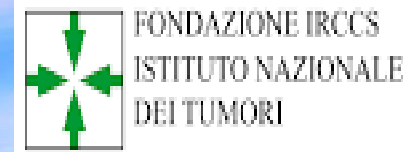


Il punto di vista del chirurgo nella patologia mesenchimale uterina

Mauro Signorelli

L'ecografia nella patologia ginecologica
della donna in età fertile
IV MUGO COURSE – Milano 27-28 Maggio 2022



Conflict of interest

Nothing to disclose

Epidemiologia

Tumore solido **benigno** più comune del tratto genitale femminile, in particolare del visceri uterino, costituito dalla proliferazione di cellule muscolari lisce e tessuto connettivo **ad eziologia sconosciuta**

- Fattori cromosomici
- **Influenza ormonale (Er e PgR)**
- Il rischio è 2 – 3 volte maggiore nelle donne di colore, può aumentare con IMC, può aumentare con dieta ricca di grassi, può diminuire nelle fumatrici

(Schwartz 2001)

INCIDENZA: Tutte le età: 160 /100.000

- 15 - 24 aa. 17 / 100.000
- **25 - 44 aa. 285 / 100.000**
- 45 - 49 aa. 184 / 100.000

Incidenza cumulativa nelle donne in età fertile : 70-80 %

(ASRM 2017)

Quadro clinico e sintomatologia

Numero

- Mioma singolo
- Miomi multipli
- Malattia miomatosa (> 3 miomi)

Sede anatomica

- SM-IM-SS
- G0-G7

Sintomatologia

Dipende dalla localizzazione e dal volume

- **Nessuna (sino al 70%)**
- Senso di peso, tensione, dolore, pollachiuria
- Sanguinamento uterino anomalo (30%)
- Infertilità/subfertilità/problematiche gravidanza

Il punto di vista del chirurgo nella patologia mesenchimale uterina in età fertile

Trattamento

Quale trattamento

Fattori decisionali

Rischio oncologico



E' sempre necessario trattare una paziente con mioma uterino ?

- No, la scelta è in funzione della presenza e dell' intensita' dei sintomi
- Il trattamento deve essere modulato sulla base di:
 - età
 - tipologia ed entità sintomi
 - desiderio di mantenere o “migliorare” la fertilità
 - *dal desiderio della donna ? O del medico ?*

Quale terapia nella paziente con mioma uterino sintomatico?

Medical management

- NSAIDs ^a
- Tranexamic acid ^a
- Combined contraceptives ^b
- Progestins ^b
- SPRMs and anti-progestins ^c
- GnRH agonists and antagonists ^c
- Iron supplementation ^d
- Als

Interventional radiology

- UAE ^e
- MRgFUS ^f

Surgical management

- Myomectomy ^f
- Hysterectomy ^e
 - Hysteroscopic
 - Laparoscopic
 - Robotic
 - Laparotomy
- RFVTA ^f
- Endometrial ablation ^g

Chirurgia: Isteroscopia



Indicazione di scelta per miomi G0-1 e parte dei G2
(reintervento)

NON privo di rischi: pianificazione per immagini adeguata !!

- Perforazioni uterine
- Lesioni intestinali o vescicali dirette o da danno termico indiretto
- Lesioni vascolari
- Intravasazione
- Decesso

MIOMECTOMIA LPS/LPT –tecnica chirurgica

- Identificazione del mioma
- Incisione del miometrio
- Riconoscimento del clivaggio
(terapia farmacologica pre chirurgia)
- Lussazione del mioma
- Emostasi
- Sutura
 - ✦ Più strati
 - ✦ Non lasciare spazi
 - ✦ Accostamento perimetrio
 - ✦ Filo intrecciato – monofilamento



Gynecology / GYN / EV2-10A / FPS41 / 7.0cm / MI0.90 / TIs0.2 Tib0.2 / 25-05-2022 13:36:24
[2D] Frq Pen. / GN 50 / DR 50 / FA 9 / P90



HERAW10



Gynecology / GYN / EV2-10A / FPS7 / 7.0cm / MI1.1 / TIs0.5 Tib0.5 / 25-05-2022 13:36:24
[2D] Frq Pen. / GN 50 / DR 50 / FA 9 / P90
[PD] Frq Gen. / GN 50 / 0.56kHz / P90

HERAW10



MIOMECTOMIA LPS - limiti

Italian multicenter study on complications of laparoscopic myomectomy

Ornella Sizzi, MD, Alfonso Rossetti, MD, Mario Malzoni, MD, Luca Minelli, MD, Francesco La Grotta, MD, Liberato Soranna, MD, Simona Panunzi, MSc, Rocco Spagnolo, MD, Fabio Imperato, MD, Stefano Landi, MD, Andrea Fiaccaemento, MD, and Emilio Stola, MD

Journal of Minimally Invasive Gynecology (2007) 14, 453–462

- 2050 miomectomie
- 48% multiple
- Dimensione media 6.4 cm
- 11% complicanze (2 % severe
9 % minori)

- La probabilità di complicanze cresce in maniera significativa con :

- N° dei miomi

(>3 miomi OR: 4,46 p< 0.001)

- Localizzazione

(IM OR: 1,48 p< 0.05)

(Infralegamentario OR: 2,36 p< 0.01)

- Dimensione

(>5 cm OR: 6,88 p< 0.001 °)

(° complicanze maggiori)

MIOMECTOMIA LPS

- Nezhat (1999) miomectomia di mioma di 15 cm
- Sinha (2000) miomectomie di miomi da 9 a 21 cm con un peso medio di 700 g
- Reich (2000) miomectomia di 1300 g
- Chapron (1996) non superare il diametro di 8 cm e il numero di 2

LIMITE ?

**QUANDO SI PERDE IL VANTAGGIO DELL' APPROCCIO
MINIINVASIVO**

Embolizzazione uterina

Embolizzazione dei miomi: blocco della vascolarizzazione arteriosa dei fibromi con conseguente riduzione del loro volume

Riduzione 60% volume- riduzione 80-90% sintomi

Pro

Indicata in pazienti con fattori di rischio per la chirurgia

In sala angiografica con paziente sedata

Contro

In sala angiografica con paziente sedata

Complicanza: sindrome dolorosa (quasi la totalità delle pz trattate) – Complicazioni: infezioni/setticemia, POF, infertilità

Pochi i centri specializzati

High Intensity Focused Ultrasound



Radiologia Interventistica

Ablazione termica

Onde ad alta intensità convergenti sul mioma con aumento della temperatura e **necrosi coagulativa**

Comparison of (Cost-)Effectiveness of Magnetic Resonance Image-Guided High-Intensity-Focused Ultrasound With Standard (Minimally) Invasive Fibroid Treatments: Protocol for a Multicenter Randomized Controlled Trial (MYCHOICE)

240 pts – trial Olanda – 2020-2024

QOL- costi, efficacia trattamento a lungo termine

Miomi e fertilità

- I fibromi diminuiscono la fertilità ?
- Dimensioni ? Sede?
- La rimozione dei miomi aumenta la fertilità ?

Miomi e PMA

Human Reproduction, Vol.25, No.2 pp. 418-429, 2010

Advanced Access publication on November 12, 2009 doi:10.1093/humrep/dgp396

human
reproduction

META-ANALYSIS *Infertility*

The effect of intramural fibroids without uterine cavity involvement on the outcome of IVF treatment: a systematic review and meta-analysis

Sesh Kamal Sunkara¹, Mohammed Khairy, Tarek El-Toukhy, Yacoub Khalaf, and Arri Coomarasamy

Assisted Conception Unit, Guy's and St Thomas' Hospital NHS Foundation Trust, 11th Floor, Tower Wing Guy's Hospital Great Maze Pond, London SE1 9RT, UK

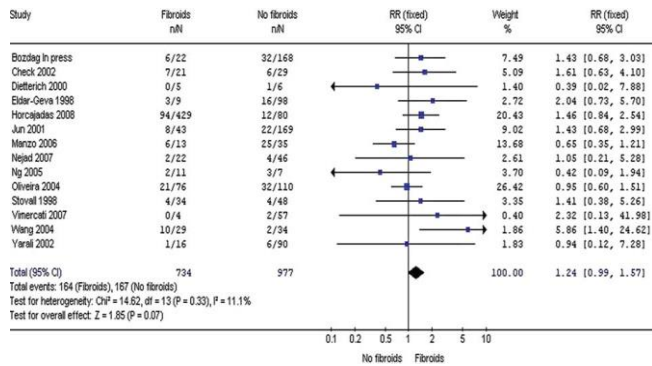


Figure 9 Forest plot of studies of non-cavity-distorting intramural fibroids versus no fibroids in women undergoing IVF treatment for outcome of miscarriage rates.

