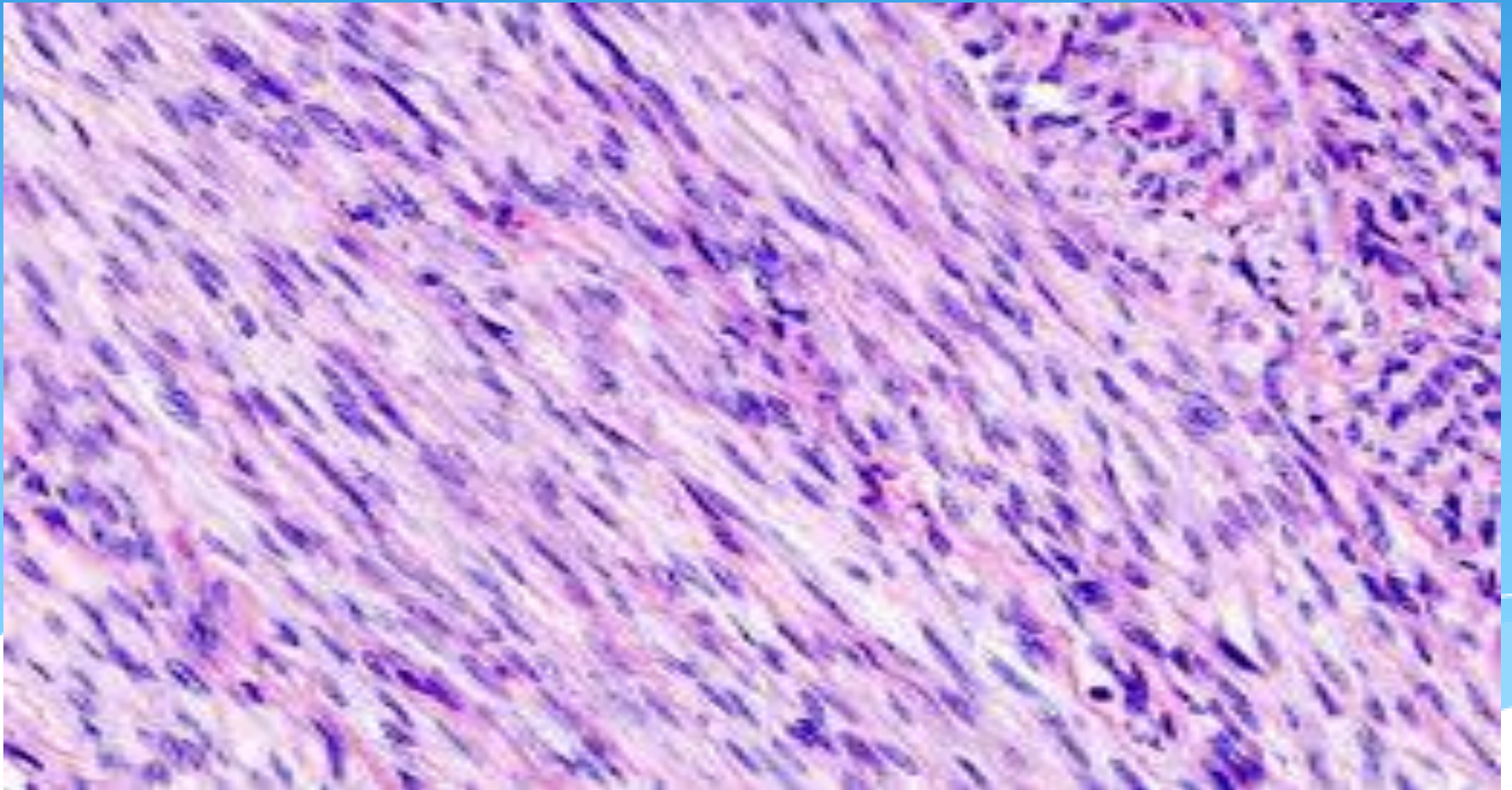


Fibromyoma formed of proliferated smooth muscle cells and proliferated fibroblasts





Fibromyoma formed of bland spindle shape cells arranged into bundles



# Symptoms of fibromyoma

**Menstrual disorders**

**Infertility**

**Asymptomatic  
(50%)**

**Pain**

**Pressure symptoms**

# SYMPTOMS of fibroid

1. **Asymptomatic** : in 50% of women, Myomas are detected during ultrasonography.
2. **Abnormal uterine bleeding** (specially associating intra-mural and submucous myoma )in form of:
  - a - menorrhagia :prolonged menstrual bleeding(more than 5 days)
  - b- metrorrhagia : abnormal uterine bleeding not related to menstruation .
- 3.**pain**- heaviness in lower abdomen , acute pain in torsion , haemorrhage and red degeneration .
- 4.**Pressure on urinary bladder** produce frequency and retention of urine more often premenstrually

# Signs of fibromyoma

- 1- Abdominal examination: If the tumor is large enough , it can be felt per abdomen .
- 2- Pelvic examination-Bimanual examination reveals, uterus is irregularly enlarged. The cervix moves with the movement of the tumor felt per abdomen.

# INVESTIGATIONS

1. Hb, blood group
2. Ultrasonography : a well defined rounded tumor , with cystic spaces if degeneration has occurred .
3. Hysterosalpingography – confirms sub mucous myoma and checks the patency of fallopian tubes in infertility.

# INVESTIGATIONS-

4. Hysteroscopy – recognizes submucous polyp , excision is made under direct vision .
5. Dilatation and curettage (D/C) - is required to rule out endometrial cancer .
6. Laparoscopy
7. ct-scan
8. MRI

## Secondary Changes

1-Atrophy

2- Degenerations

3-Sarcomatous changes

## Other complications of myomas

4-Torsion

5-Inversion

6-Infection



# SECONDARY CHANGES of fibromyoma

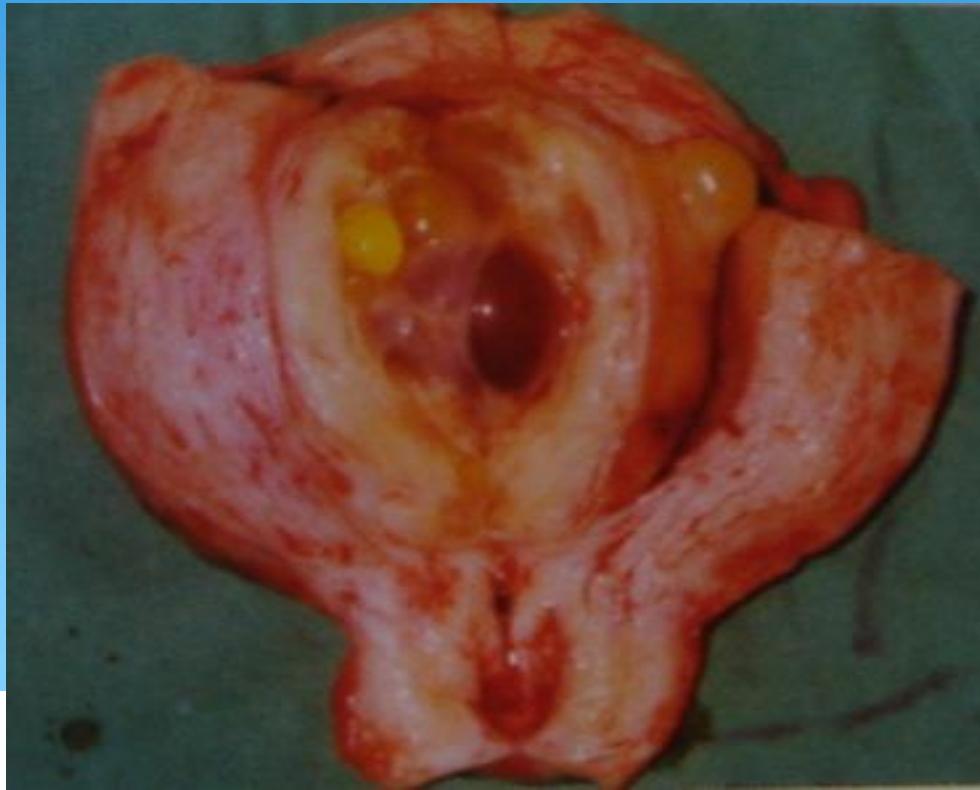
**1. Atrophy** : it Becomes firmer as it shrink specially after menopause , due to diminished vascularity .

## **2. Calcareous degeneration**

Due to deposition of phosphates and carbonates in the tumor.

