

What Are the Oncologic Risks of Morcellation of the Uterus?

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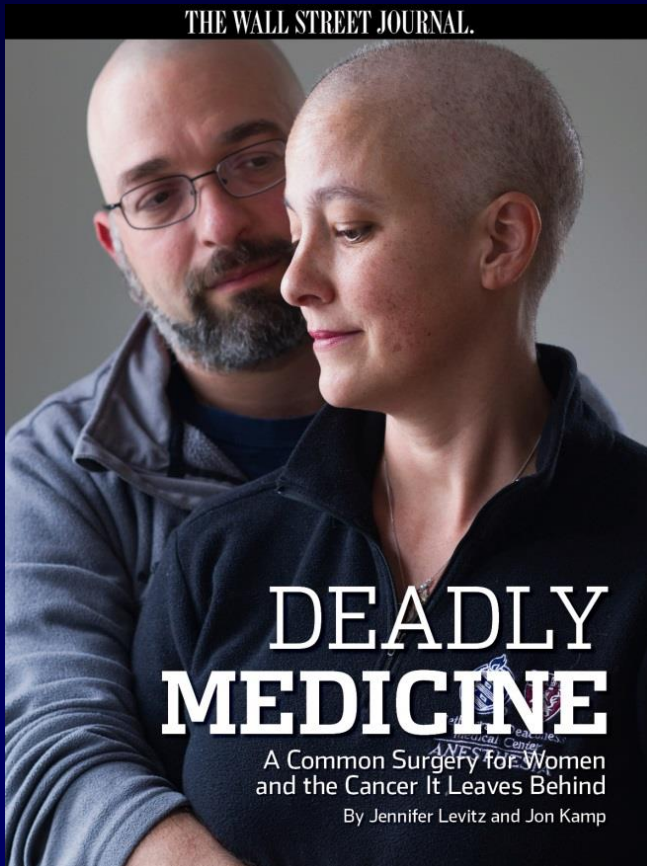
Take-Home Message

- **Morcellation of uterine leiomyomas poses risk of spreading undetected cancerous tissue in women with unsuspected cancer**
- **Risk reduction strategies:**
 - Abandon morcellation
 - Patient triage
 - Morcellation in laparoscopic bag?
- **Informed consent**
 - 3-4 higher chance recurrence
 - 2.5 fold chance to die of disease

Agenda

- **Hot issue**
- Pathology and diagnosis of uterine smooth muscle cell tumors
- Morcellation of leiomyomas
- Morcellation of sarcomas
 - Risks of morcellation
 - Prevention of sarcoma morcellation
 - Treatment after sarcoma morcellation
- Take-home message

Hot Topic (I)



- Amy Reed, MD, an anesthesiologist at Beth Israel Hospital in Boston.
- *The Wall Street Journal*: morcellation of LMS may have worsened her prognosis.
- Campaign calling for a ban on morcellation.

Hot Topic (II)

In 2014.....

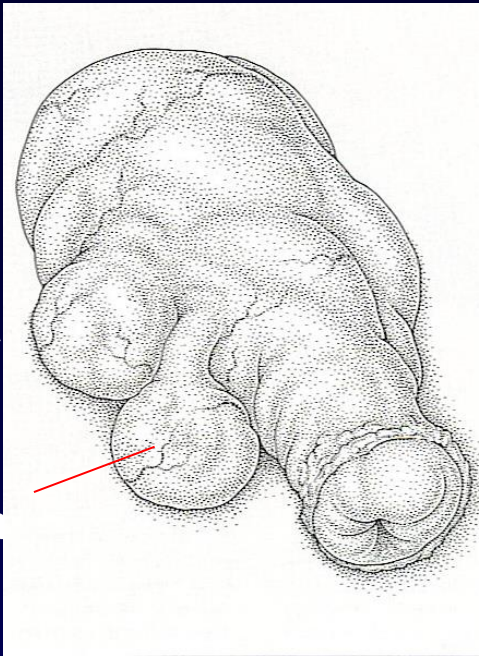
- Editorial in *The Lancet*
- Brigham and Women's and Massachusetts General hospitals statement
- Viewpoint in *JAMA*
- SGO president Barbara Goff responds to *The Lancet* editorial
- FDA announcement