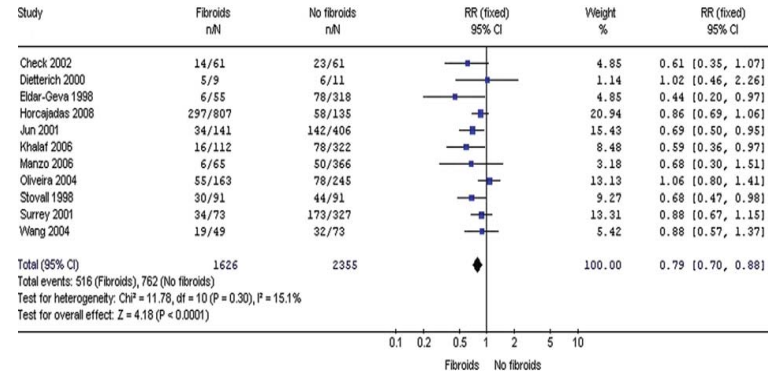


Figure 3 Forest plot of studies of non-cavity-distorting intramural fibroids versus no fibroids in women undergoing IVF treatment for outcome of live birth rates.

**Riduzione statisticamente significativa del 21% del LBR
e significativo aumento abortività del 24%**

Miomie PMA

Human Reproduction Vol.21, No.10 pp. 2640–2644, 2006
Advance Access publication June 21, 2006.

doi:10.1093/humrep/del218

The effect of small intramural uterine fibroids on the cumulative outcome of assisted conception

Y.Khalaf^{1,2,5}, C.Ross², T.El-Toukhy¹, R.Hart³, P.Seed^{1,2,4} and P.Braude^{1,2}

¹Assisted Conception Unit, Guy's and St. Thomas' Hospital NHS Foundation Trust, ²Department of Women's Health, King's College London, UK, ³Department of Obstetrics and Gynecology, School of Women's and Infants' Health, University of Western Australia and ⁴Division of Reproductive Health, Endocrinology and Development, King's College London, UK

95% CI = 0.32–0.87, P = 0.013) in the study group. After adjusting for confounding variables, the presence of fibroids was found to significantly reduce the ongoing pregnancy rate at each cycle of IVF/ICSI by 40% (HR = 0.60, 95% CI = 0.36–0.99, P = 0.048) and the live birth rate at each cycle by 45% (HR = 0.55, 95% CI = 0.32–0.95, P = 0.03). CONCLUSION: Small intramural fibroids are associated with a significant reduction in the cumulative pregnancy, ongoing pregnancy and live birth rates after three IVF/ICSI cycles.

Miomi e PMA- The IVF Model

Edgardo Somigliana^{1,2,*}, Marco Reschini², Valentina Bonanni³,
Andrea Busnelli^{4,5}, Letizia Li Piani^{1,2}, Paolo Vercellini^{1,2}

	Ongoing Pregnancy rate	Delivery rate	Authors
Submucosal fibroids	0,36 (95% CI 0,18 to 0,74)	0,32 (95% CI 0,12 to 0,85)	Pritts et al 2009
Subserosal fibroids	1,2 (95% CI 0,8 to 1,7)	1,0 (95% CI 0,7 to 1,5)	Somigliana et al 2007
Intramural fibroids	0,68 (95% CI 0,56 to 0,83)	0,56 (95% CI 0,46 to 0,69)	Rikharaj et al 2020

Chirurgia Miomi e PMA

TABLE 6
Effect of myomectomy on fertility **submucosal fibroids.**

Outcome	Number of studies/ substudies	Relative risk	95% confidence interval	Significance
A. Controls: fibroids in situ (no myomectomy)				
Clinical pregnancy rate	2	2.034	0.81-3.826	P=.028
Implantation rate	0	—	—	—
Ongoing pregnancy/live birth rate	1	2.654	0.920-7.658	Not significant
Spontaneous abortion rate	1	0.771	0.359-1.658	Not significant
Preterm delivery rate	0	—	—	—
B. Controls: infertile women with no fibroids				
Clinical pregnancy rate	2	1.545	0.998-2.391	Not significant
Implantation rate	2	1.116	0.906-1.373	Not significant
Ongoing pregnancy/live birth rate	3	1.128	0.959-1.326	Not significant
Spontaneous abortion rate	2	1.241	0.475-3.242	Not significant
Preterm delivery rate	0	—	—	—

Pritts. Fibroids and infertility. Fertil Steril 2009.

La rimozione di miomi SM migliora la prognosi riproduttiva rendendola equiparabile a quella delle pz infertili SENZA MIOMI o pazienti non infertili con miomi in sede

TABLE 7
Effect of myomectomy on fertility **intramural fibroids** fibroids in situ controls).

Outcome	Number of studies/ substudies	Relative risk	95% confidence interval	Significance
Clinical pregnancy rate	2	3.765	0.470-30.136	Not significant
Implantation rate	0	—	—	—
Ongoing pregnancy/live birth rate	1	1.671	0.750-3.723	Not significant
Spontaneous abortion rate	1	0.758	0.296-1.943	Not significant
Preterm delivery rate	0	—	—	—

Pritts. Fibroids and infertility. Fertil Steril 2009.

L'asportazione di miomi IM non sembra migliorare la prognosi riproduttiva; (Pochi studi e controlli "limitati")

Myomas and Adenomyosis: Impact on Reproductive Outcome

Nikos F. Vlahos,¹ Theodoros D. Theodoridis,² and George A. Partsinevelos³

¹2nd Department of Obstetrics and Gynecology, Aretaieion Hospital, National and Kapodistrian University of Athens, School of Medicine, 76 Vasilissis Sofias Av., 11528 Athens, Greece

²1st Department of Obstetrics and Gynecology, Papageorgiou General Hospital, Aristotle University of Thessaloniki, Faculty of Health Sciences, School of Medicine, Ring Road, Municipality of Pavlos Melas, Area of N. Efkarpia, 56403 Thessaloniki, Greece

³Assisted Reproduction-IVF Unit, MITERA Hospital, 6 Erithrou Stavrou Str., Marousi, 15123 Athens, Greece

Correspondence should be addressed to George A. Partsinevelos; partsiobgyn@yahoo.com

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Academic Editor: Vasilis Tanos

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Among uterine structural abnormalities, myomas and adenomyosis represent two distinct, though frequently coexistent entities, with a remarkable prevalence in women of reproductive age. Various mechanisms have been proposed to explain the impact of each of them on reproductive outcome. In respect to myomas, current evidence implies that submucosal ones have an adverse effect on conception and early pregnancy. A similar effect yet is not quite clear and has been suggested for intramural myomas. Still, it seems reasonable that intramural myomas greater than 4 cm in diameter may negatively impair reproductive outcome. On the contrary, subserosal myomas do not seem to have a significant impact, if any, on reproduction. The presence of submucosal and/or large intramural myomas has also been linked to adverse pregnancy outcomes. In particular increased risk for miscarriage, fetal malpresentation, placenta previa, preterm birth, placenta abruption, postpartum hemorrhage, and cesarean section has been reported. With regard to adenomyosis, besides the tentative coexistence of adenomyosis and infertility, to date a causal relationship among these conditions has not been fully confirmed. Preterm birth and preterm premature rupture of membranes, uterine rupture, postpartum hemorrhage due to uterine atony, and ectopic pregnancy have all been reported in association with adenomyosis. Further research on the impact of adenomyosis on reproductive outcome is welcome.