## **3. Cystic degeneration**

# Cystic degeneration



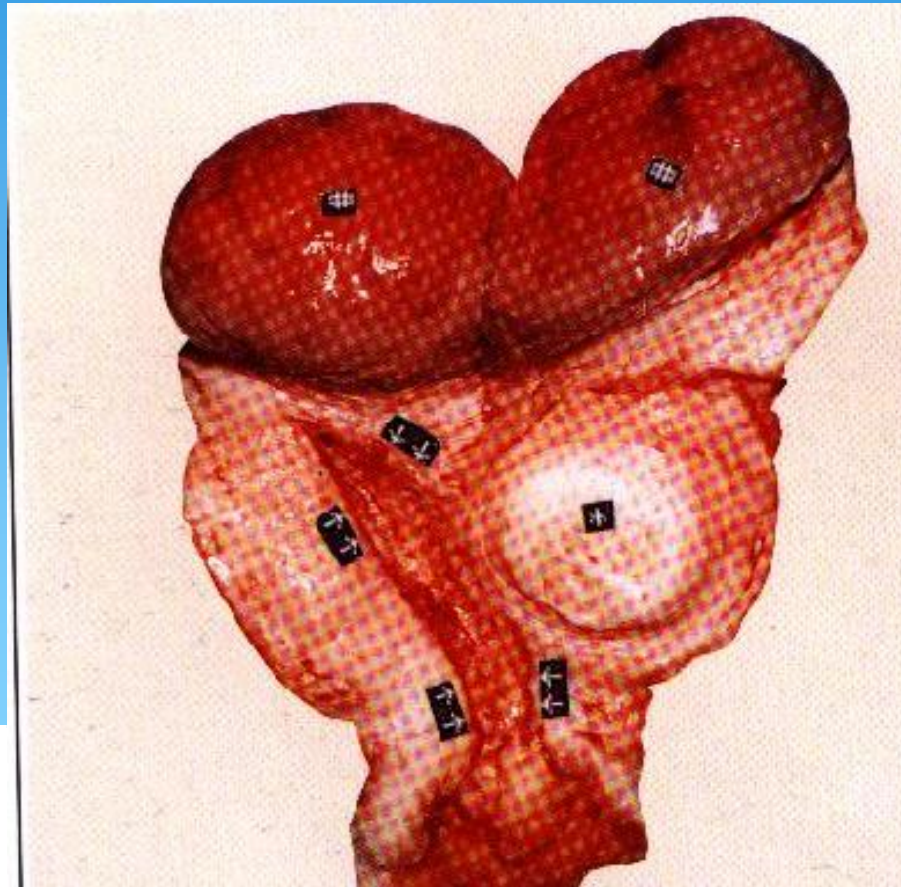
4. **Red degeneration** because tumor grossly becomes purple red color

a. This complication of uterine myomas develops during pregnancy .

b. It follows an acute loss of blood supply to the fibroid during its active growth mainly seen during pregnancy.

c. Causes severe abdominal pain – myoma becomes tense and tender .

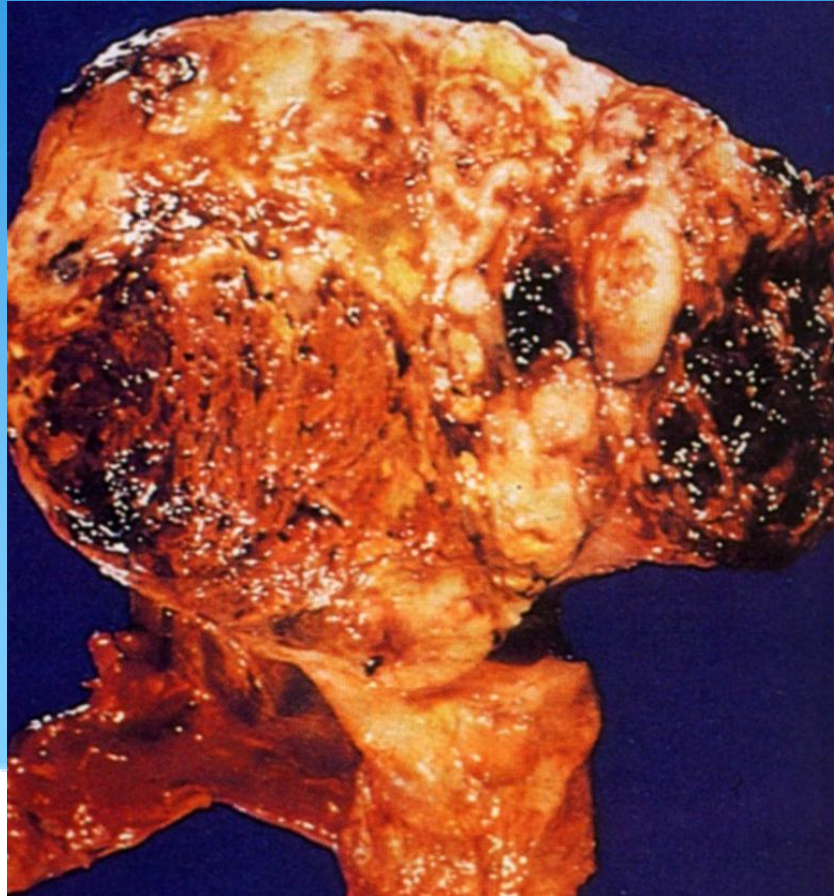
# Red degeneration



## 5. Sarcomatous change –

- a. Extremely rare ( 0.5 % of all myomas ) Mostly found in post menopausal women suddenly , causing pain and post menopausal bleeding .
- b. Intramural and submucous tumors have higher potential for sarcomatous change than subserous tumor.  
Consistency is soft and friable , not firm like a simple myoma .
- g. Non-encapsulation of the tumor .
- h. Sarcoma is highly malignant and spreads via blood stream .

# Sarcomatous change of fibroid



6. **Torsion** – subserous pedunculated myoma may undergo torsion .

- severe abdominal pain because of torsion .

7. **Inversion** – uterus is turned inside out .  
caused by submucous fundal myoma.

women complains of lower abdominal pain and  
irregular bleeding.

Ultrasound confirms inversion .

## 8. Capsular haemorrhage ,anemia:

Due to rupture of large veins on the surface of a subserous myoma .

## 9. Infection :

Common in submucous fibromyoma polyp if they project into cervical canal/vagina , causing purulent , blood-stained discharge.



# Treatment

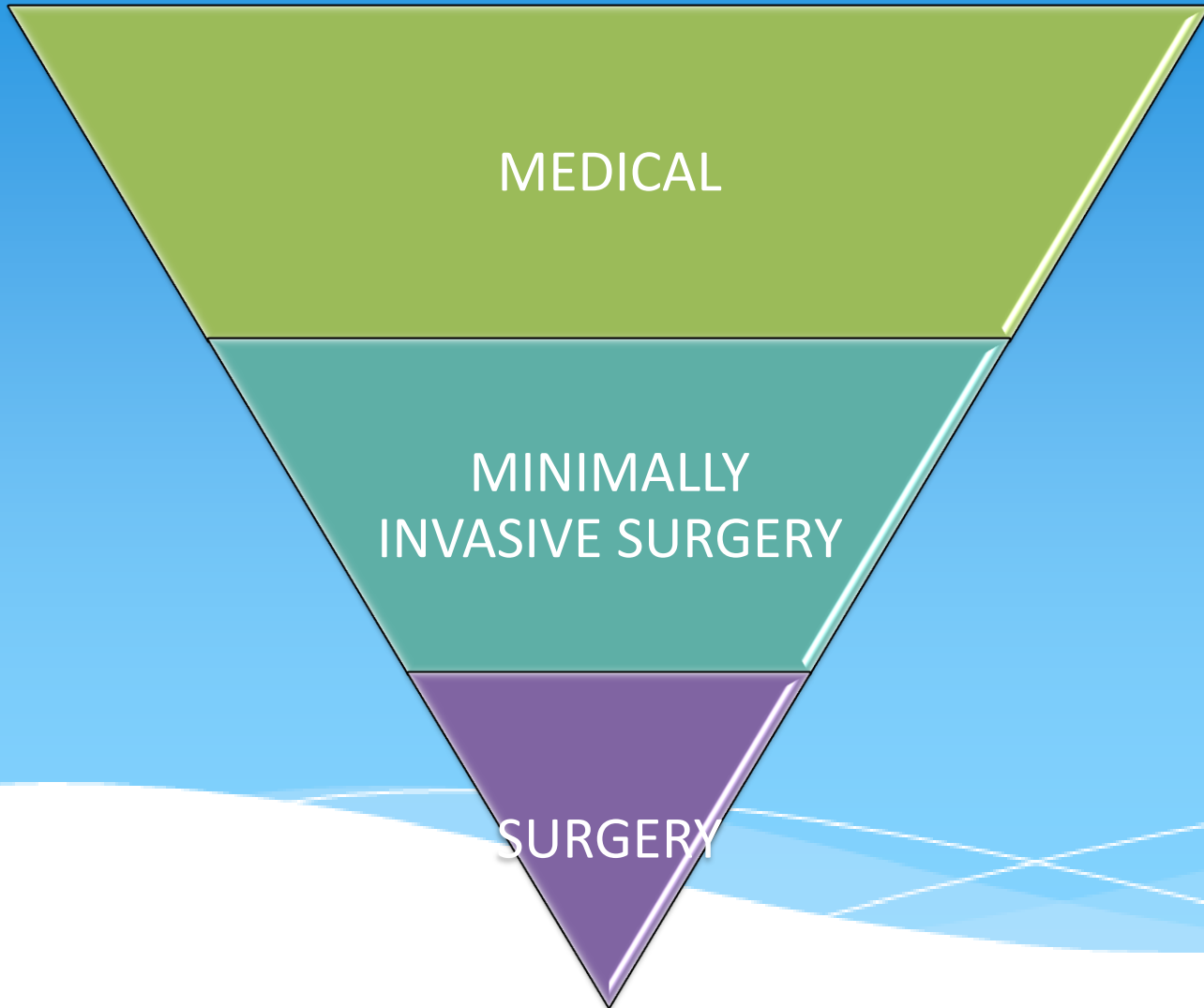
- **1- Small and asymptomatic** cases do not require removal. They can be observed every 6 months.
- **2- Indications of treatment** are :
  - Infertility and habitual abortion
  - Symptomatic fibroids : menorrhagia and pressure symptoms
  - Rapid growth in a menopausal women