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Subserous myoma

Pedunculated myoma

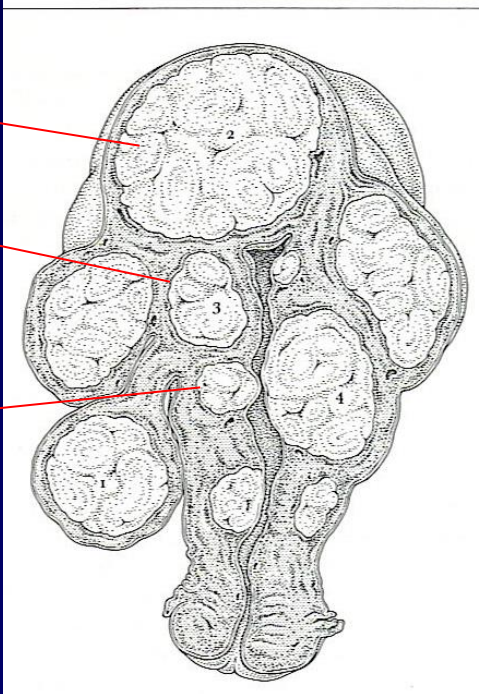


40% in women 40-50 years

Subserous myoma

Intramural myoma

Submucous myoma



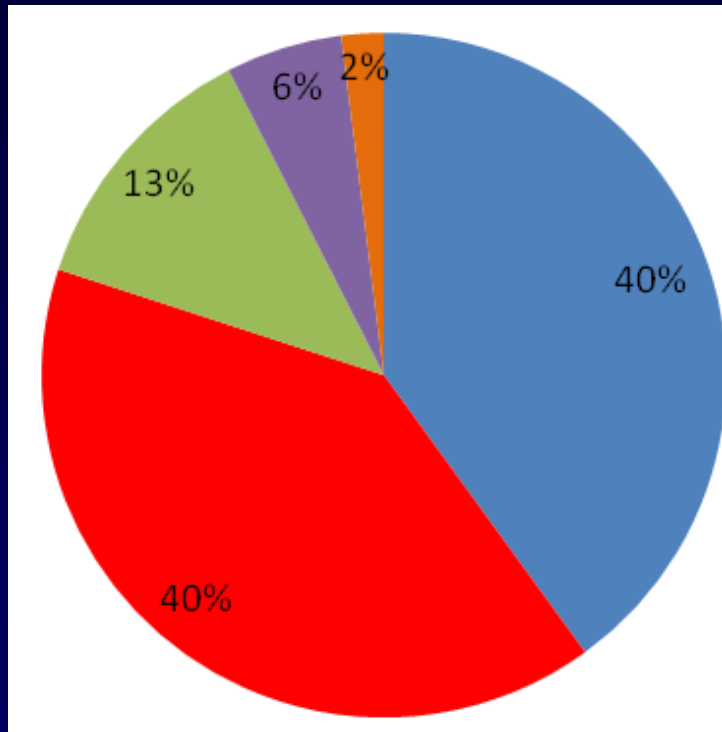
Polyfibromatic uterus

Uterine Sarcomas: Histologic Subtypes

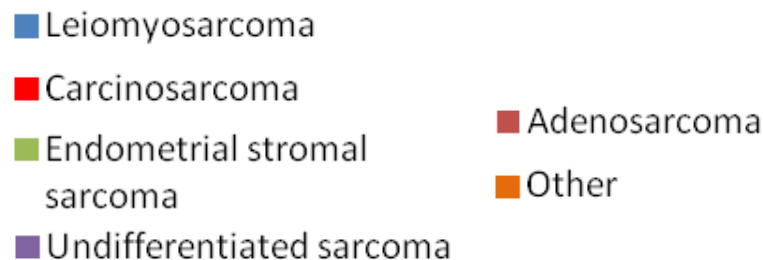
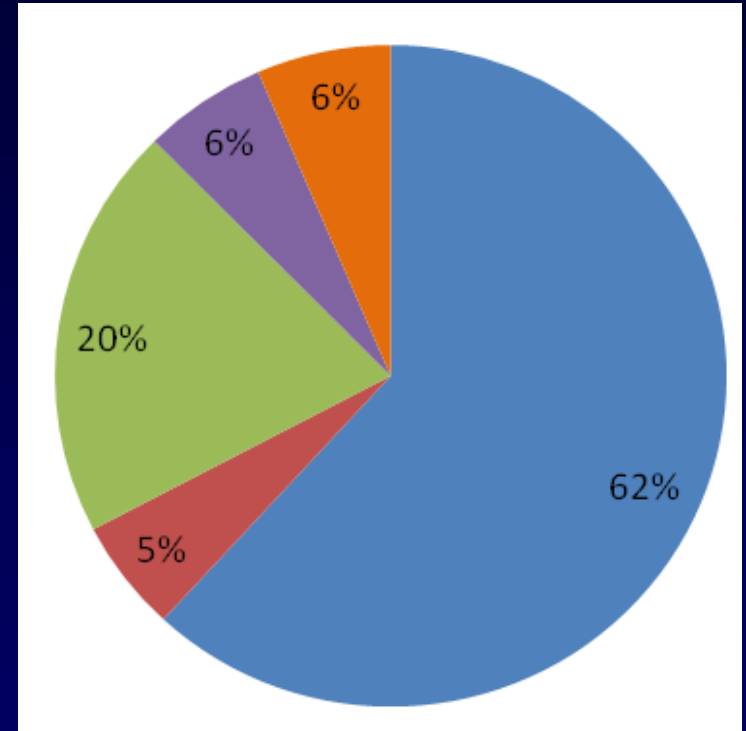
- **Leiomyosarcoma**
5-year OS 50 to 0%; relapse rate 50% to 75%
Prognostic factors: tumor size and grade
- **STUMP** (smooth muscle tumors of unknown malignant potential)
- **Endometrial stromal sarcoma**
5-year OS 98 to 55%;
Prognostic factors: size, stage, no undifferentiated component
- **Rare:** undifferentiated sarcoma (high grade), adenosarcoma (low grade)
- **Very rare:** angiosarcoma, hemangiopericytoma, pleomorphic, liposarcoma, desmoplastic, GIST ...