MIOMI
IM>4 cm



Fibroids and natural fertility: a systematic review and meta-analysis

Edgardo Somigliana^{1,2,*}, Marco Reschini², Valentina Bonanni³,
Andrea Busnelli^{4,5}, Letizia Li Piani^{1,2}, Paolo Vercellini^{1,2}

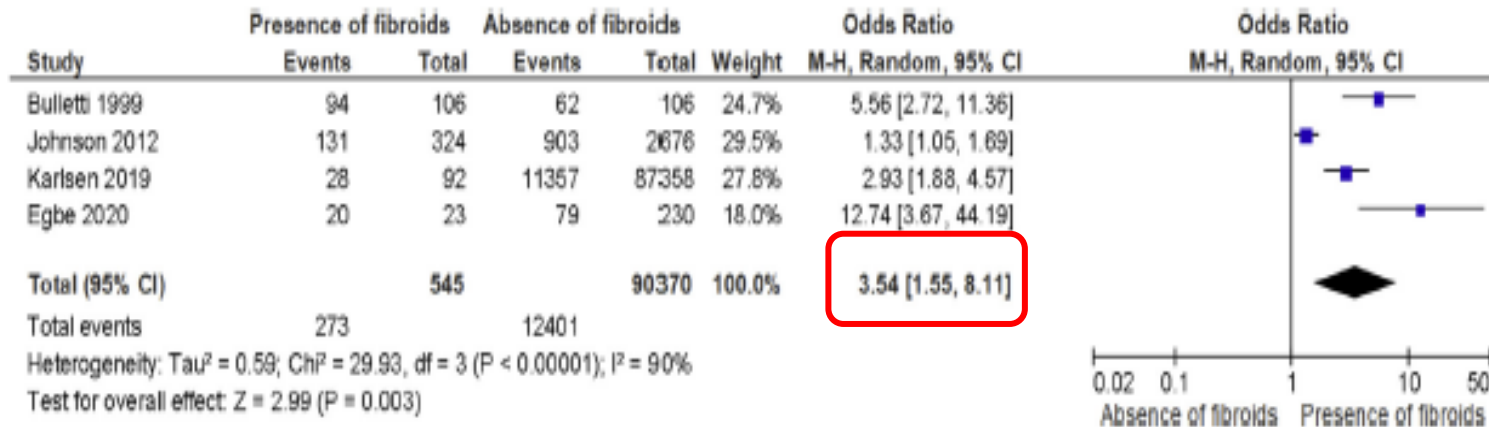


FIGURE 3 Meta-analysis of the four studies in which women with the concomitant presence of fibroids and infertility were recruited (Bulletti *et al.*, 1999; Johnson *et al.*, 2012; Karlsen *et al.*, 2020; Egbe *et al.*, 2020).

Studi epidemiologici **suggeriscono ma non dimostrano** l'impatto dei miomi sulla fertilità naturale

Il **modello IVF non** può essere considerato **completamente soddisfacente** nel valutare l'impatto dei miomi sulla fertilità naturale

Miomi e fertilità naturale

- Impedimento meccanico
- Transito tubarico
- Alterazioni contrattilità uterina

Interferenza migrazione spermatozoi

Interferenza trasporto embrione

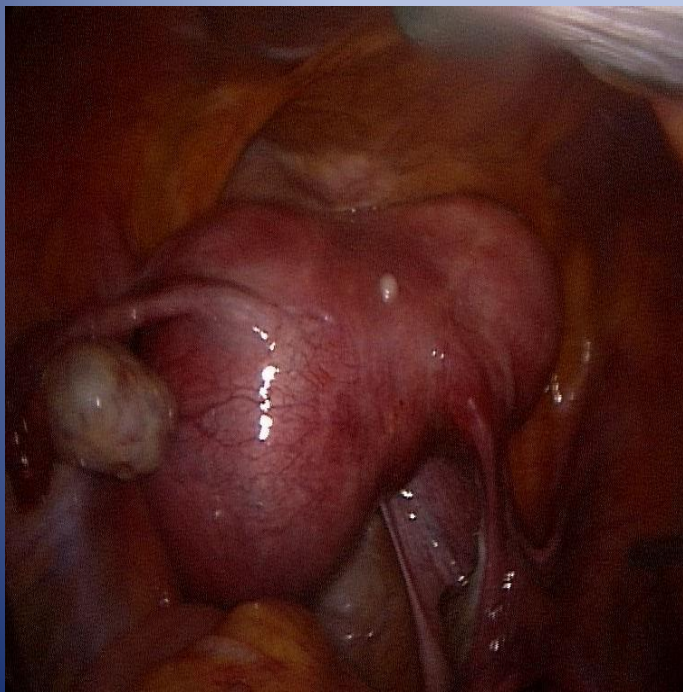
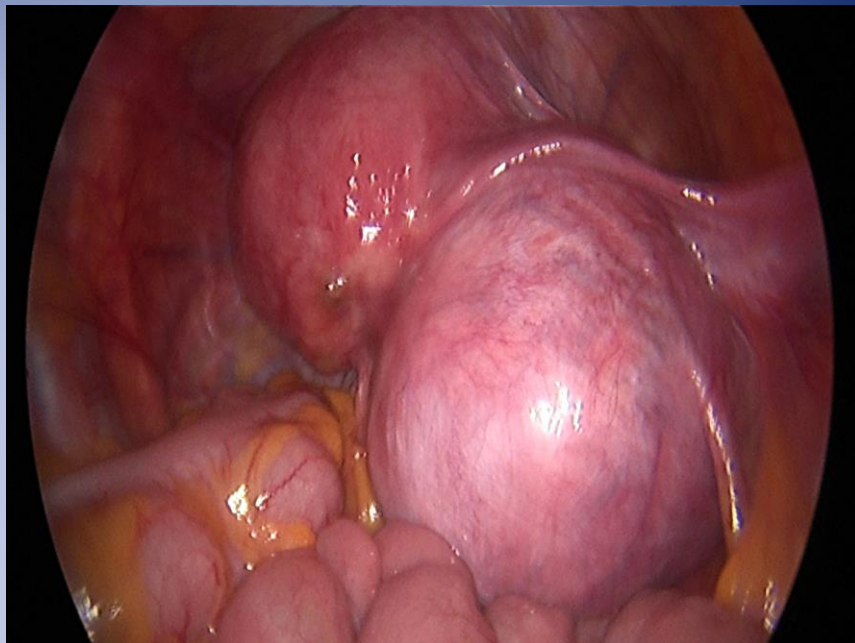
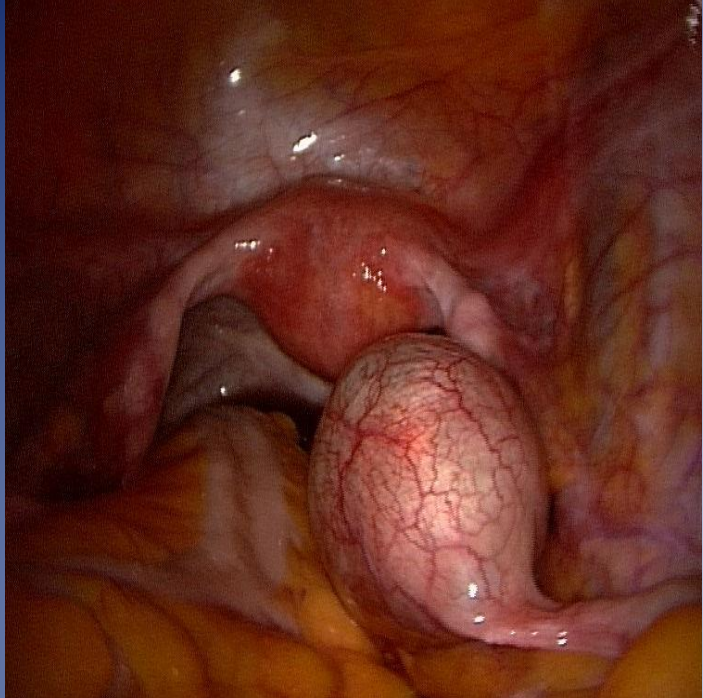
Interferenza nell' impianto embrione