# TREATMENT

MEDICAL

MINIMALLY  
INVASIVE SURGERY

SURGERY

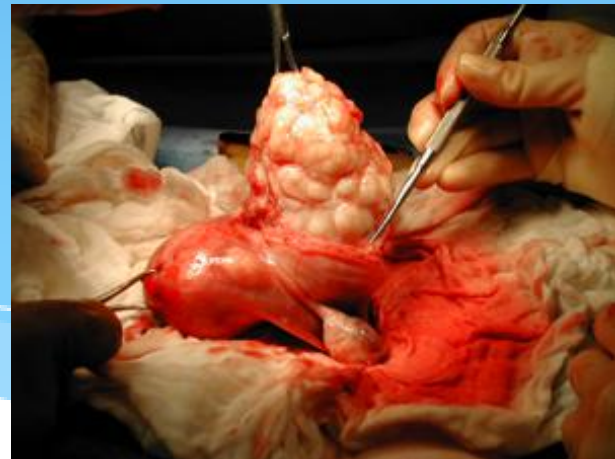
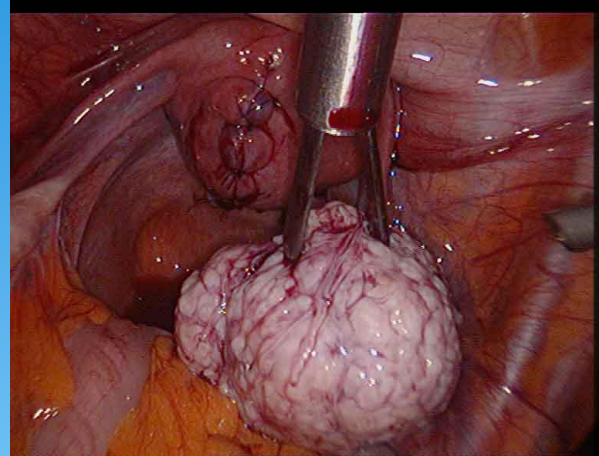


## Medical treatment-

1. Iron therapy – for anaemia
2. Drugs to control menorrhagia

# Surgical treatment

- Myomectomy
  - Hysteroscopically
  - Laparoscopically
  - Abdominally



# Surgery for fibroid

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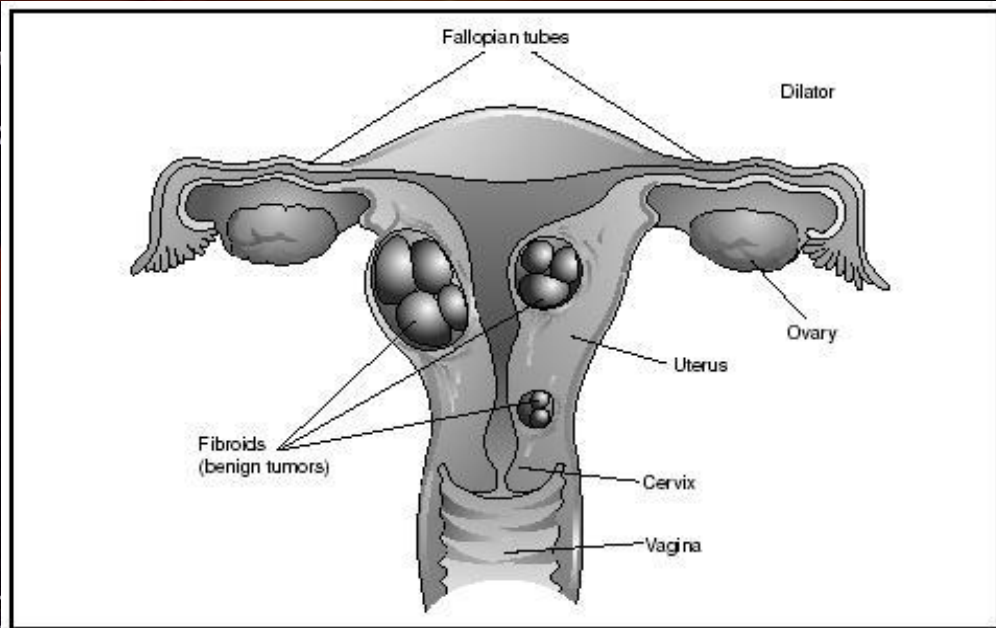
1. **Myomectomy** : removal of the mass only.
- 2- **Hysterectomy** :removal of the whole uterus is indicated in women over 40 , multiparous women or associated with malignancy.



# Myomas in pregnancy

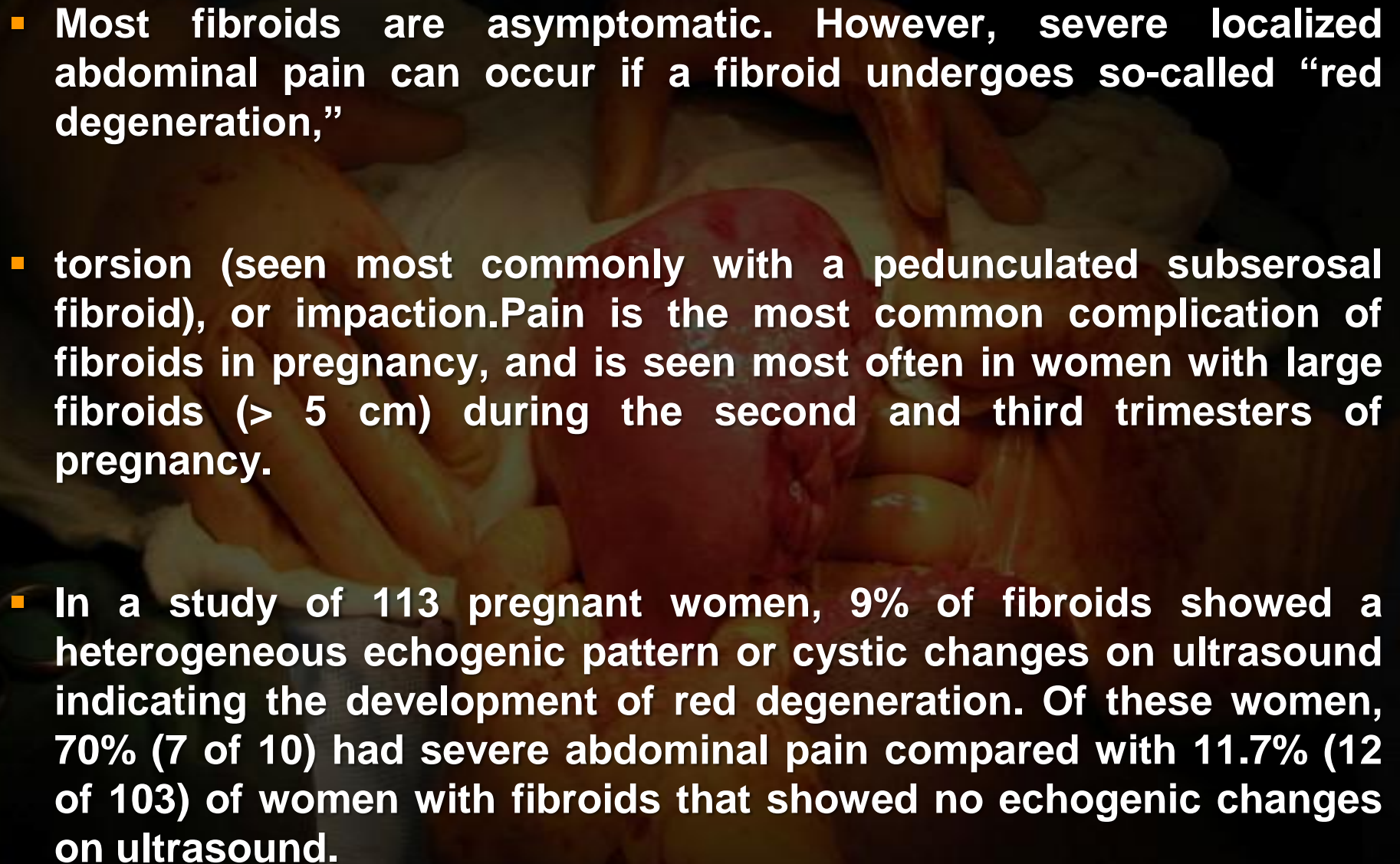
# Uterine fibroids

- Uterine fibroids are a very common finding in women of reproductive age. The majority of fibroids do not change their size during pregnancy, but one-third may grow in the first trimester. Although the data are conflicting and most women with fibroids have uneventful pregnancies, the weight of evidence in the literature suggests that uterine fibroids are associated with an increased rate of spontaneous miscarriage, preterm labor, placenta abruption, malpresentation, labor dystocia, cesarean delivery, and postpartum hemorrhage.