Uterine Sarcomas: Subtypes

Including Carcinosarcoma



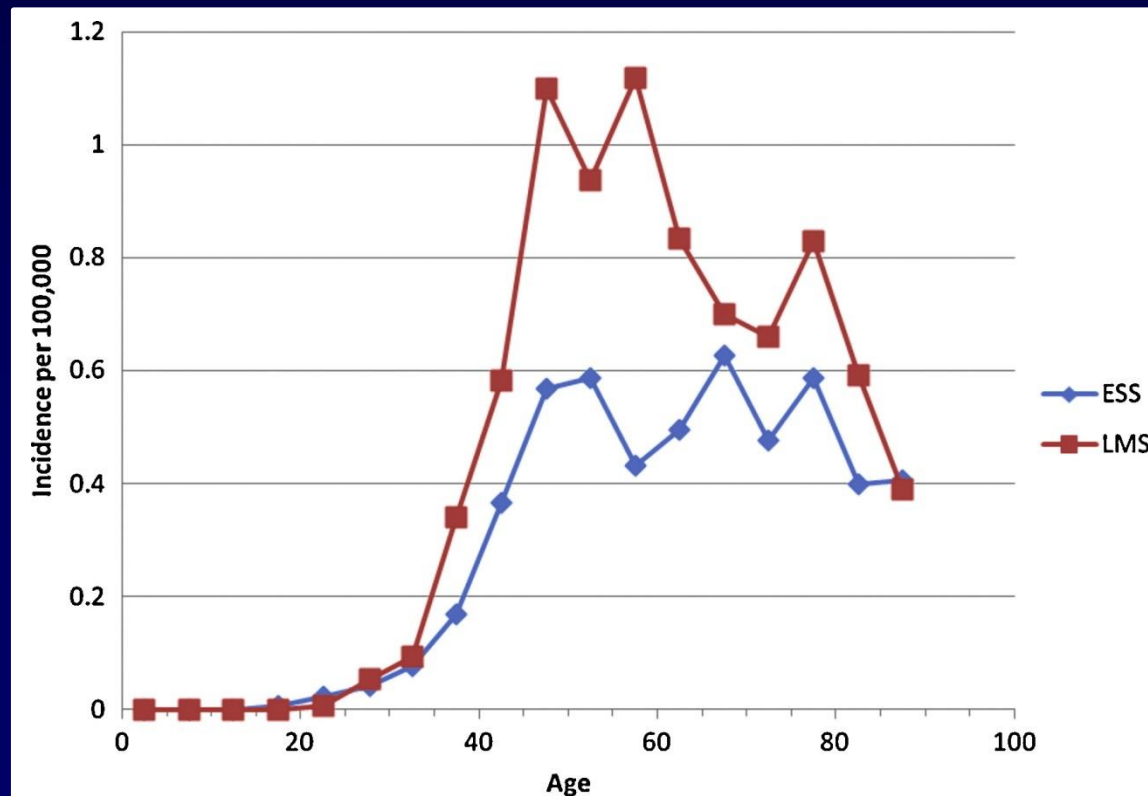
Excluding Carcinosarcoma



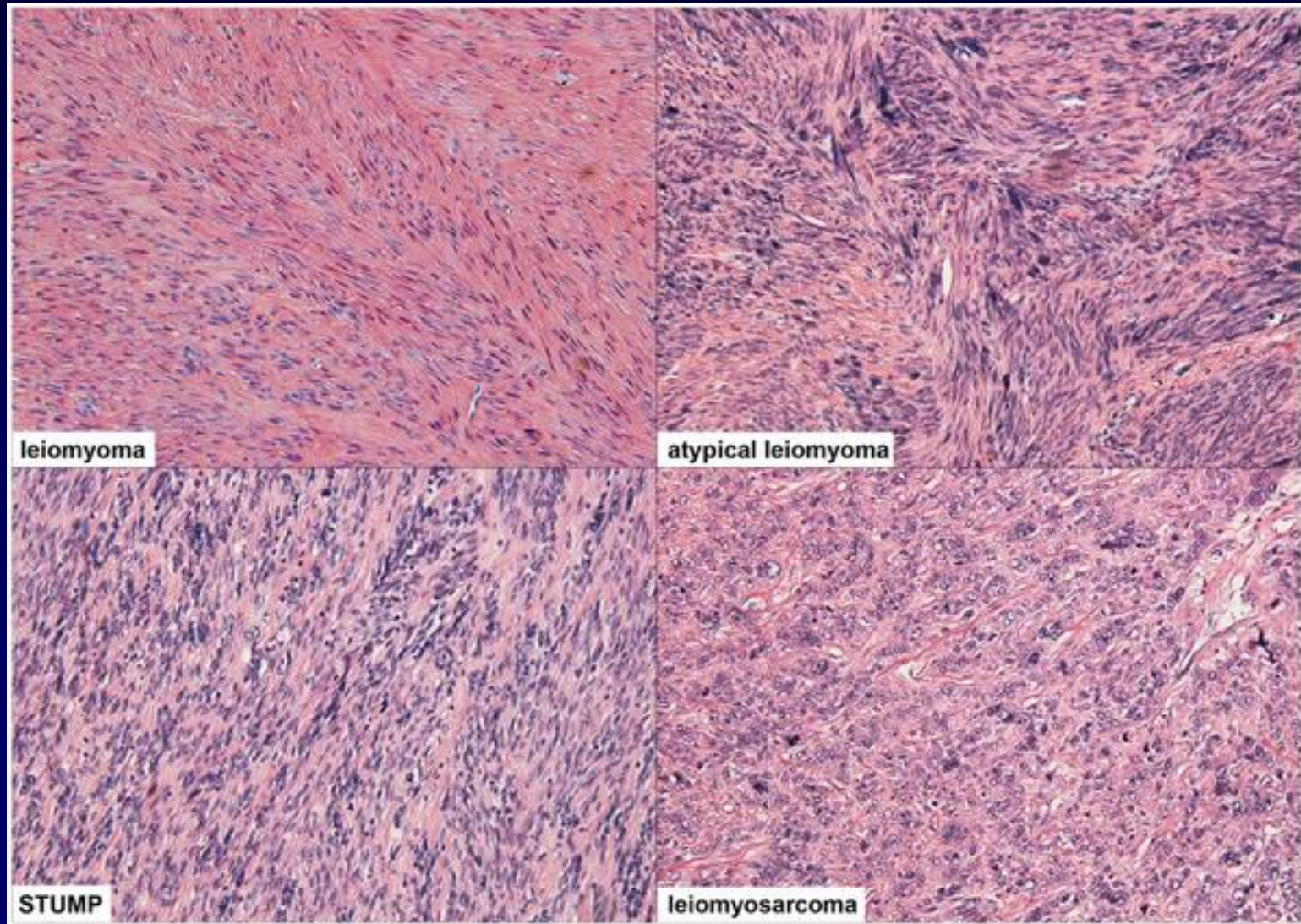
Incidence of LMS and Endometrial Stromal Sarcoma (ESS)

Results from NORDCAN and NOCCA databases

- LMS:0.4/100.000, ESS 0.3/100.000 (1978-2007)
- Age-specific incidence rates:

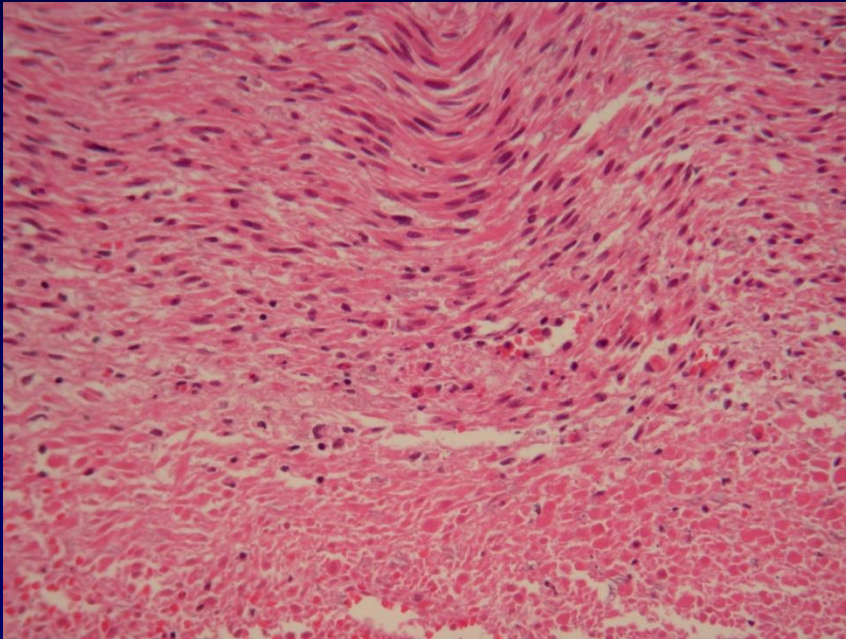


Smooth Muscle Cell Tumor Pathology Can Be Challenging

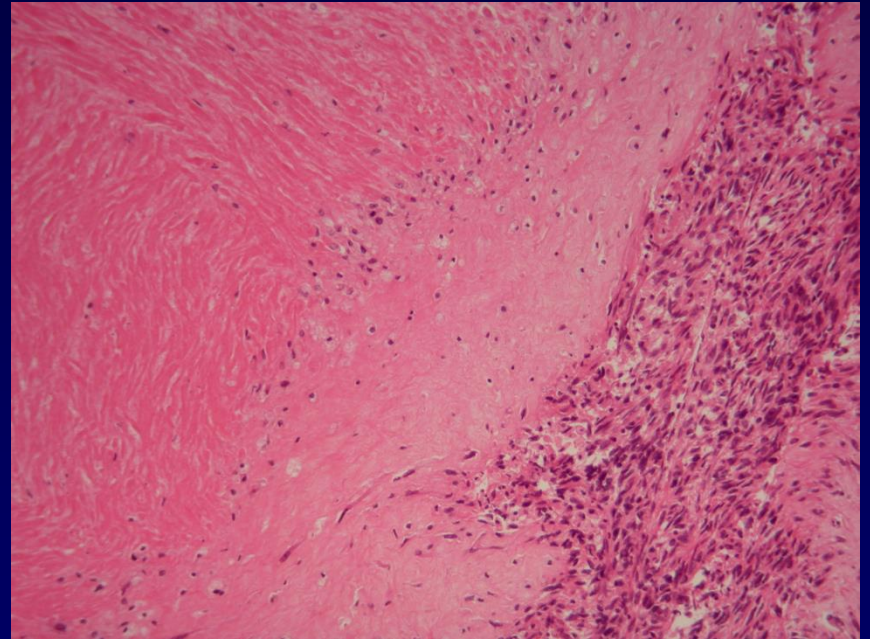


Pathology of Uterine LMS: Expert Opinion Might Be Necessary

Coagulative Tumor Cell Necrosis



Hyaline Necrosis

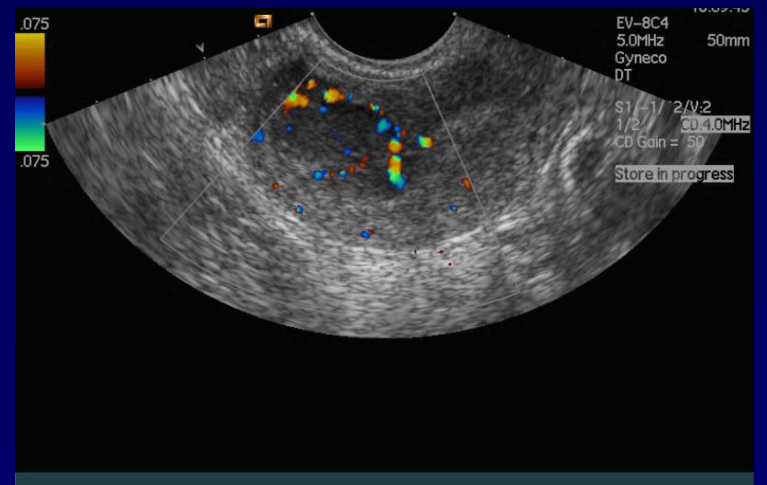
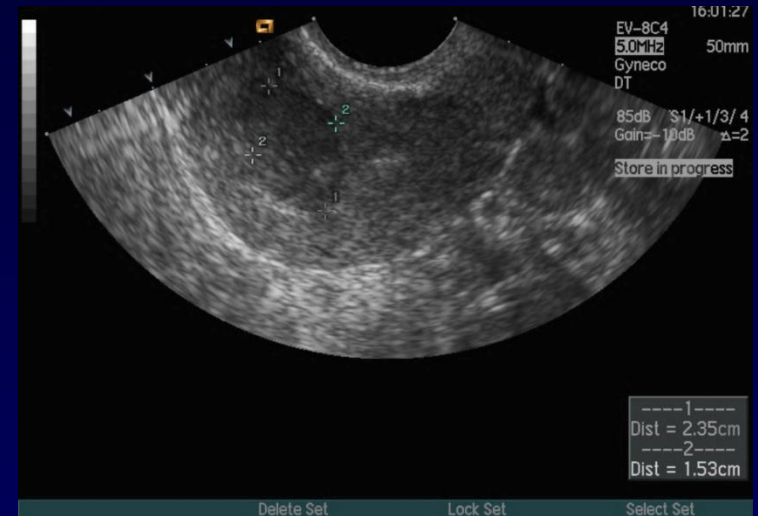


Abrupt transition of living cells to necrotic cells without layer of granulation or fibrous tissue

No Pathognomonic Features Predicting ESS

Transvaginal sonography, what
can help....

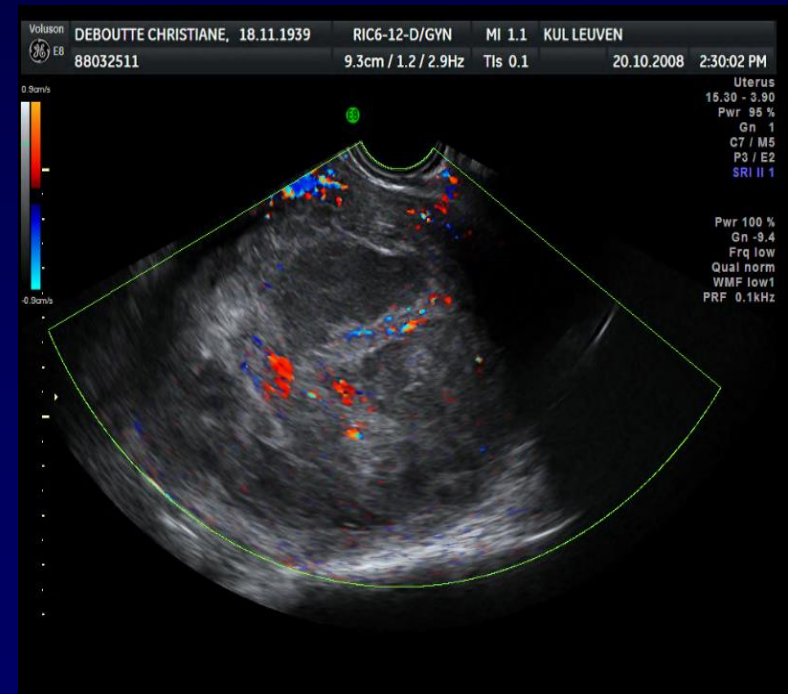
ESS	
Form	Mass derived from endometrium with irregular lining
Echogenicity	Hypoechoogenic
Central necrosis	No
Doppler	Irregular central or circular



No Pathognomonic Features Predicting LMS

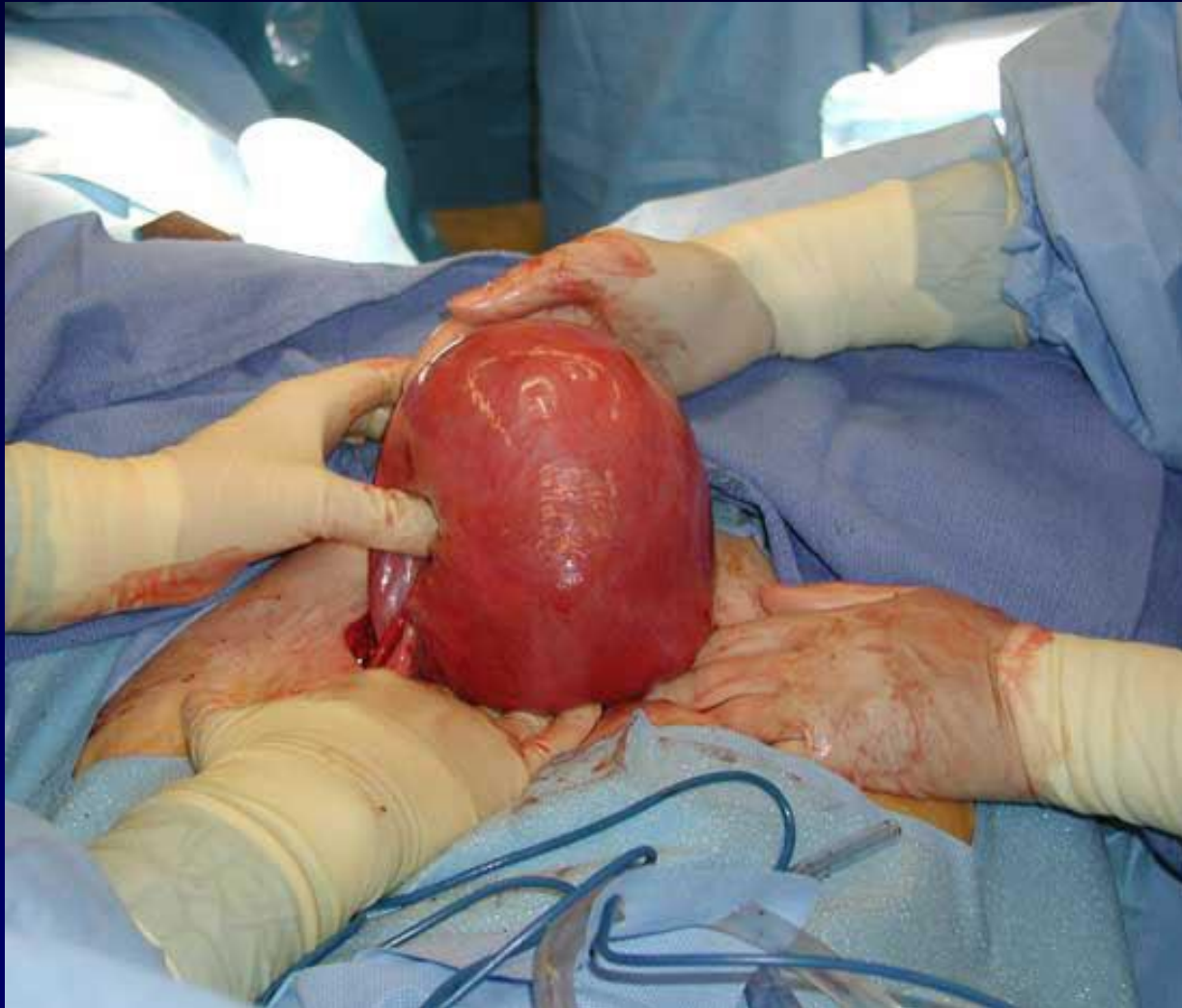
Transvaginal sonography, what may help....

