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**UTERINE MYOMA
AND ITS IMPACT ON
THE OUTCOME OF
IVF CYCLES**

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Uterine Leiomyomata

Uterine leiomyomata are found in about **25 %** of women of childbearing age.

Uterine leiomyomata are essentially **asymptomatic**.

Uterine Leiomyomata

Uterine leiomyomata are found in increasing frequency during the **third** and **fourth** decades of life, unfortunately at a time when some women may seek pregnancy either willingly or following periods of infertility.

Uterine Leiomyomata

5-10% of cases of uterine myomas are associated with infertility.

1-2.4% of cases of infertility without any obvious cause of infertility have uterine myoma.

Uterine Leiomyomata

Several recent studies have evaluated the impact of leiomyomata on the uterine environment and its impact on implantation



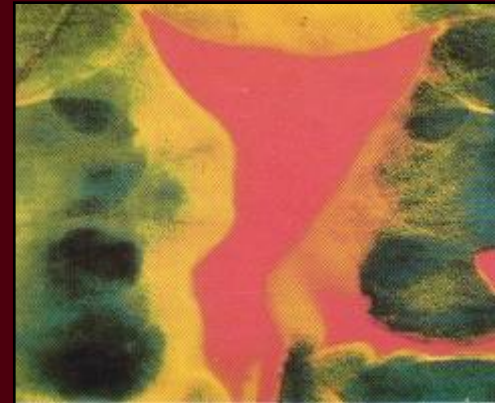
Uterine Leiomyomata

- Mechanical: alteration in muscle mechanics
- Morphological: alterations in endometrial integrity
- Vascular: alterations in uterine artery blood flow
- Biochemical: alterations in local cytokine

Gamete Transport

MECHANICALLY

Uterine myomas may cause gamete transport defects due to **cornual** obstruction.



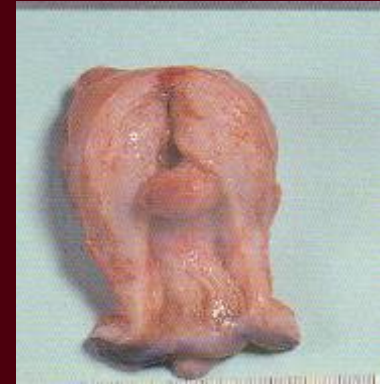
Myomas may cause uncoordinated uterine **contractility** within the inner third (*junctional zone*) of the myometrium disrupting **implantation**.

Implantation Failure

Richard et al (Hum Reprod Update 1998)

MORPHOLOGICAL

Sub-mucous myomas may cause endometrial **ulceration** with subsequent **inflammation**.



This alters the biochemical nature of the intrauterine fluid and thus results in a hostile environment for the *embryo*.

Implantation Failure

Farhi et al (Hum Reprod 1995)

VASCULAR

Sub-mucous myomas may disrupt the endometrial **blood supply**, thus affecting nidation and support of the early embryo.

Local Biochemical Factor

Ali et al (Obstet Gynaecol 2000)

BIOCHEMICALLY

Uterine myomas may be associated with decreased production of heparin-binding epidermal growth factor (*HB-EGF*) in the luteal phase of the cycle.

Pregnancy Wastage ..

Li et al (Hum Reprod 1999)

There has been reported an overall pregnancy loss of about 60% associated with uterine myomas

FIRST TRIMESTER .. 40%

SECOND TRIMESTER .. 17%

Pregnancy Wastage ..

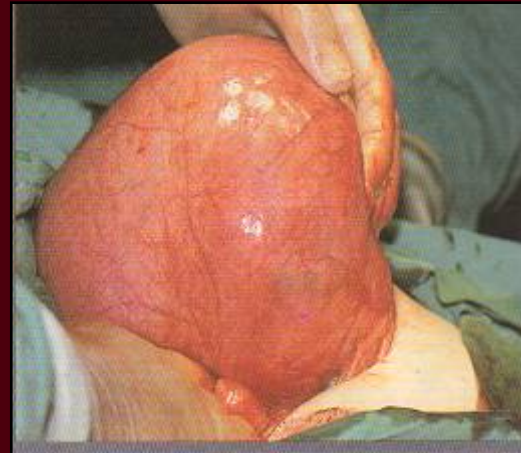
Exacoustos and Rosati (Obstet Gynaecol 1993)

This in addition to higher incidence of:

- 1- premature labour.
- 2- abnormal fetal presentation.
- 3- abnormal placentation, hemorrhage and carneous degeneration.