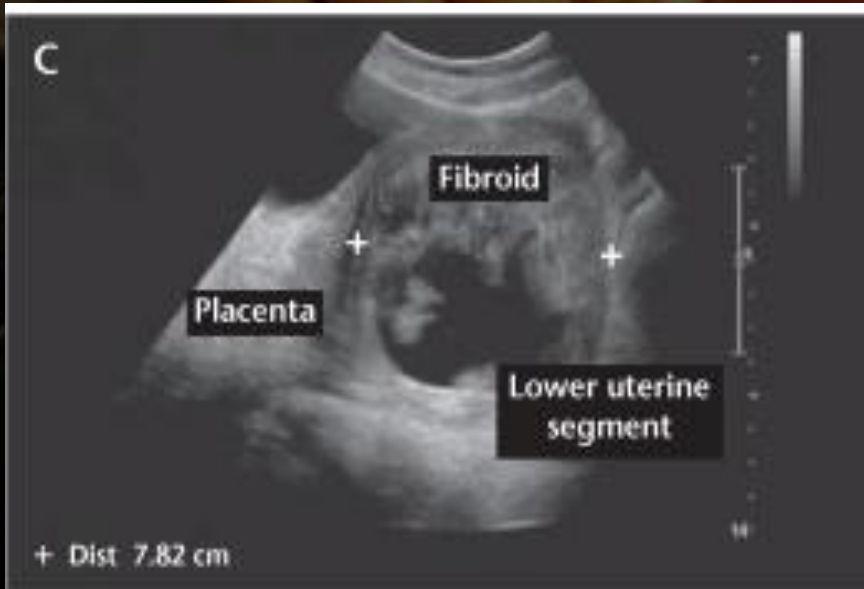
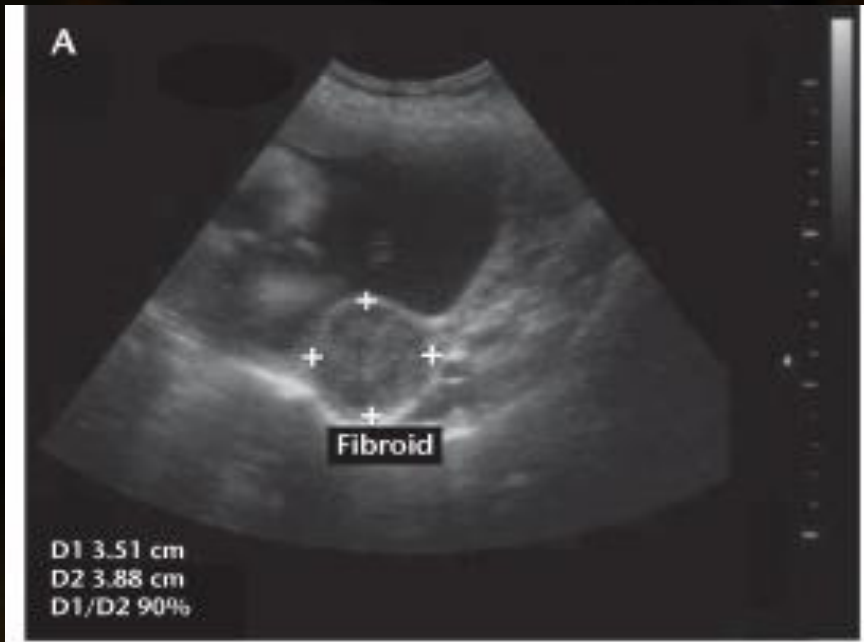
- majority of fibroids (60%–78%) do not demonstrate any significant change in volume during pregnancy.
- Of the 22% to 32% of fibroids that did increase in volume, the growth was limited almost exclusively to the first trimester, especially the first 10 weeks of gestation, with very little if any growth in the second and third trimesters.
- studies have shown that small fibroids are just as likely to grow as large fibroids, whereas other studies have suggested that small and large fibroids ( $\geq 6$  cm) have different growth patterns in the second trimester (small fibroids grow whereas large fibroids remain unchanged or decrease in size), but all decrease in size in the third trimester.
- The majority of fibroids show no change during the puerperium, although 7.8% will decrease in volume by up to 10%



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- **Most fibroids are asymptomatic. However, severe localized abdominal pain can occur if a fibroid undergoes so-called “red degeneration,”**
  - **torsion (seen most commonly with a pedunculated subserosal fibroid), or impaction. Pain is the most common complication of fibroids in pregnancy, and is seen most often in women with large fibroids (> 5 cm) during the second and third trimesters of pregnancy.**
  - **In a study of 113 pregnant women, 9% of fibroids showed a heterogeneous echogenic pattern or cystic changes on ultrasound indicating the development of red degeneration. Of these women, 70% (7 of 10) had severe abdominal pain compared with 11.7% (12 of 103) of women with fibroids that showed no echogenic changes on ultrasound.**

## Three main theories have been proposed to explain the severe pain associated with red degeneration.

- **First**, that rapid fibroid growth results in the tissue outgrowing its blood supply leading to tissue anoxia, necrosis, and infarction.
- **Second**, that the growing uterus results in a change in the architecture (kinking) of the blood supply to the fibroid leading to ischemia and necrosis even in the absence of fibroid growth.
- **Third**, that the pain results from the release of prostaglandins from cellular damage within the fibroid. This is supported by the observation that ibuprofen and other prostaglandin synthetase inhibitors effectively and rapidly control fibroid pain



Representative images of fibroids in pregnancy. **(A)** A 3.5 × 3.8 cm fibroid is evident in the posterior uterine wall. This small fibroid is unlikely to cause any pregnancy-related complications. **(B)** A 5.5 × 6.9 cm retroplacental fibroid is shown. This large fibroid is likely to interfere with placentation and uteroplacental blood flow due both to its size and location, which may present clinically as intrauterine growth restriction, placental abruption, or preeclampsia. **(C)** A 7.8 cm fibroid is evident in the lower uterine segment. Given its size and location, this large fibroid may interfere with engagement of the fetal head near term and the normal progress of labor. Moreover, the internal echogenic changes are consistent with “red degeneration,” and would likely account for the patient’s lower abdominal pain.

# Early Pregnancy

- **Miscarriage.** Spontaneous miscarriage rates are greatly increased in pregnant women with fibroids compared with control subjects without fibroids (14% vs 7.6%, respectively). The weight of evidence in the literature suggests that the **size** of the fibroid does not affect the rate of miscarriage, but **multiple fibroids** may increase the miscarriage rate compared with the presence of a single fibroid only (23.6% vs 8.0%).
- The location of the fibroid may also be important. Early miscarriage is more common in women with fibroids located in **the uterine corpus** (body) than in the lower uterine segment and in women with **intramural or submucosal fibroids**. The mechanism by which fibroids cause spontaneous abortion is unclear.
- Increased uterine irritability and contractility, the compressive effect of fibroids, and compromise to the blood supply of the developing placenta and fetus have all been implicated.<sup>18</sup>
- **Bleeding in early pregnancy.** The location of the fibroid determines the risk for bleeding. Bleeding in early pregnancy is significantly more common if the placenta implants close to the fibroid compared with pregnancies in which there is no contact between the placenta and fibroid (60% vs 9%, respectively)

# Late Pregnancy

- **Preterm labor** and preterm premature rupture of membranes.

Pregnant women with fibroids are significantly more likely to develop preterm labor and to deliver preterm than women without fibroids (16.1% vs 8.7% and 16% vs 10.8%, respectively). Multiple fibroids and fibroids contacting the placenta appear to be independent risk factors for preterm labor.

In contrast, fibroids do not appear to be a risk factor for preterm premature rupture of membranes (PPROM). Indeed, a recent systematic review suggests that fibroids are associated with a decreased risk of PPRM

## Placental abruption.

Although reports are conflicting, pooled cumulative data suggest that the risk of placental abruption is increased **3-fold** in women with fibroids. Submucosal fibroids, retroplacental fibroids, and fibroid volumes  $> 200 \text{ cm}^3$  are independent risk factors for placental abruption.

One retrospective study reported placental abruption in 57% of women with retroplacental fibroids in contrast with 2.5% of women with fibroids located in alternate sites.

One possible mechanism of placental abruption may be diminished blood flow to the fibroid and the adjacent tissues which results in partial ischemia and decidual necrosis in the placental tissues overlaying the leiomyoma

## ■ **Placenta previa.**

The relationship between fibroids and placenta previa has been examined in only 2 studies, both of which suggest that the presence of fibroids is associated with a **2-fold** increased risk of **placenta previa** even after adjusting for prior surgeries such as cesarean section or myomectomy

## ■ **Fetal growth restriction and fetal anomalies.**

Fetal growth does not appear to be affected by the presence of uterine fibroids. Although cumulative data and a population-based study suggested that women with fibroids are at slightly increased risk of delivering a growth-restricted infant, these results were not adjusted for maternal age or gestational age.

Rarely, large fibroids can compress and distort the intrauterine cavity leading to fetal deformities.

A number of fetal anomalies have been reported in women with large submucosal fibroids, including dolichocephaly (lateral compression of the fetal skull), torticollis (abnormal twisting of the neck), and limb reduction defects

Table 1

## Cumulative Risk of Adverse Obstetric Outcomes in Pregnant Women With Fibroids

	Fibroids	No Fibroids	<i>P</i> Value	Unadjusted OR (95% CI)
Cesarean delivery	48.8% (2098/4322)	13.3% (22,989/173,052)	<.001	3.7 (3.5–3.9)
Malpresentation	13.0% (466/3585)	4.5% (5864/130,932)	<.001	2.9 (2.6–3.2)
Labor dystocia	7.5% (260/3471)	3.1% (4703/148,778)	<.001	2.4 (2.1–2.7)
Postpartum hemorrhage	2.5% (87/3535)	1.4% (2130/153,631)	<.001	1.8 (1.4–2.2)
Peripartum hysterectomy	3.3% (18/554)	0.2% (27/18,000)	<.001	13.4 (9.3–19.3)
Retained placenta	1.4% (15/1069)	0.6% (839/134,685)	.001	2.3 (1.3–3.7)
Chorio or placental embolism	8.7% (78/893)	8.2% (2149/26,090)	.63	1.06 (0.8–1.3)



# Labor and Delivery

## Malpresentation, labor dystocia, and cesarean delivery

The risk of fetal malpresentation increases in women with fibroids compared with control subjects (13% vs 4.5%, respectively). Large fibroids, multiple fibroids, and fibroids in the lower uterine segment have all been reported as independent risk factors for malpresentation.