	Myoma	LMS
Shape	Round	Oval
Echogenicity	Frequent calcifications	Inhomogeneous
Central necrosis	Rare	Yes
Doppler	Circular flow	Irregular distribution blood vessels, low resistance, high velocity



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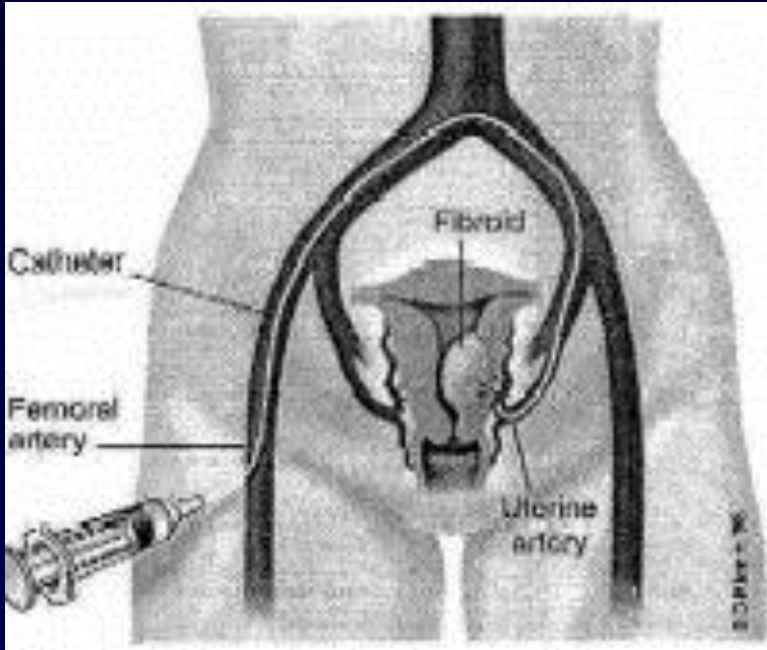
Treatment of Leiomyoma

- Medication
 - GnRH analogues
 - Ulipristal acetate
- Embolisation
- Surgical
 - Hysteroscopy (diagnostic/therapeutic)
 - Laparoscopy
 - Myomectomy
 - Hysterectomy
 - Robot-assisted
 - **Morcellation**
 - Laparotomy

Growth of Leiomyoma During Gonadotropin: Level of Suspicion ↑

- Meyer, *Obstet Gynecol* 1990
- Loong and Wong, *Fertil Steril* 1990
- Hitti, *Fertil Steril* 1991
- Murphy, *Gynecol Oncol* 1993
- Lee, *Gynecol Oncol* 1994
- Milman D, *Eur J Obstet Gynecol Reprod Biol* 1998
- Mesia, *Obstet Gynecol* 1998

MRI before embolisation



Myoma



MRI after embolisation

Morcellation: Historical Perspective

- 1973: hand-activated morcellator
- 1993: Steiner electromechanical morcellator
- Current: Rotocut G1 morcellator (Karl Storz) & Gynecare Morcellex (Ethicon)



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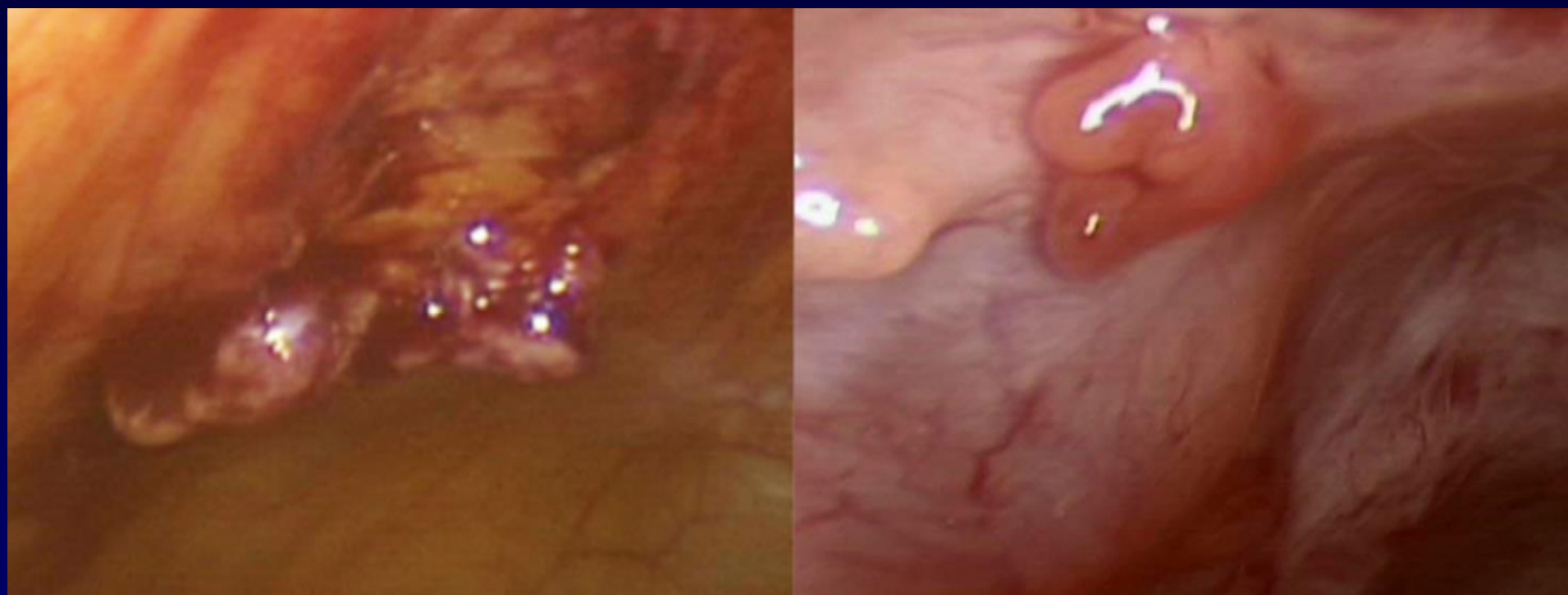
Risks of Morcellation