(Hasan 1990, horne et al 2007; Zepiridis et al 2016)

(Verkauf 1992, Richards 1998, Ng e HO 2002, Yoshino et al 2010)

- Tasso di gravidanza e impianto in relazione alla **posizione e della dimensione del mioma**

(Ubaldi et al 1995;Oliveira 2004;Rackow et al 2005, Ikhená et al 2018; Munro et al 2019)



Fibroids and natural fertility: a systematic review and meta-analysis

Edgardo Somigliana^{1,2,*}, Marco Reschini², Valentina Bonanni³,
Andrea Busnelli^{4,5}, Letizia Li Piani^{1,2}, Paolo Vercellini^{1,2}

TABLE 1 MAIN SOURCES OF CONFOUNDERS IN STUDIES INVESTIGATING THE RELATIONSHIP BETWEEN FIBROIDS AND INFERTILITY

Issue	Citations
Parity displays a strong protective effect on the development of fibroids.	<i>Wise and Laughlin-Tommaso, 2016; Stewart et al., 2018.</i>
Fibroids increase with a woman's age.	<i>Wise and Laughlin-Tommaso, 2016; Stewart et al., 2018.</i>
Infertility increases with a woman's age.	<i>Schmidt et al., 2012; ESHRE Capri Workshop Group, 2017.</i>
Fibroids are associated with clinical conditions causing infertility such as endometriosis.	<i>Hemmings et al., 2004; Uimari et al., 2011; Capezzuoli et al., 2020.</i>
Fibroids are heterogeneous and different type of lesions can affect fertility differently.	<i>Munro et al., 2011; Stewart et al., 2016.</i>
A minority of fibroids cause pain symptoms and cycle disturbances. Most fibroids cannot be detected without the use of imaging techniques.	<i>Lumsden et al., 2015; Stewart et al., 2016.</i>
Natural history of the fibroids is long-lasting and unpredictable.	<i>Mavrelou et al., 2011; Armbrust et al., 2018.</i>

Correlazione non è causazione

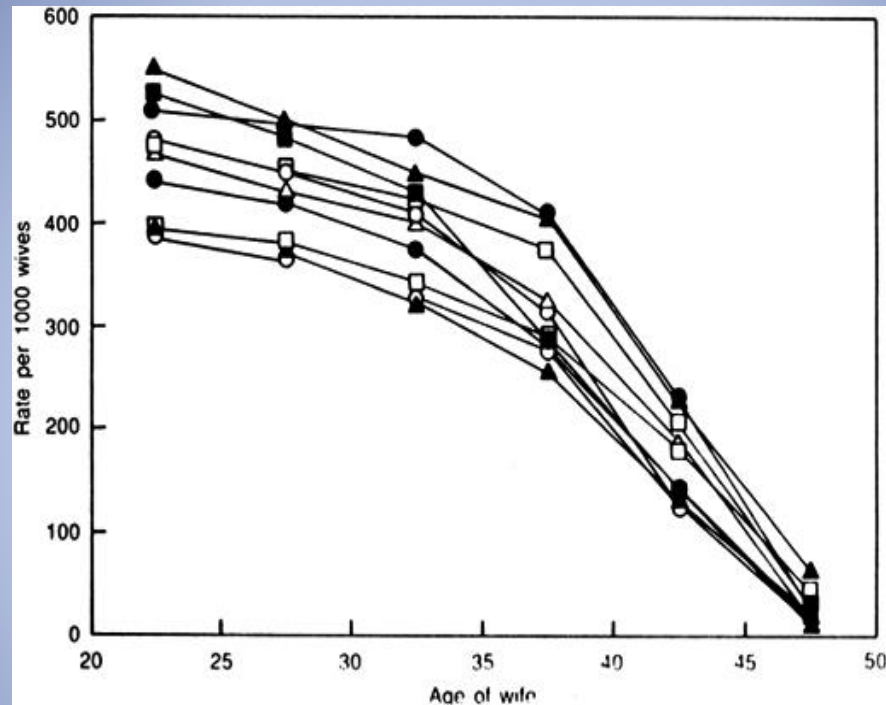
post hoc, ergo propter hoc

Miomi, età, riserva ovarica, endometriosi sono covariate associate

(Mills et al 2011; Giuliani 2020)

Miomi e fertilità naturale

Parti per
1000
donne



Età della donna

Gravidanze dopo Miomectomia ISC – LPS – LPT

ISC 16.7 - 76.9 % (55-60%)

LPT 9.6 - 75 % (55-60%)

Paolo Vercellini¹, Silvia Maddalena, Olga De Giorgi,
Giorgio Aimi and Pier Giorgio Crosignani

Clinica Ostetrica e Ginecologica 'Luigi Mangiagalli', Università di
Milano, Via Commenda, 12, 20122 Milano, Italy

¹To whom correspondence should be addressed

Risultati riproduttivi: uno studio randomizzato controllato e uno caso controllo

Studio	N. gravidanze	Tasso di gravidanza	Aborti spontanei	Tasso di nati vivi	Tasso di parti cesarei	Rottura uterina
Seracchioli et al. (2000) (RCT)	30/66 laparoscopia	54%	20%	77%	65%	0
	33/65 addominale	56%	12%	88%	78%	0
Bullelli et al. (1999) (caso controllo)	44/106 laparoscopia	42%	7%	93%	-	0
	12/106 (no trattamento)	11%	45%	55%	-	0
	27/106 (infertilità inspiegata)	25%	75%	93%	-	0

Removal of myomas in asymptomatic patients to improve fertility and/or reduce miscarriage rate: a guideline

Practice Committee of the American Society for Reproductive Medicine
The American Society for Reproductive Medicine, Birmingham, Alabama

CONCLUSIONS

Fertility and Sterility® Vol. 108, No. 3, September 2017 0015-0282/\$36.00

- There is insufficient evidence to conclude that myomas reduce the likelihood of achieving pregnancy with or without fertility treatment. (Grade C)
- There is insufficient evidence to determine that a specific myoma size, number, or location (excluding submucosal myomas or intramural myomas impacting the endometrial cavity contour) is associated with a reduced likelihood of achieving pregnancy or an increased risk of early pregnancy loss. (Grade C)
- There is insufficient evidence that removal of subserosal fibroids improves fertility. (Grade C)
- There is fair evidence that myomectomy does not impair reproductive outcomes (clinical pregnancy rates, live-birth rates) following ART. (Grade B)
- There is insufficient evidence that myomectomy (laparoscopic or open) reduces miscarriage rates. (Grade C)

- There is fair evidence that hysteroscopic myomectomy for submucosal myomas improves clinical pregnancy rates. (Grade B)
- There is insufficient evidence to conclude that hysteroscopic myomectomy reduces the likelihood of early pregnancy loss in women with infertility and a submucous fibroid. (Grade C)

RECOMMENDATIONS

- In asymptomatic women with cavity-distorting myomas (intramural with a submucosal component or submucosal), myomectomy (open or laparoscopic or hysteroscopic) may be considered to improve pregnancy rates.
- Myomectomy is generally not advised to improve pregnancy outcomes in asymptomatic infertile women with non-cavity-distorting myomas. However, myomectomy may be reasonable in some circumstances, including but not limited to severe distortion of the pelvic architecture complicating access to the ovaries for oocyte retrieval.