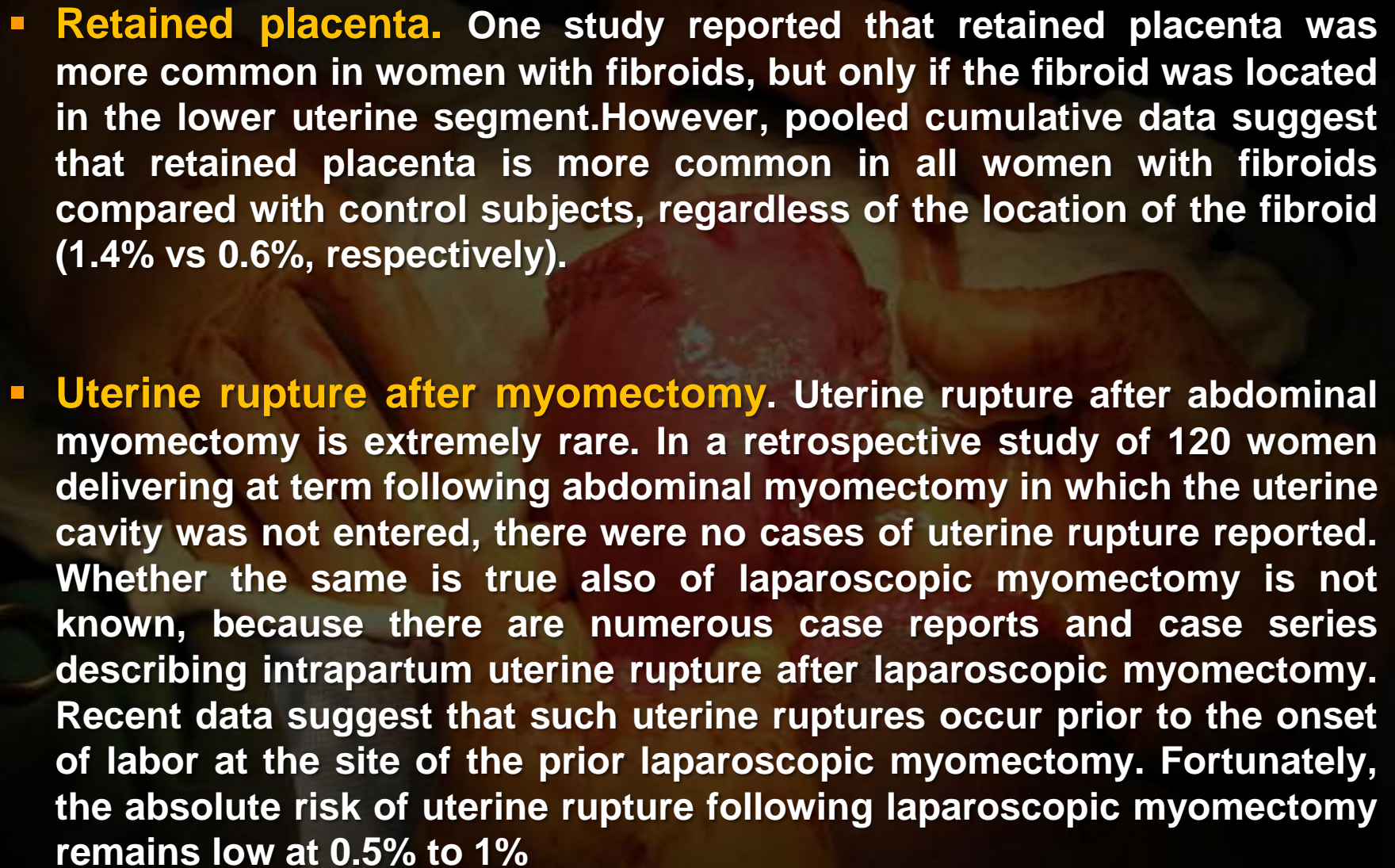
In a systematic review, women with fibroids were at a **3.7-fold** increased risk of **cesarean delivery** (48.8% vs 13.3%, respectively).


This is due in part to an increase in labor dystocia, which is increased 2-fold in pregnant women with fibroids. Malpresentation, large fibroids, multiple fibroids, submucosal fibroids, and fibroids in the lower uterine segment are considered predisposing factors for cesarean delivery.

Despite the increased risk of cesarean, the presence of uterine fibroids—even large fibroids (> 5 cm)—should not be regarded as a contraindication to a trial of labor.

**Postpartum hemorrhage.** Reports on the association between fibroids and postpartum hemorrhage are conflicting. Pooled cumulative data suggest that postpartum hemorrhage is significantly more likely in women with fibroids compared with control subjects (2.5% vs 1.4%, respectively;)

.Fibroids may distort the uterine architecture and interfere with myometrial contractions leading to uterine atony and postpartum hemorrhage. This same mechanism may also explain why women with fibroids are at increased risk of puerperal hysterectomy

- 
- **Retained placenta.** One study reported that retained placenta was more common in women with fibroids, but only if the fibroid was located in the lower uterine segment. However, pooled cumulative data suggest that retained placenta is more common in all women with fibroids compared with control subjects, regardless of the location of the fibroid (1.4% vs 0.6%, respectively).
  - **Uterine rupture after myomectomy.** Uterine rupture after abdominal myomectomy is extremely rare. In a retrospective study of 120 women delivering at term following abdominal myomectomy in which the uterine cavity was not entered, there were no cases of uterine rupture reported. Whether the same is true also of laparoscopic myomectomy is not known, because there are numerous case reports and case series describing intrapartum uterine rupture after laparoscopic myomectomy. Recent data suggest that such uterine ruptures occur prior to the onset of labor at the site of the prior laparoscopic myomectomy. Fortunately, the absolute risk of uterine rupture following laparoscopic myomectomy remains low at 0.5% to 1%

A photograph showing a surgical procedure on a uterus. The uterus is the central focus, appearing as a reddish, fleshy organ. It is being held and manipulated by several hands wearing orange surgical gloves. The background is dark, and the overall scene is dimly lit, focusing attention on the surgical site. The text "Effect of Uterine Fibroids on Pregnancy Management" is overlaid in a bright yellow font.

**Effect of  
Uterine Fibroids on  
Pregnancy Management**

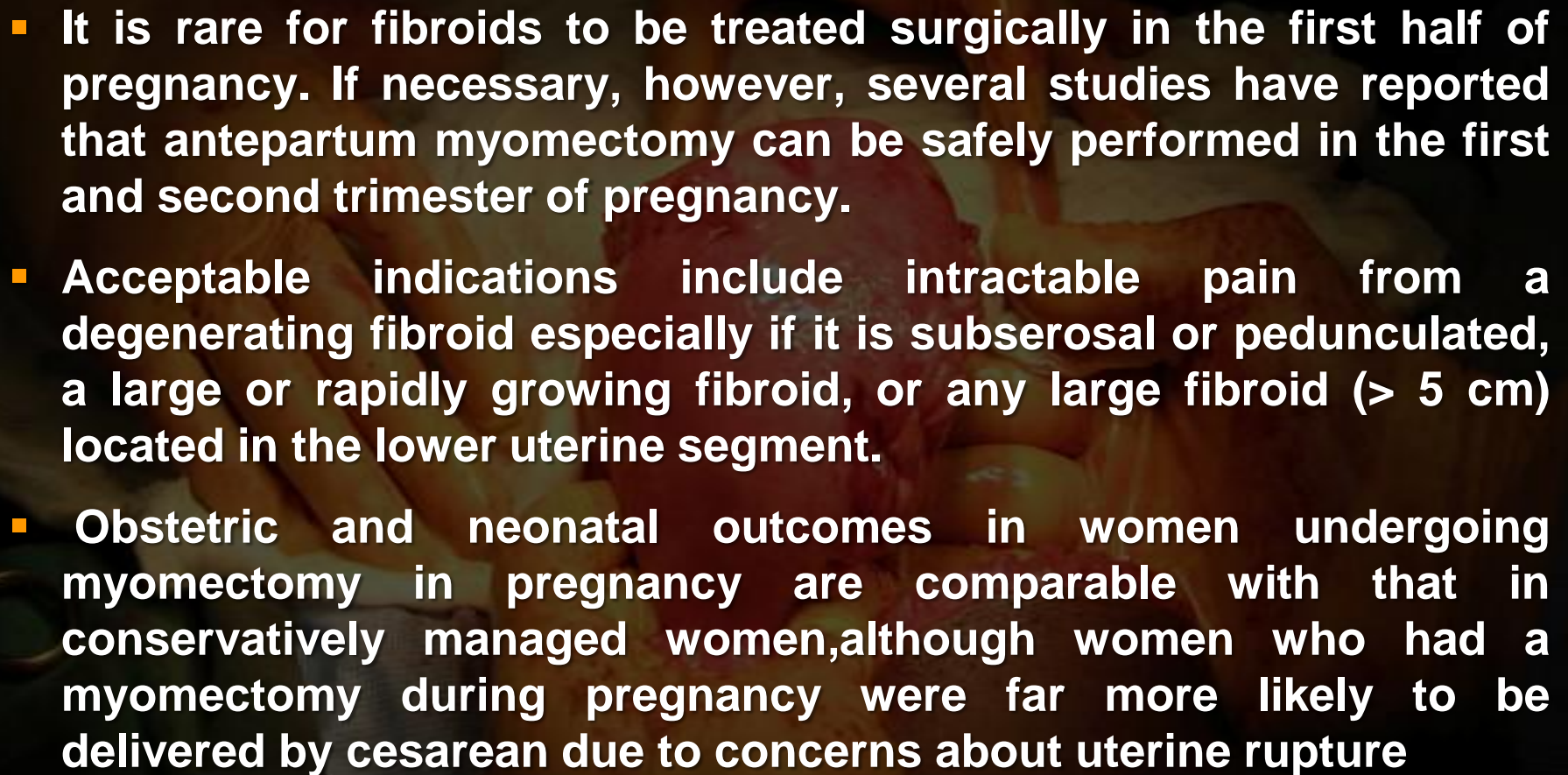
# Pain Management

Fibroid pain during pregnancy is usually managed conservatively by bed rest, hydration, and analgesics.