- **Surgical**
- **Spread of benign disease**
- **Spread of malignant disease**

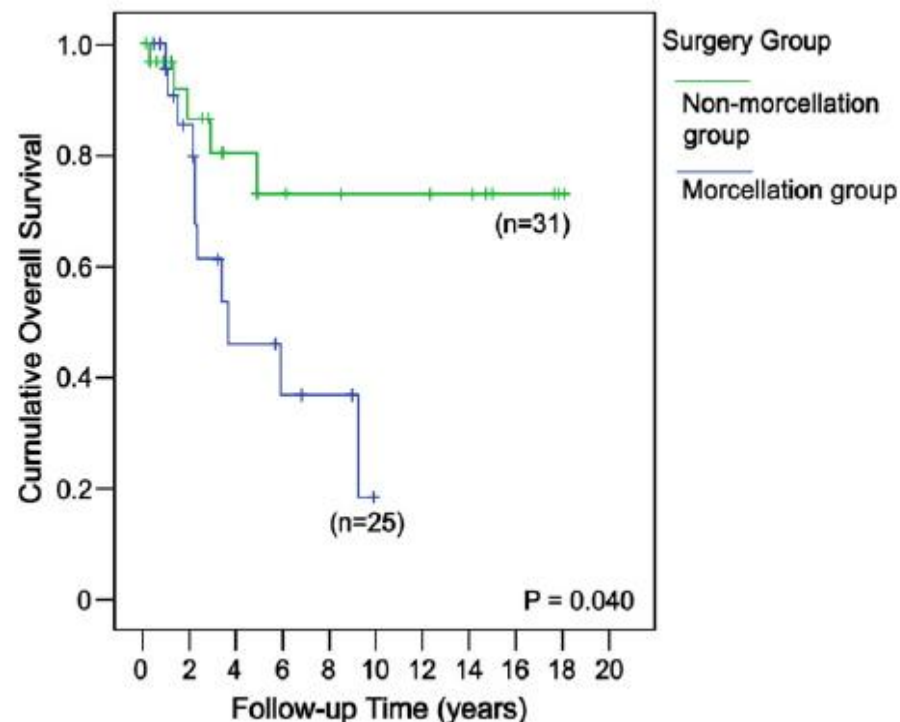
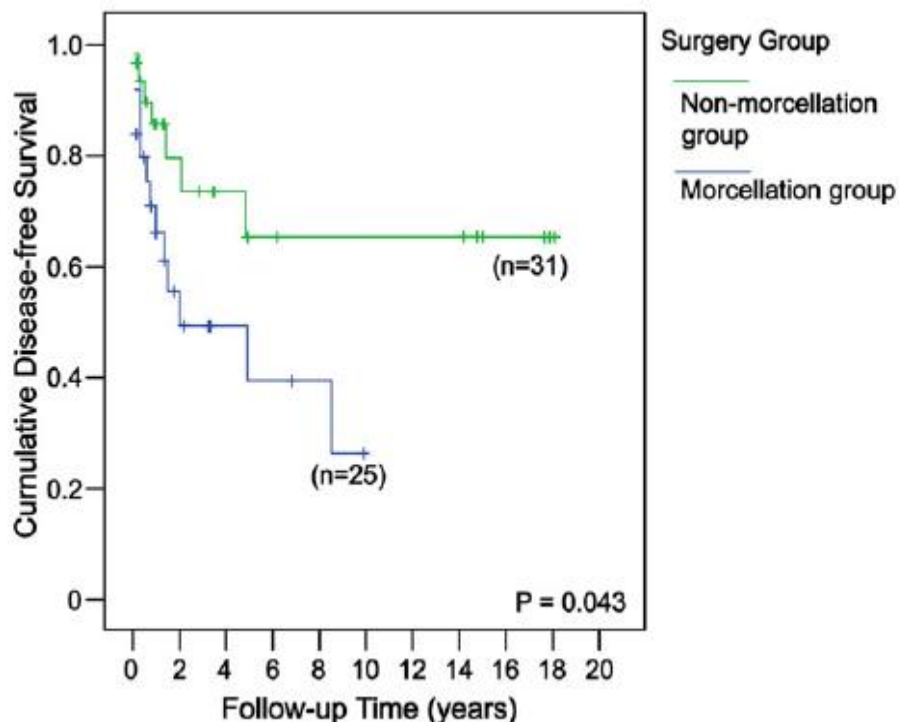
Summary of Cases of Uterine Power Morcellation With Follow-Up Exploratory Laparotomy

- Unexpected diagnoses in 1.2% of 1091 uterine morcellation cases (0.09% unexpected LMS)
- Pathology:
 - 1 stromal sarcoma (ESS)
 - 1 cellular leiomyoma (CL)
 - 6 atypical leiomyomas (AL)
 - 3 smooth muscle tumor of uncertain malignant potential (STUMPs)
 - 1 leiomyosarcoma (LMS)
- Disseminated disease occurred in 64.3% of all (in house and consultation) tumors
 - 0/1 ESS
 - 1/1 CL
 - 0/1 AL
 - 4/4 STUMPs
 - 4/7 LMS
- Only disseminated leiomyosarcoma, however, was associated with mortality