Miomi e Complicanze ostetriche

Aumento globale della patologia ostetrica

Malposizione fetale - TC e distacchi di placenta

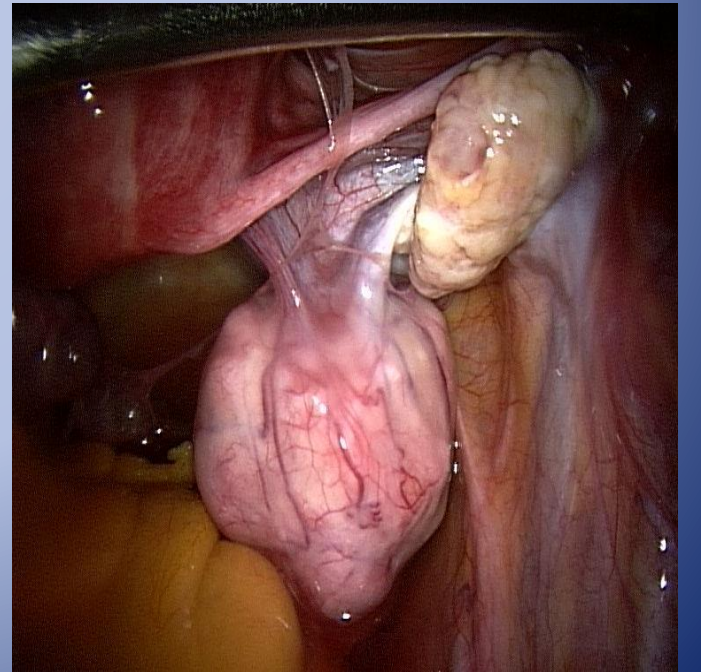
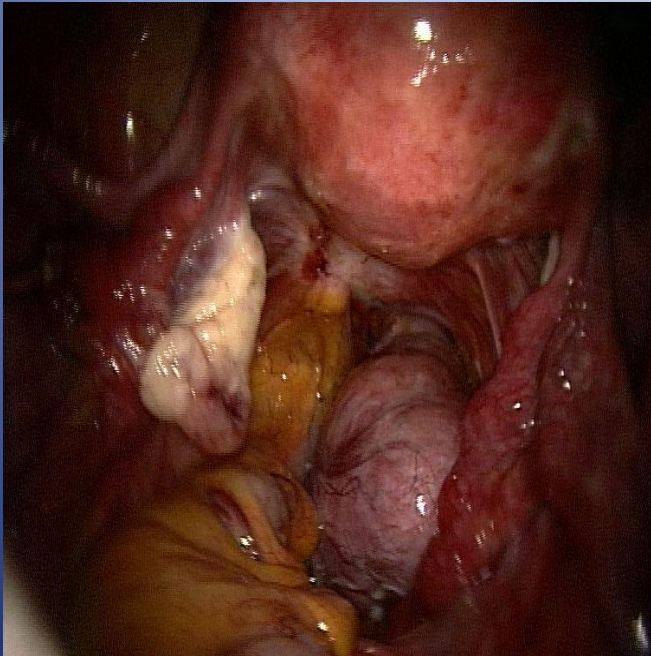
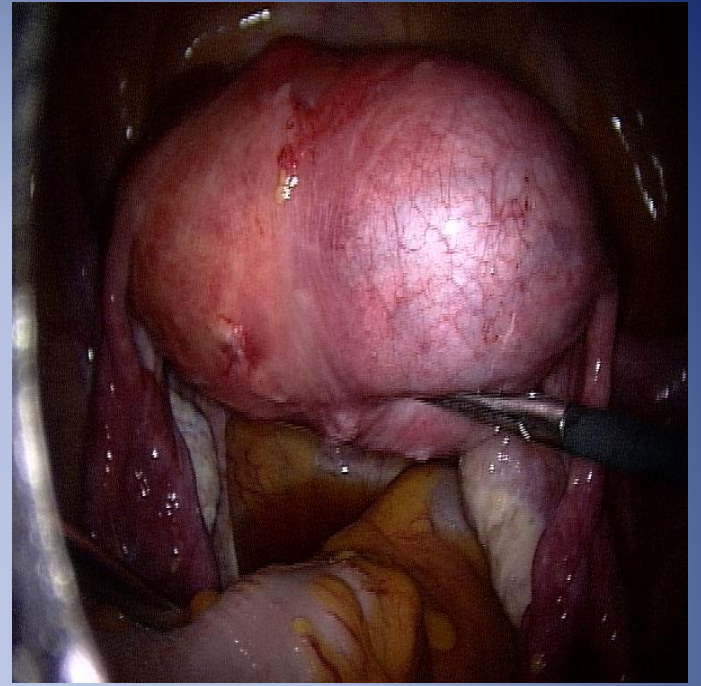
Emorragia/infezione post partum

Dolore / torsione

Table 4: Selected controlled cohort studies on the incidence of obstetric complications in pregnant women with fibroids

Study	Rice <i>et al.</i> (1989)	Exacoustos and Rosati (1993)	Vergani <i>et al.</i> (1994)	Coronado <i>et al.</i> (2000)	Sheiner <i>et al.</i> (2004)	Qidway <i>et al.</i> (2006)
Number of cases	93	492	183	2065	690	401
Preterm delivery	4.0 (2.4–6.7)	1.0 (0.8–1.4)	0.9 (0.5–1.5)	1.5 (1.2–1.9)	1.4 (1.1–1.7)	1.5 (1.1–2.0)
PROM		1.0 (0.7–1.4)	0.5 (0.2–1.4)	1.8 (1.2–2.7)	1.8 (1.4–2.4)	1.1 (0.7–1.8)
IUGR	0.8 (0.2–3.2)	1.3 (1.0–1.7)	0.7 (0.3–1.6)	2.0 (1.5–2.6)	3.7 (2.6–5.3)	
Chorioamnionitis						0.8 (0.5–1.3)
Placenta previa			1.0 (0.1–7.0)	1.8 (1.1–3.2)	3.9 (1.9–8.0)	1.9 (1.0–3.4)
Placental abruption	16.5 (8.1–33.7)	8.9 (6.1–13.1)	2.6 (0.6–10.9)	3.9 (1.6–9.2)	2.6 (1.6–4.2)	0.8 (0.3–2.7)
Fetal malpresentation	2.0 (1.0–3.7)			4.0 (3.1–5.2)	5.0 (4.0–6.4)	1.6 (1.1–2.4)
Cesarean delivery	2.5 (1.6–3.7)	1.1 (0.9–1.3)	2.0 (1.4–2.8)	6.4 (5.5–7.5)	6.7 (5.5–8.1)	1.6 (1.3–2.1)
Post-partum hemorrhage			0.7 (0.4–1.2)	1.6 (0.8–3.3)	1.5 (0.5–4.5)	2.6 (1.5–4.3)
Retained placenta			0.8 (0.1–5.6)		2.7 (1.2–6.0)	2.7 (1.2–6.0)
Malformation				1.9 (1.3–2.8)		
Infant/perinatal death				1.2 (0.8–1.8)	1.4 (0.7–2.8)	
Puerperal infection		8.9 (5.1–15.5)				1.1 (0.6–2.1)

Data are reported as OR (95% CI). PROM, premature rupture of membranes; IUGR, intra-uterine growth restriction.



FERTILITA' SPONTANEA
FERTILITA' CON PMA

BILANCIO COSTI BENEFICI

ETA'
RISERVA OVARICA
CAUSE DI STERILITA'
STERILITA' I° O II°



VOLONTA' E DESIDERI DELLA COPPIA

TIMING CHIRURGIA o PMA

Embolizzazione uterina e fertilità

Pregnancy outcomes following treatment for fibroids: uterine fibroid embolization versus laparoscopic myomectomy

Jay Goldberg^a and Leonardo Pereira^b

Complication	General population (%)	Uterine artery embolization [n (%)]	Laparoscopic myomectomy [n (%)]	Odds ratio	95% Confidence interval	P value
Spontaneous abortion	10–15	12/51 (24)	20/133 (15)	1.7	0.8–3.9	0.175
Postpartum hemorrhage ^a	4–6	2/35 (6)	1/104 (1)	6.3	0.6–71.8	0.093
Preterm delivery ^a	5–10	5/32 (16)	3/104 (3)	6.2	1.4–27.7	0.008
Cesarean delivery ^a	22	22/35 (63)	61/104 (59)	1.2	0.5–2.6	0.662
Small for gestational age ^a	10	1/22 (5)	8/95 (8)	0.5	0.1–4.4	0.541
Malpresentation ^a	5	4/35 (11)	3/104 (3)	4.3	1.0–20.5	0.046

first study, the American College of Obstetricians and Gynecologists recommended in Committee Opinion 293 Uterine Artery Embolization (February 2004) that 'There is insufficient evidence in the current literature to ensure safety in women desiring to retain their fertility. Furthermore, pregnancy-related outcomes remain understudied. Therefore, the procedure should be considered investigational or relatively contraindicated in women wishing to retain fertility' [27].