Prostaglandin synthase inhibitors (eg, nonsteroidal anti-inflammatory drugs) should be used with caution, especially prolonged use (> 48 hours) in the third trimester where it has been associated with both fetal and neonatal adverse effects, including premature closure of the fetal ductus arteriosus, pulmonary hypertension, necrotizing enterocolitis, intracranial hemorrhage, or oligohydramnios.

Rarely, severe pain may necessitate additional pain medication (narcotic analgesia), epidural analgesia, or surgical management (myomectomy)

**Myomectomy.** Prior to pregnancy, myomectomy can be considered in women with unexplained infertility or recurrent pregnancy loss,

- 
- It is rare for fibroids to be treated surgically in the first half of pregnancy. If necessary, however, several studies have reported that antepartum myomectomy can be safely performed in the first and second trimester of pregnancy.
  - Acceptable indications include intractable pain from a degenerating fibroid especially if it is subserosal or pedunculated, a large or rapidly growing fibroid, or any large fibroid (> 5 cm) located in the lower uterine segment.
  - Obstetric and neonatal outcomes in women undergoing myomectomy in pregnancy are comparable with that in conservatively managed women, although women who had a myomectomy during pregnancy were far more likely to be delivered by cesarean due to concerns about uterine rupture

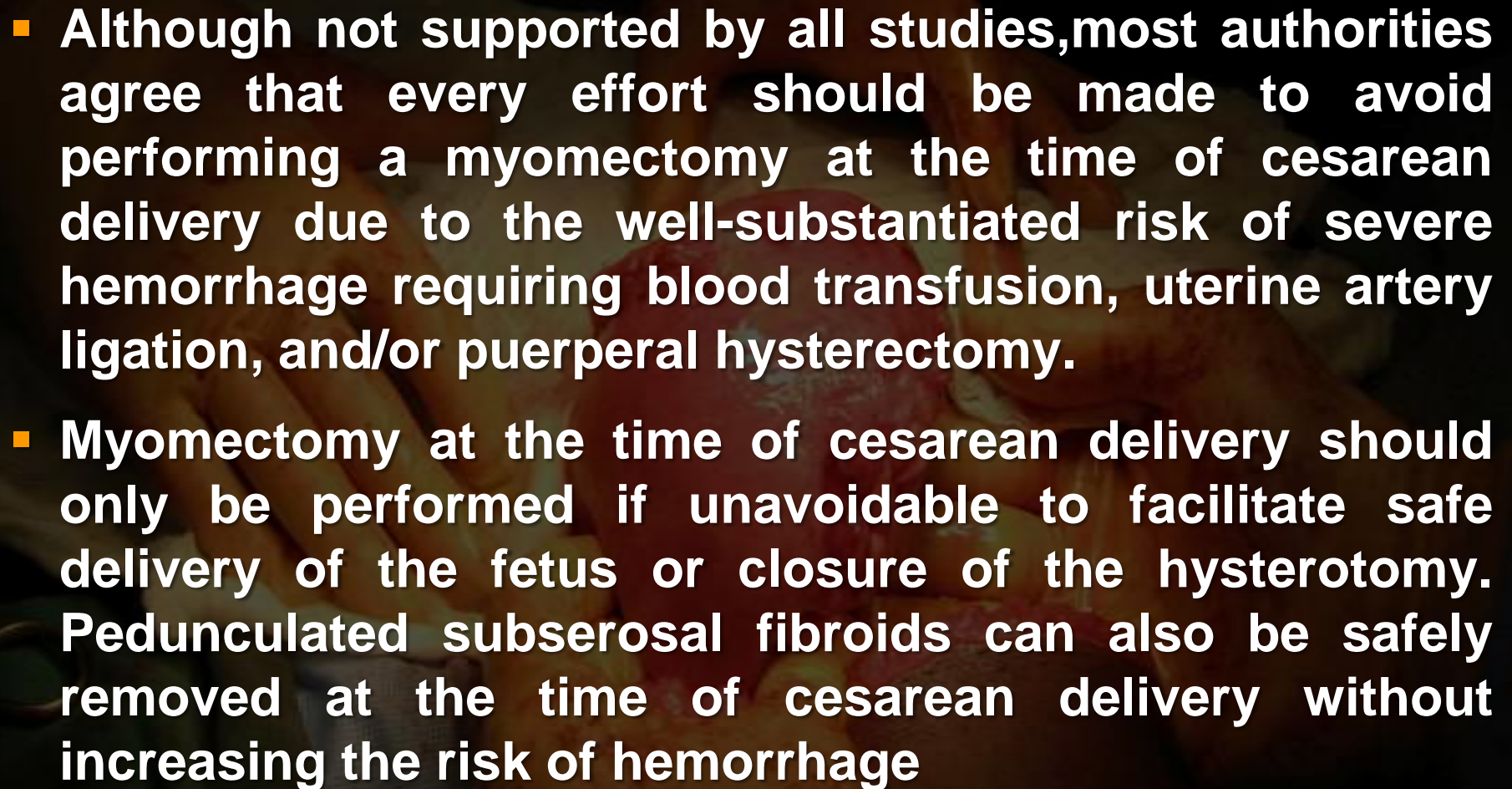
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- Although not supported by all studies, most authorities agree that every effort should be made to avoid performing a myomectomy at the time of cesarean delivery due to the well-substantiated risk of severe hemorrhage requiring blood transfusion, uterine artery ligation, and/or puerperal hysterectomy.
  - Myomectomy at the time of cesarean delivery should only be performed if unavoidable to facilitate safe delivery of the fetus or closure of the hysterotomy. Pedunculated subserosal fibroids can also be safely removed at the time of cesarean delivery without increasing the risk of hemorrhage

Table 2

## Obstetric and Neonatal Outcomes in Normal Pregnant Women and Women With/Without Antepartum Myomectomy

	Normal Pregnancies (n = 2463)	Pregnancies With Uterine Fibroids	
		With Myomectomy (n = 18)	Without Myomectomy (n = 88)
Age (y)	29 (26–40)	33 (28–40)	35 (29–40)
Nulliparous	1639 (66.5%)	16 (83.3%)	40 (45.4%)
Multiparous	824 (33.5%)	2 (16.7%)	48 (54.6%)
Gestational age at diagnosis (wk)	-	11 (8–17)	13 (6–22)
Gestational age at myomectomy (wk)	-	12 (10–19)	-
Abortion	228 (9.3%)	0	12 (13.6%)
Premature membranes rupture	134 (5.4%)	1 (5.6%)	20 (22.7%)
	61 (2.5%)	1 (5.6%)	4 (4.5%)

# Uterine artery embolization.

Bilateral uterine artery embolization (UAE) has long been performed by interventional radiologists to control postpartum hemorrhage.