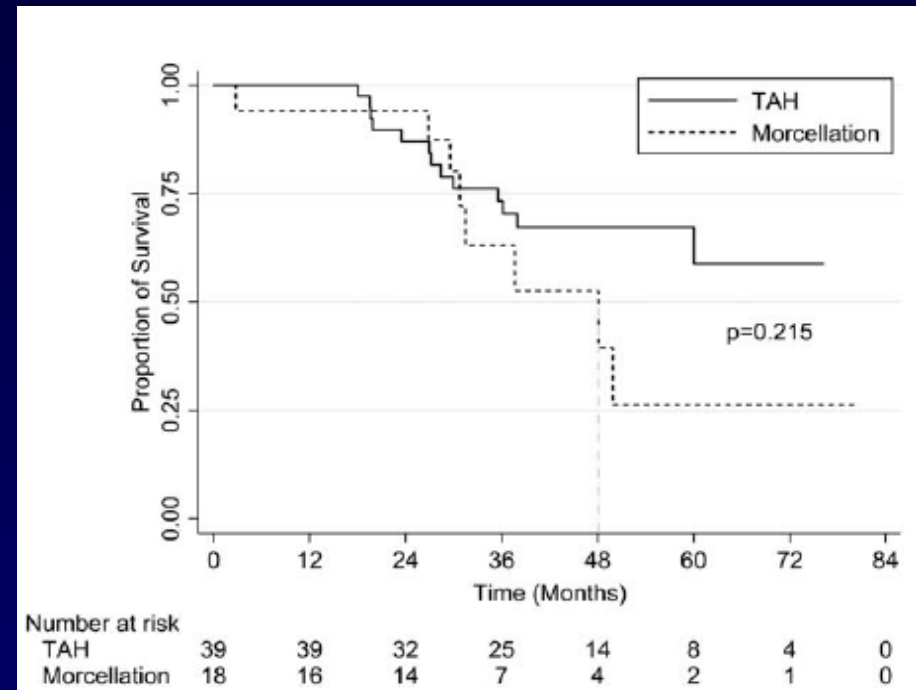
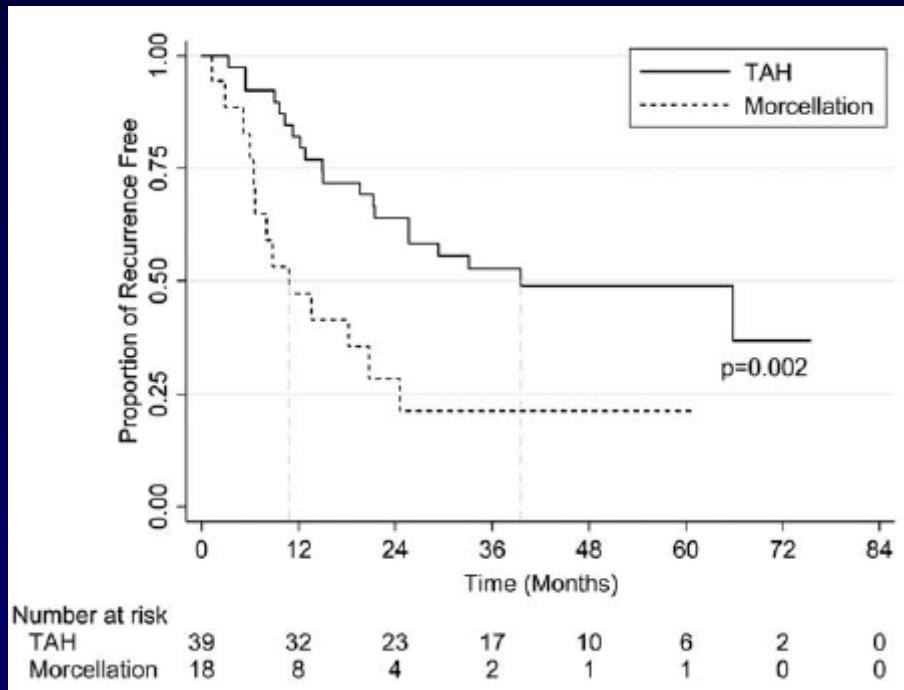
Intraoperative Images of Nodules on the Peritoneal Surface



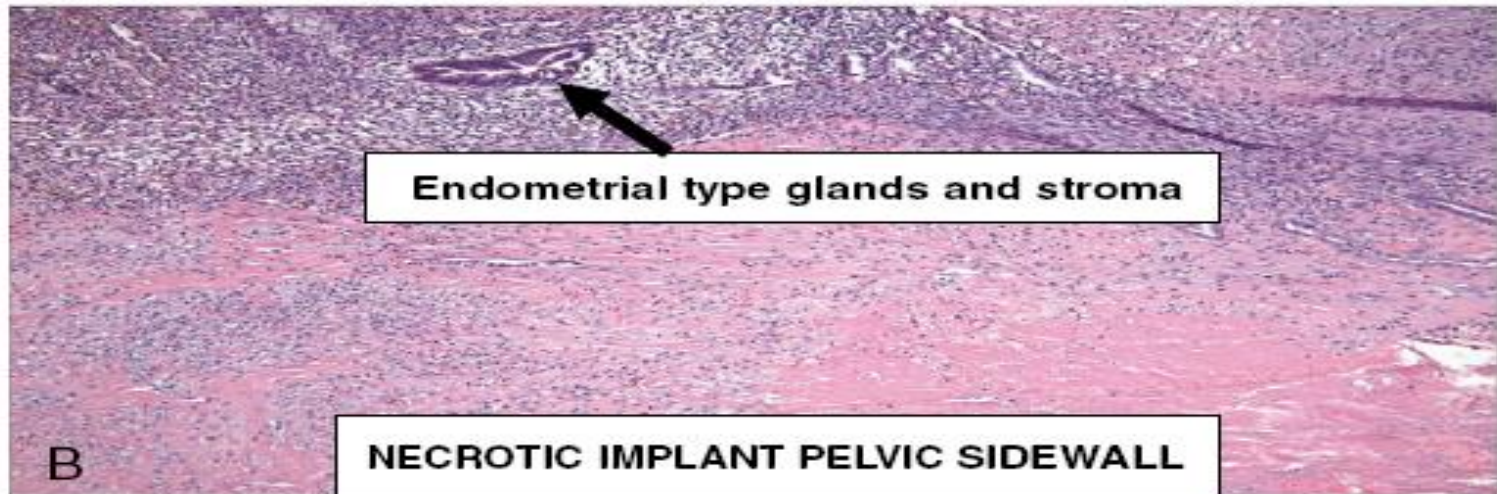
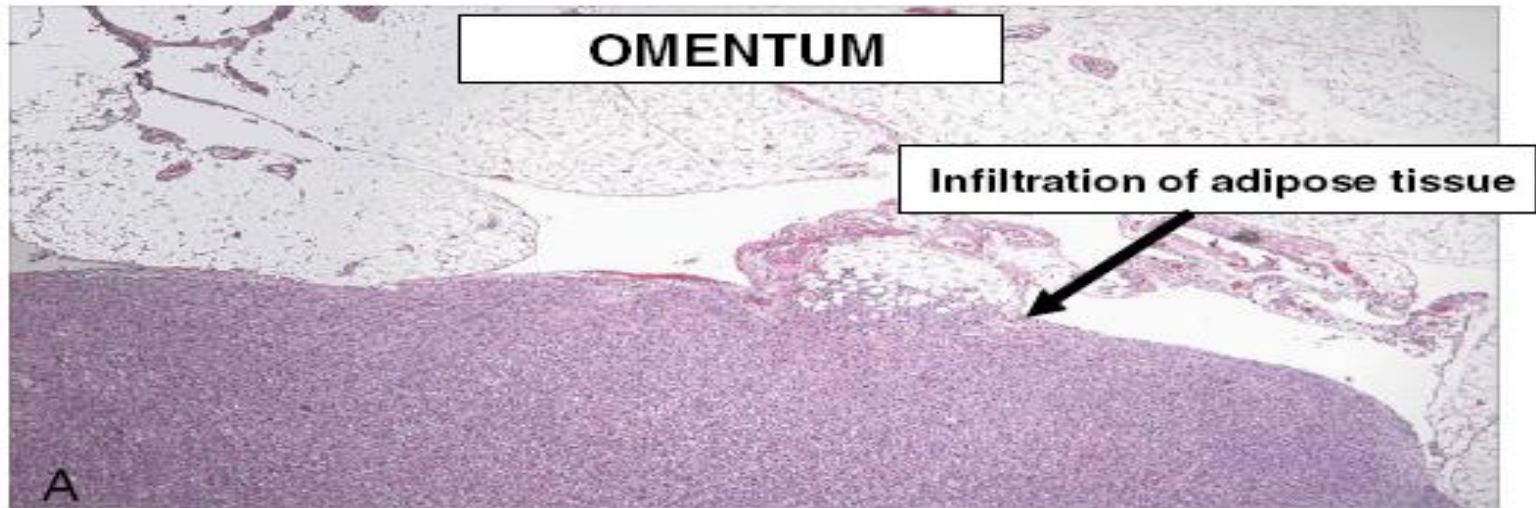
DFS and OS Relative to Tumor Morcellation in LMS (n = 56)