Pregnancy Wastage

Most of these complications, however, were mentioned in **large, multiple, mostly submucous myomas.**



You have an IVF patient

HOW WILL YOU COUNSEL YOUR PATIENT?

To build a stand that will help you counsel the patient and proceed with proper judgment, you have to consider the following **facts**:

Myomas and IVF

The anatomic location (?size) of the fibroid is highly relevant.



Myomas and IVF

Concerns related to the distortion of the uterine cavity and endometrial changes



Myomectomy .. Pros

Excision of a SUBMUCOUS myoma seem to meet a strong rationale with little controversies in infertile patients especially those with associated menorrhagia.

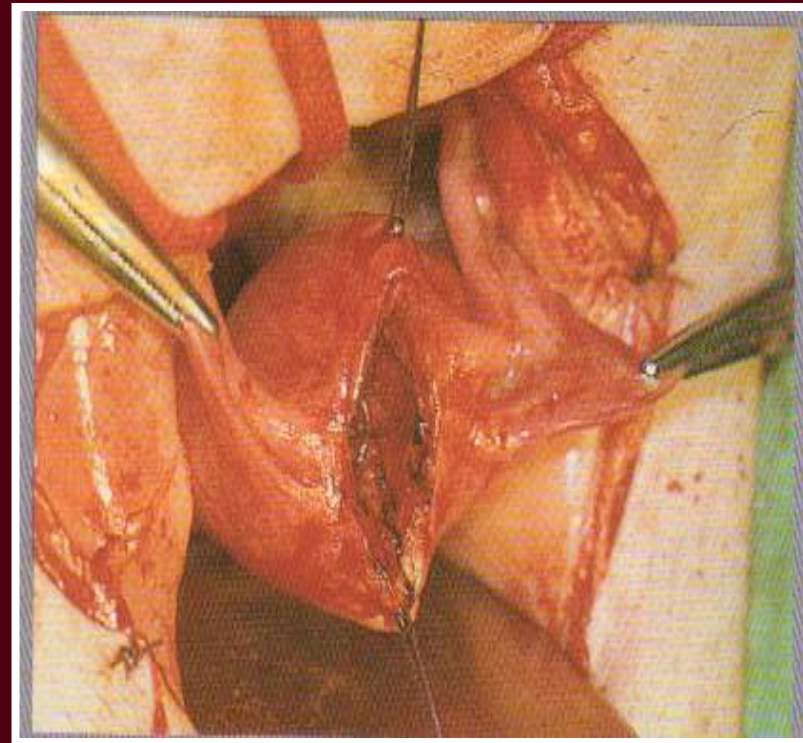


Myomectomy .. Pros

There are increasing reports on better implantation rate and higher pregnancy rates per transfer in IVF-ET programs following myomectomy.

Myomectomy .. Cons

Concerns related to the possible **vascular** or **morphologic** changes in the uterus secondary to myomectomy.



Myomectomy .. Cons

Other concerns are related to the development of:

- 1-poor uterine scar.**
- 2-uterine fistulae.**
- 3-uterine synaechia.**
- 4-recurrence.**



The Question is?

Should we *routinely* perform myomectomy for every patient before enrolling her in an IVF/ICSI cycle?

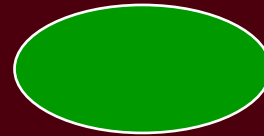
Uterine Myomata and outcome of ART

Recently published clinical case-controlled trials provide conflicting information regarding the impact of myomas on IVF-ET cycle outcome as measured by clinical pregnancy and implantation rates.

Uterine Myomata and outcome of ART

Results varied from

no effect



to a highly significant and

deleterious



impact on cycle outcomes.