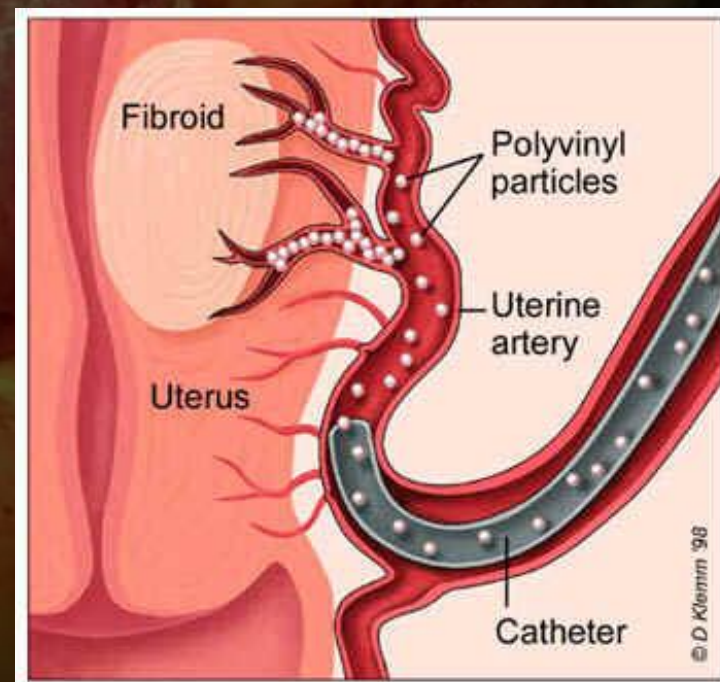
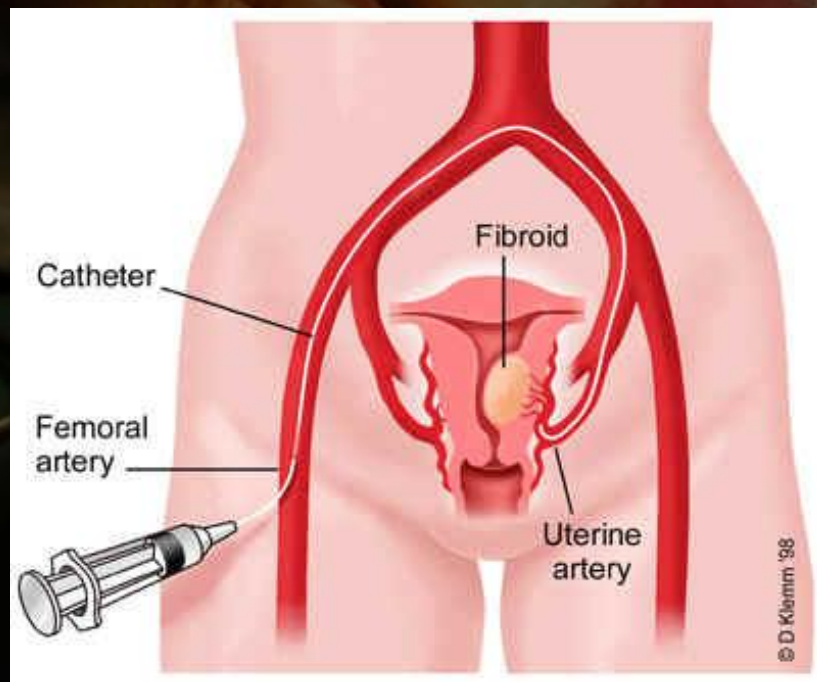
More recently, UAE has been used as an alternative procedure for treating large symptomatic fibroids in women who are not pregnant and, most importantly, **do not desire future fertility.**

A recent prospective study reported that UAE performed immediately after cesarean delivery in women with uterine fibroids may be effective in decreasing postpartum blood loss and minimizing the risk of myomectomy or hysterectomy by inducing shrinkage of the fibroids.

Although not recommended, there are several reports of successful and uneventful pregnancies after UAE for uterine fibroids.



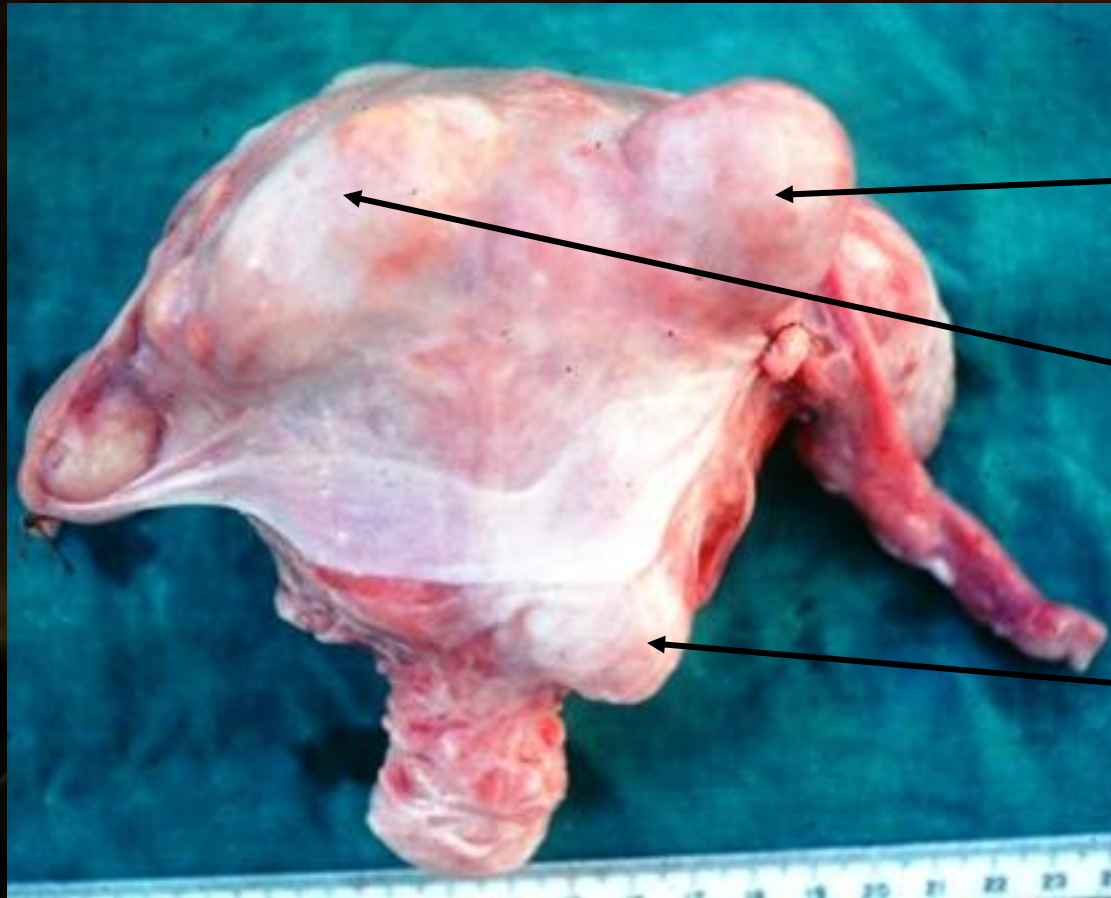
## ■ Uterine Artery Embolization (UAE)



# Conclusions

- ❑ Uterine fibroids are a very common finding in women of reproductive age. The majority of fibroids do not change their size during pregnancy, but one-third may grow in the first trimester.
- ❑ Although the data are conflicting and most women with fibroids have **uneventful pregnancies**, the weight of evidence in the literature suggests that uterine fibroids are associated with an increased rate of spontaneous miscarriage, preterm labor, placenta abruption, malpresentation, labor dystocia, cesarean delivery, and postpartum hemorrhage.
- ❑ **Pain** is the most common complication of fibroids during pregnancy. The symptoms can usually be controlled by conservative treatment, but may require definitive surgical resection in rare instances.
- ❑ Some women with a previous myomectomy may need to be delivered by **elective cesarean delivery** prior to the onset of labor, particularly if the uterine cavity was entered..
- ❑ **UAE** is an alternative procedure to operative intervention for the treatment of symptomatic fibroids, but is absolutely contraindicated in pregnancy and in women desiring future fertility.

## Case No-1



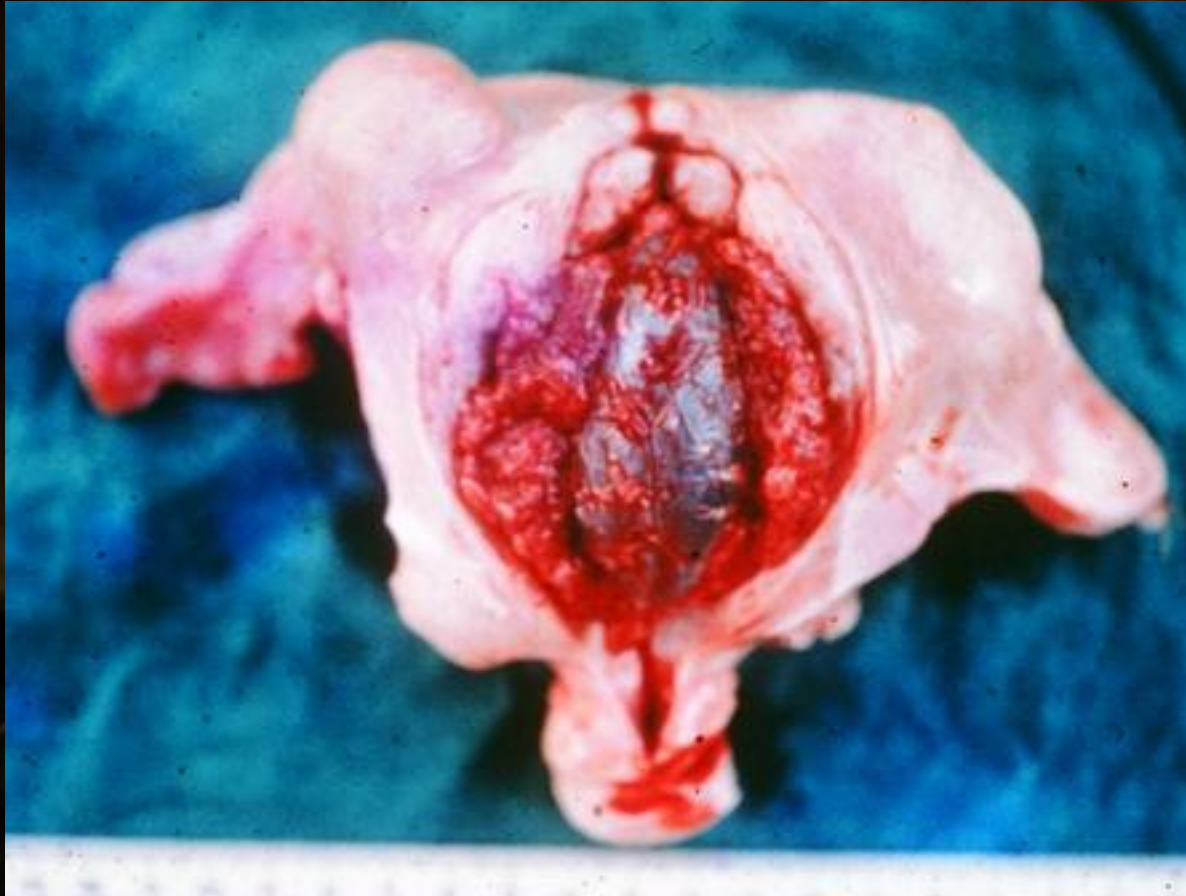
Fibroid

Fibroid

Fibroid

This was a multiparous patient with profuse periods. When she came for operation of hysterectomy, she had missed period for 2 months. In those days Ultra sonography was not available. Urine pregnancy test was positive and she was told that she is pregnant, still we wanted hysterectomy and we did it.