Systematic review of reproductive outcomes after High Intensity Focused Ultrasound treatment of uterine fibroids

A comparative analysis of pregnancy outcomes of patients with uterine fibroids after high intensity focused ultrasound ablation and laparoscopic myomectomy: a retrospective study

21 studi – low quality

Tasso abortività: comparabile

Tasso gravidanze= inferiore rispetto al trattamento chirurgico

Tasso “bimbo in braccio” = Comparabile

Riduzione della latenza per il concepimento

Nessuna rottura utero o complicanze ostetriche (taglio cesareo Cina)

Attualmente ancora sperimentale e non indicata in pz desiderose di prole

Morcellazione post miomectomia/isterectomia

Rischio oncologico

Manuale vs power

Laparotomica – culdotomica – vaginale
vs laparoscopica/robotica

2014: FDA Alert power morcellator – peggioramento prognosi se sarcoma incidentale → Incremento LPT

Incidenza 0.02-4/1000

Serie Oslo
0.0002 (1 in 4791 women)

Età 45-60

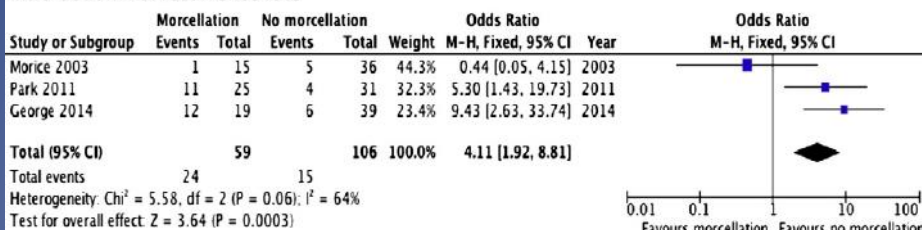
Summary of studies estimating the risk of sarcoma [11,28,31,32].

Study	Study type	N	Specimen	OR/RR
FDA (2014)	Literature review 1980–2011	38,754	Hysterectomy or myomectomy	Uterine sarcoma 1/352 (95%CI, 224–552) Leiomyosarcoma 1/498 (95%CI, 262–943)
ESGE (2015)	Meta-analysis	ND	Hysterectomy or myomectomy Myomectomy Hysterectomy	1/700 (0.14%) (1/204–1/7400) 1/1306 (0.08%) 1/650 (0.15%)
Pritts et al. (2015)	Meta-analysis 1984–2014	30,193	Hysterectomy or myomectomy	Leiomyosarcoma 1/1960 (95%CI, 0.16–0.98)
Raine-Bennett et al. (2016)	Cohort study 2006–2013	34,728	Hysterectomy	Uterine sarcoma 1/278 (95%CI, 2.97–4.23) Leiomyosarcoma 1/429 (95%CI, 1.83–2.84)

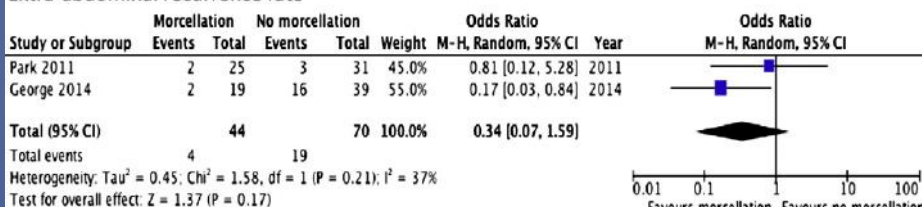
Impact of morcellation on survival outcomes of patients with unexpected uterine leiomyosarcoma: A systematic review and meta-analysis

Giorgio Bogani ^a, William A. Cliby ^b, Giovanni D. Aletti ^{c,*}

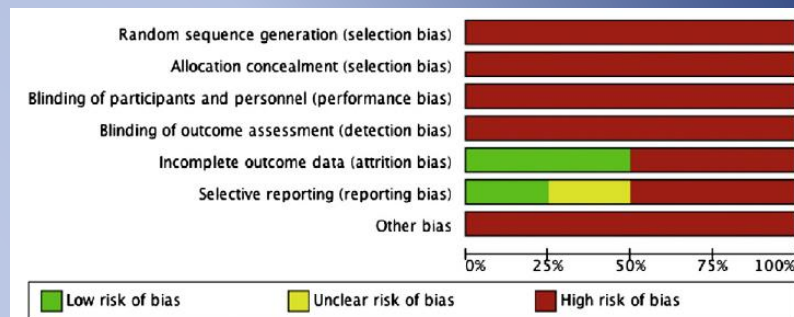
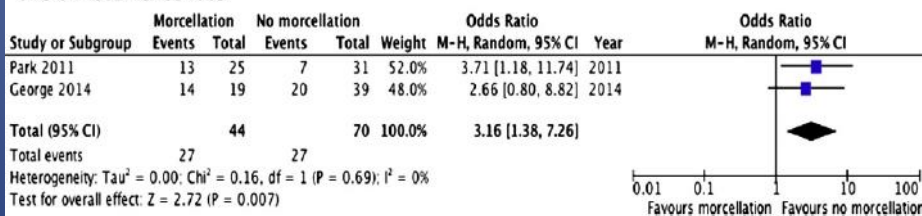
Intra-abdominal recurrence rate



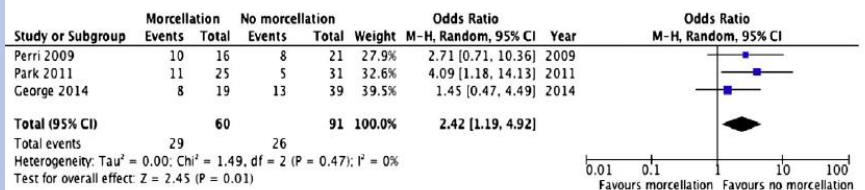
Extra-abdominal recurrence rate



Overall recurrence rate



Overall survival

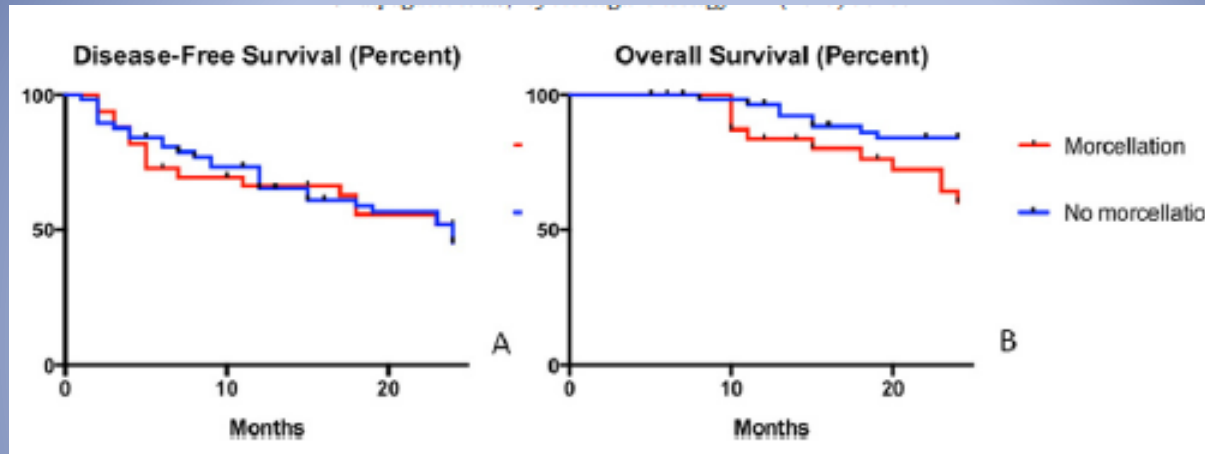


X 4 rischio di recidiva addominale ma uguale a distanza
 Peggioramento sopravvivenza. Elevato rischio bias

Morcellation worsens survival outcomes in patients with undiagnosed uterine leiomyosarcomas: A retrospective MTO group study



Francesco Raspagliesi, M.D.^a, Giuseppa Maltese, M.D.^a, Giorgio Bogani, M.D., Ph.D.^a, Giovanni Fucà, M.D.^b, Stefano Lepori, M.D.^a, Pierandrea De Iaco, M.D.^c, Myriam Perrone, M.D.^c, Giovanni Scambia, M.D.^d, Gennaro Cormio, M.D.^{e,f}, Stefano Bogliolo, M.D.^g, Alice Bergamini, M.D.^h, Giuseppe Bifulco, M.D.ⁱ, Paolo Giovanni Casali, M.D.^b, Domenica Lorusso, M.D., Ph.D.^{a,*}



Peggioramento OS ma non DFS

Dati opposti a Park and Raine Bennett

Power morcellation responsabile peggioramento prognosi ?