Uterine Myomata and outcome of ART

Ramzy et al (Hum Reprod 1998)

*51 cases vs. 355 controls - retrospective
sm or im myomata encroaching on the cavity
were excluded in this study.*

In patients undergoing IVF, the pregnancy and implantation rates were similar in cases with **intramural** and **subserous** myomas < 7 cm in diameter as compared to control.

Uterine Myomata and outcome of ART

Surrey et al. (Fertil. Steril., 2001)

*399 patients in 4 groups (age \leq 40)
retrospective study*

only intramural myoma with normal cavities

.. live birth rates were *not affected* by the presence of **intramural** myomas in IVF patients with normal cavities (hysteroscopy).

Uterine Myomata and outcome of ART

Aboulghar M et al. (MEFS, 2004)

*184 patients in 4 groups
prospective controlled study
only intramural myoma with normal cavities
>or < 5mm away from the lining by TVS*

.. The distance between the im
myoma and endometrial lining did
not affect the pregnancy rate in
IVF-ET cycles.

Uterine Myomata and outcome of ART

Oliveira et al. (Fertil. Steril., 2004)

*245 cases vs. 245 controls—retrospective study
ss and im myomas not encroaching on cavity*

Patients having **subserosal** or **intramural**
leiomyomas of <4 cm have IVF-ICSI
outcomes comparable to those of
patients without such leiomyomas.

Uterine Myomata and outcome of ART

Jun et al. (J. Assist Reprod. & Genet, 2001)

141 cases vs. 406 controls

All types and sizes collective

Location of fibroids (im vs. sm/ss)
and their size had no significant
effect on pregnancy outcome,
abortion rate or ectopic pregnancy
rate.

Uterine Myomata and outcome of ART

Oliveira et al. (Fertil. Steril., 2004)

Patients with intramural fibroids ≥ 4.0 cm had *lower* pregnancy rates than those with intramural fibroids < 4.0 cm.

L

Uterine Myomata and outcome of ART

Stovall et al. (Hum Reprod 1998)

LOCATION: im & ss as one group vs. sm

Pregnancy and implantation rates were lower in the groups of patients with uterine fibroids.

More significant in cases with **submucous myomas.**

Uterine Myomata and outcome of ART

Eldar-Geva et al. (Fertil Steril 1998)

106 cases vs. 318 controls

all types of myomas included – retrospective study

Implantation and pregnancy rates were significantly lower in the groups of patients with **submucosal** and **intramural** fibroids, even when there was no deformation of the uterine cavity as compared to **subserous** or no fibroids.

L

Uterine Myomata and outcome of ART

Hart et al. (Hum Reprod. 2001)

*112 cases vs. 322 controls-prospective
only intramural myomas*

women with intramural fibroids of
< 5 cm in size had a significantly
lower pregnancy, implantation and
ongoing pregnancy rates as
compared to controls.

Uterine Myomata and outcome of ART

Surrey (Review-Curr Opin Obstet Gynecol. 2003)

Submucosal and intramural leiomyomata which distort the endometrial cavity negatively affect IVF-ET cycle outcome

However, the impact and possible mechanism of action of **intramural** lesions, which do not alter the endometrial cavity, remain controversial

Uterine Myomata and outcome of ART

Benecke et al. (Review-Gynecol Obstet Invest. 2005)

.. there was a significant negative impact on implantation rate and the delivery rate per transfer cycle in the intramural myomata groups versus the control groups.

CONCLUSION

Sub-mucous and intramural leiomyomata, which impinge upon the uterine cavity, negatively affect IVF-ET cycle outcome.

Myomectomy should be beneficial in these circumstances.

CONCLUSION

As regards intramural leiomyomata, which do not distort the cavity, the issue of routine myomectomy prior to IVF-ET cycles still remains controversial, due to differing outcomes from currently available literature.

CONCLUSION

But we have to consider here 2 issues:

- The psychological impact of the surgery and the delay of an IVF cycle vs. the failure of subsequent cycles.
- The financial burden of spending the collected budget on myomectomy or an IVF trial.

THANK YOU



ABDEL-MAGUID RAMZY