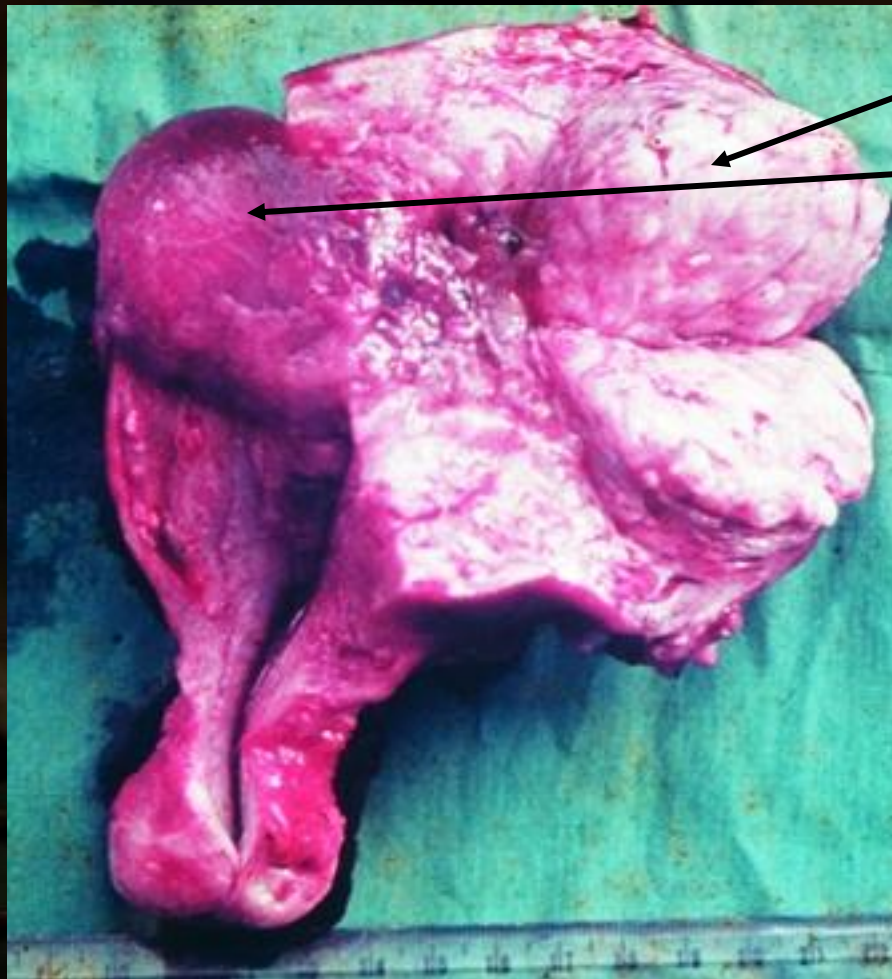
This picture is an un-cut specimen of Ut. showing 3 fibroids



The same specimen you seen now cut open in the middle. Placenta is seen cut open, and the bulging membranes of pregnancy is seen.



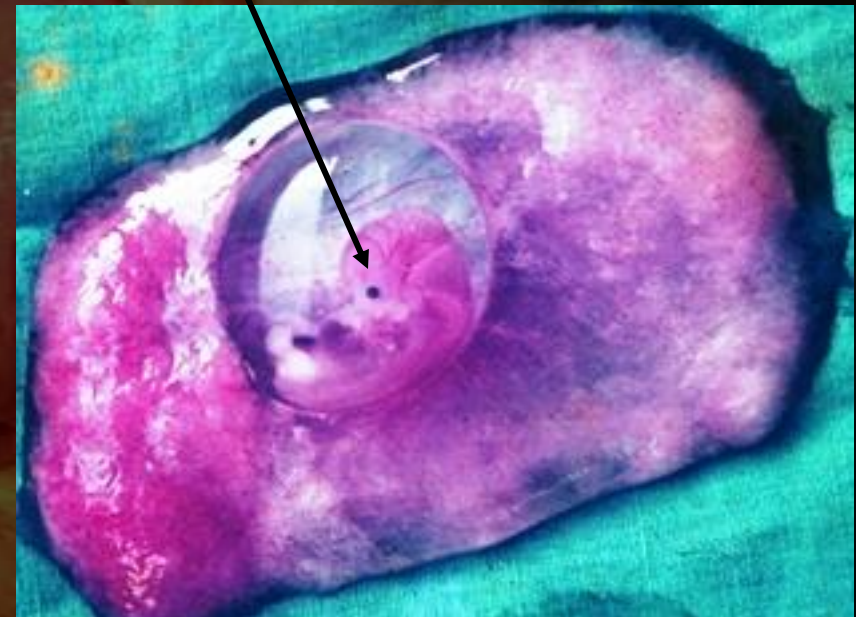
Membranes were ruptured and you see a small fetus coming out with umbilical cord, still attached to placenta. Post operative recover was uneventful. Thus this case had pregnancy in spite of multiple fibroids.



Fibroid cut surface

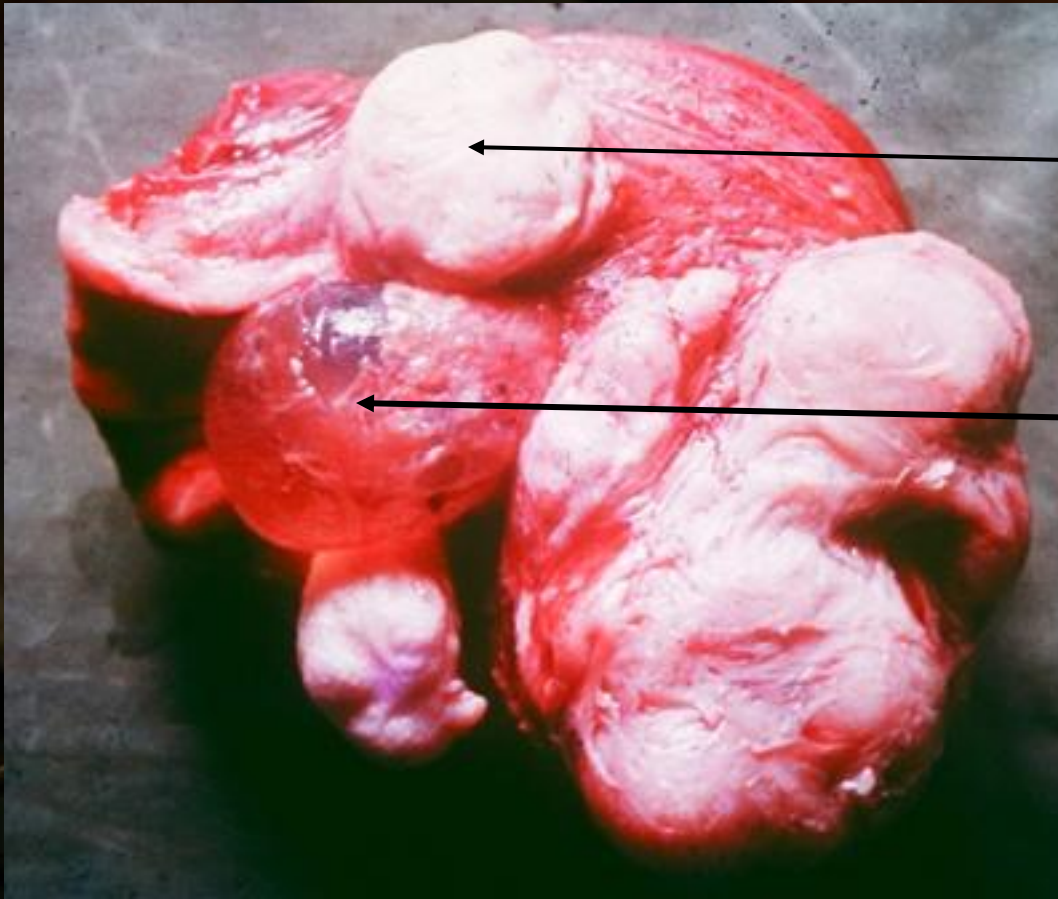
Fetal sac

A close up view of sac with  
**eye of embryo seen**



Uterus has been cut open and also the fibroid. Fibroid shows typical rolled pattern with retracted false capsule. **On bisecting uterus you see a tiny gestational sac of early pregnancy, and close up view of the sac shows, eye of the embryo.**

Case No-3



Fibroid

Glistening white gestational sac

An other case of fibroid with early pregnancy. Glistening white gestational sac is seen.  
Thus I have presented 3 case of pregnancy along with fibroids.



**THANK YOU FOR YOUR ATTENTION**