Laparoscopic Power Morcellation: Techniques to Avoid Tumoral Spread

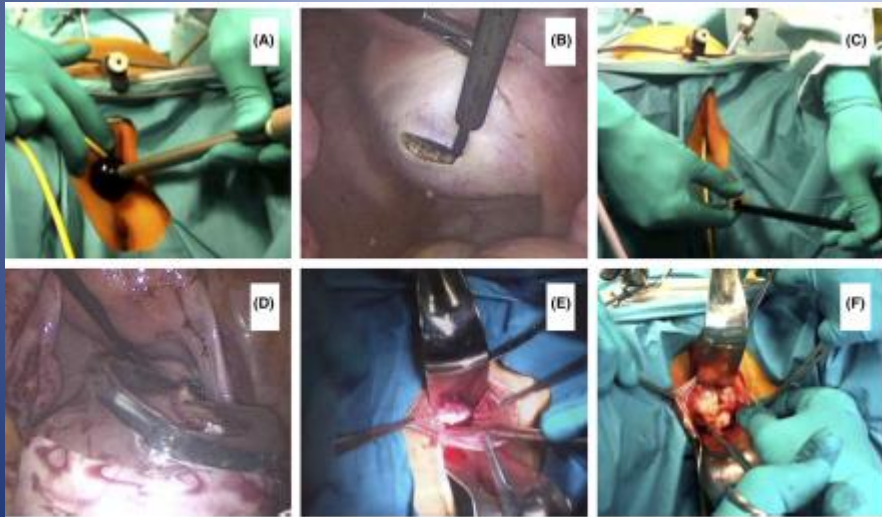
Ignacio Zapardiel, MD, PhD, Félix Boria, MD, Michael J. Halaska, MD, PhD, and Javier De Santiago, MD, PhD

Vaginal Uterine Morcellation Within a Specimen Containment System: A Study of Bag Integrity

Eugenio Solima, MD, Giuseppe Scagnelli, MD*, Veronica Austoni, MD, Andrea Natale, MD, Carlo Bertulesi, MD, Mauro Busacca, MD, and Michele Vignali, MD

Transvaginal contained tissue extraction after laparoscopic myomectomy: a cohort study

F Ghezzi,^a J Casarin,^a G De Francesco,^b P Puggina,^b S Uccella,^a M Serati,^a A Cromi^a

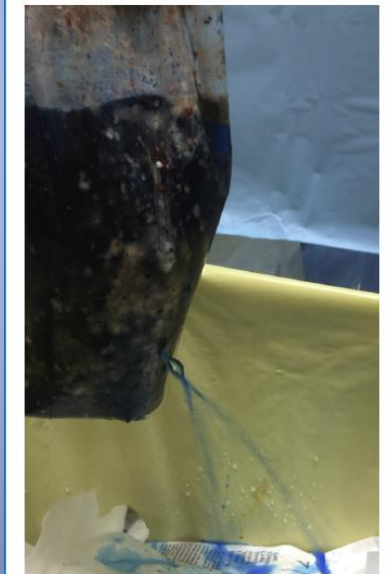


In-bag transvaginal morcellation of uterus at the end of total laparoscopic hysterectomy.



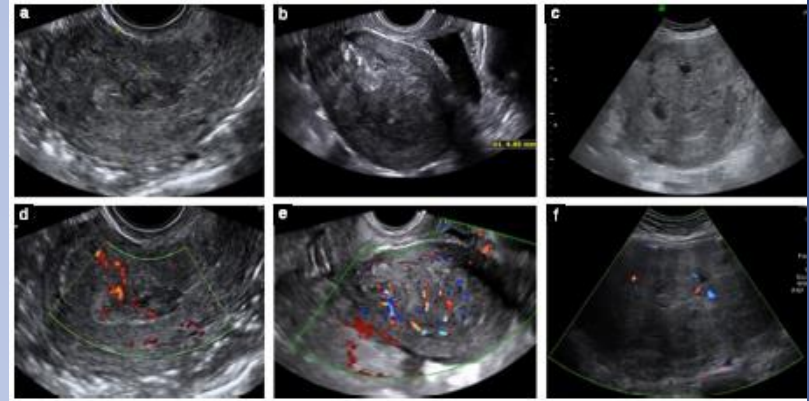
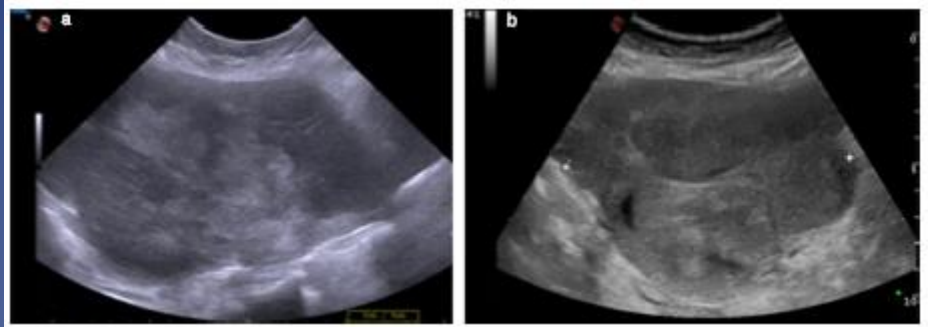
Fig. 2

Evaluation of bag rupture after filling up the bag with methylene blue solution.

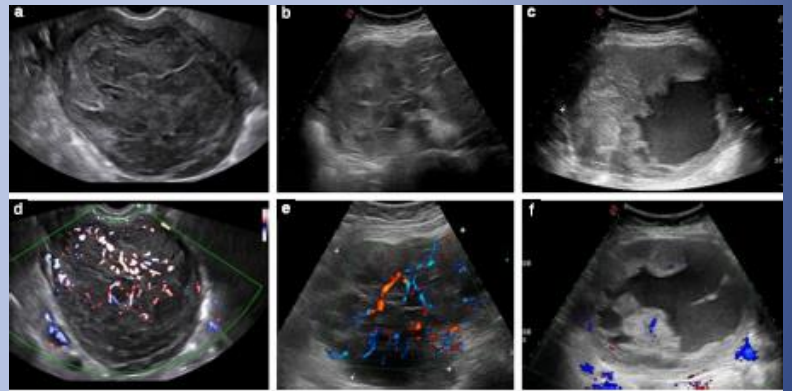


4/12 (33%) soluzioni di continuo

Imaging in gynecological disease (15): clinical and ultrasound characteristics of uterine sarcoma



- ✓ **No shadows** 70-75%
- ✓ **No calcificazioni** 80-90%
- ✓ **Disomogenei** 75-90%
- ✓ **Aree cistiche**: 45-55%
prevalentemente **irregolari**
- ✓ **Ipervascularizzazione** (65%)



35% dei sarcomi appaiono come lesioni benigne/miomi

LPS vs LPT

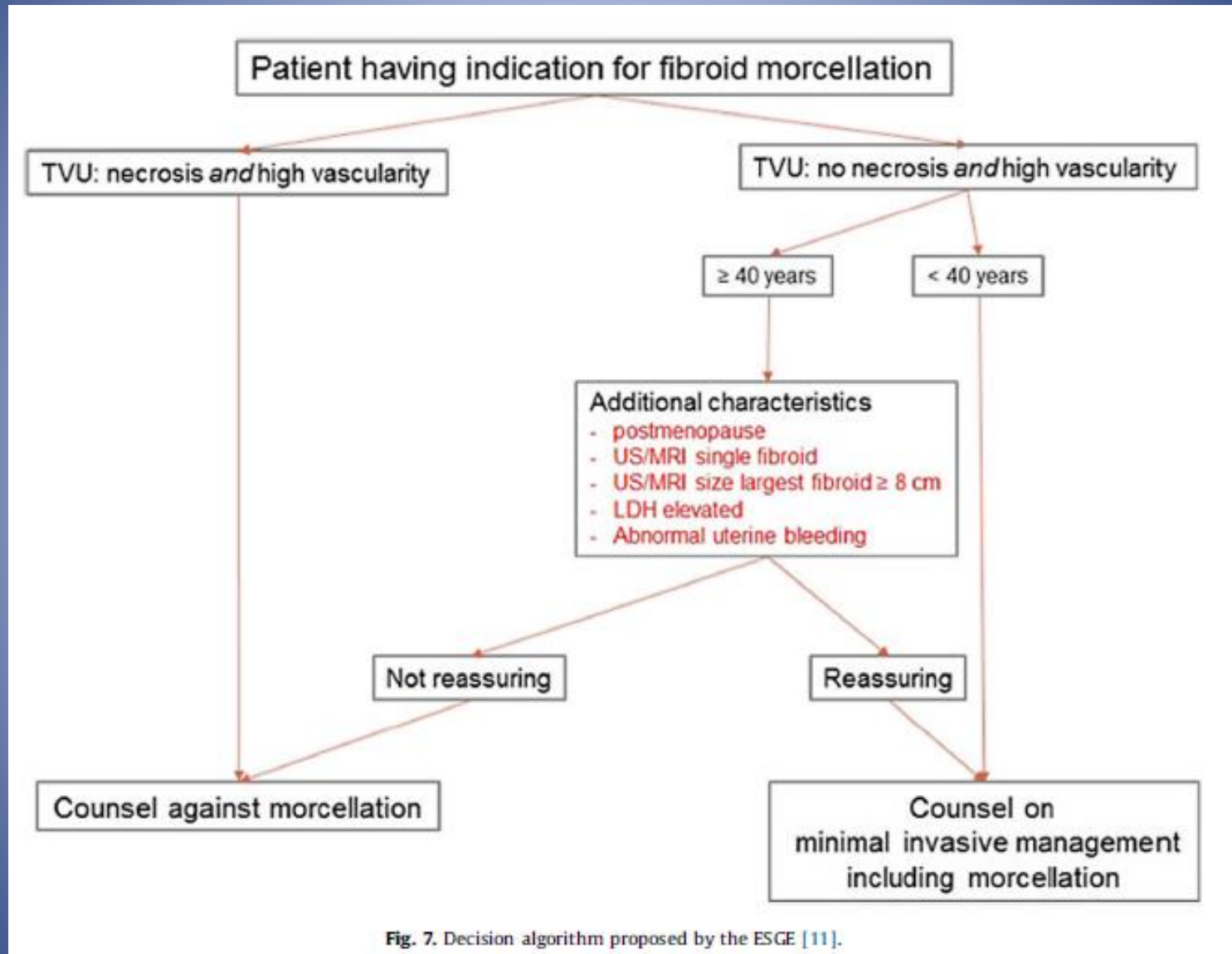


Fig. 7. Decision algorithm proposed by the ESGE [11].

Not validated

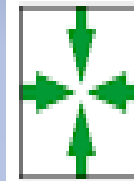
Transvaginal contained tissue extraction after laparoscopic myomectomy: a cohort study

F Ghezzi,^a J Casarin,^a G De Francesco,^b P Puggina,^b S Uccella,^a M Serati,^a A Cromi^a

316 pts

Indicazione

- Sanguinamento 172
- Dolore/pressione 34
- Desiderio future gravidanze /subfertilità 110



FONDAZIONE IRCCS
ISTITUTO NAZIONALE
DEI TUMORI

94 pts consecutive

Indicazione

- rapido accrescimento 52
- mioma atipico 17
- sospetto sarcoma 4
- sintomatici 18
- stabili ma altra causa 3

Transvaginal contained tissue extraction after laparoscopic myomectomy: a cohort study

F Ghezzi,^a J Casarin,^a G De Francesco,^b P Puggina,^b S Uccella,^a M Serati,^a A Cromi^a

Età **36** (19-55)

Numero mediana 1 (1-5)

Dimensioni 70 mm (30-150)

316 miomectomia LPS

Esame istologico

Gruppo LPS: benigni

LPT ? (scelta per dimensioni , numero ecc ecc)



Età **45** (25-77)

Numero mediana 1 (1-8)

Dimensioni 75 mm (30-200)

Miomectomie LPT 39/39

Isterectomie LPS: 12

LPT: 43

Esame istologico

81 Fibromi

1 adenomiosi

12 STUMP

0 sarcomi

STUMP vs benigno

Età mediana **42** (34-57) vs **46** (28-77)

Dimensioni: **77** (50-130) vs **72** (30-200)

STUMP

rapido accrescimento 3/52

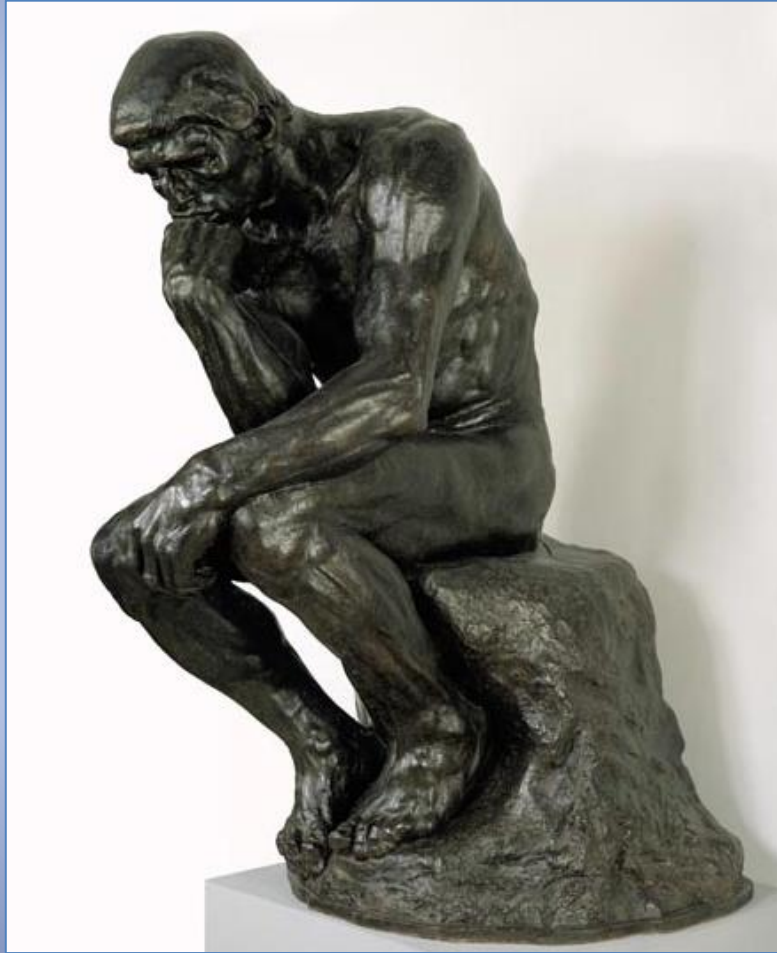
mioma atipico 3/17

sospetto sarcoma 2/4

sintomatici 3/18

stabili ma altra causa ... 1/3

Conclusioni





mauro.signorelli@istitutotumori.mi.it

GRAZIE PER L'ATTENZIONE!