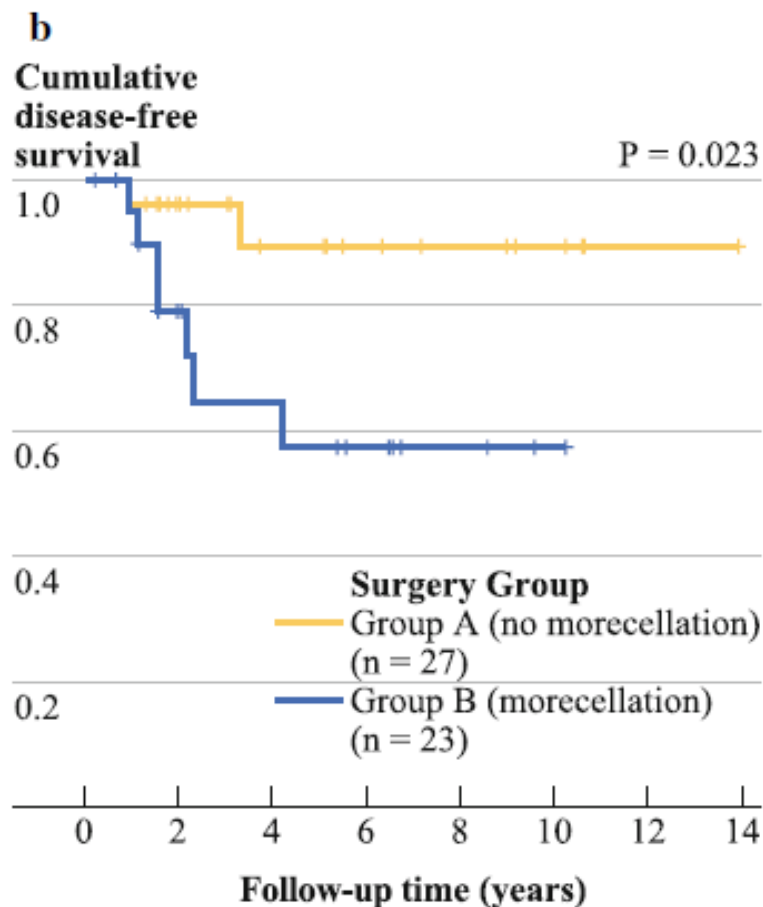
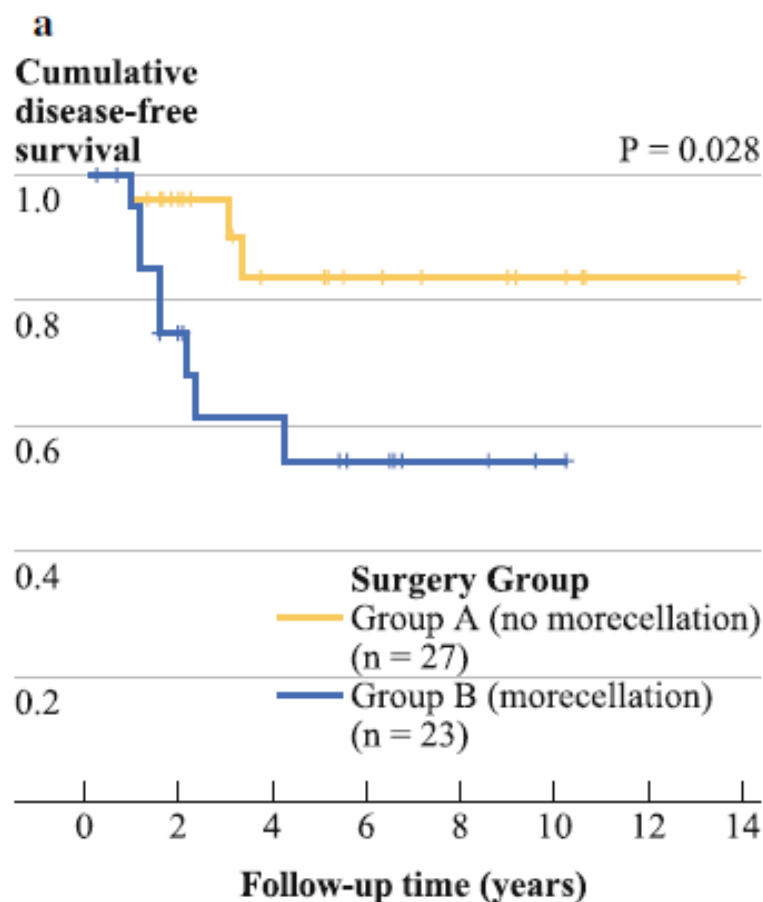
Retrospective Cohort Study Evaluating the Impact of Intraperitoneal Morcellation on Outcomes of Localized Uterine Leiomyosarcoma



Metastatic Leiomyosarcoma Involving the Omentum and Pelvic Side Wall



Follow-Up in 50 Patients With ESS According to Morcellation



Follow-Up in 50 Patients With ESS According to Morcellation

- **Lower DFS and abdominopelvic DFS rates**
- **OS was not significantly compromised, due to:**
 - **adjuvant secondary surgery followed by chemotherapy or concurrent chemoradiation therapy**
 - **Indolent tumour behaviour of ESS**

Strategy After Sarcoma Morcellation: Anecdotal Data Only!

- **Staging laparoscopy: merely prognostic**
- **Adjuvant treatment:**
 - **ESS (? Idem for adenosarcoma, STUMP?)**
 - **Castration in premenopausal women**
 - **Progestins in all ages**
 - **LMS**
 - **No benefit of adjuvant chemo and/or radiotherapy**

Barbara Goff, President of SGO

In the vast majority of cases, hysterectomy is done because of the presence of benign uterine fibroids. In these circumstances, intracorporeal morcellation has benefited hundreds of thousands of women. It is especially beneficial for obese women.

It would be a disservice to deny these women this option.

April 2014: FDA News Release

- **The FDA concludes that the risk of morcellating an unsuspected uterine sarcoma is 1 in 352 and the risk of morcellating an unsuspected uterine leiomyosarcoma is 1 in 498.**
- **The agency recommends that laparoscopic power morcellators no longer be used for hysterectomy or myomectomy in most women with uterine fibroids.**

Patient Triage

UZ Leuven Recommendations on Morcellation

Discourage

- Oval, solitary lesions
- Central necrosis
- Fast growth (3 months)
- Irregular lining
- High blood flow
- Atypical growth
 - Postmenopausal
 - Post embolisation
 - GnRH analogues
- Ovarian fibroma

In favor

- Round lesion
- Many small lesions
- Regular lining
- Low blood flow
- Calcifications

Morcellation in Laparoscopic Bag?

- **Not for myomectomy**
- **No extensive, prospective, and reliable research data** (Tanos et al. *Gynecologic Surgery*, in press, 2015)
- **In-bag ‘contained morcellation’** (Wu SD, et al. *J Endourol.* 2009;23(9):1513-1518.)
 - Safe in 188 patients with low-grade renal cell cancer (follow-up only 21 months)
 - 1 port-site metastasis

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2015

Progress and
Controversies
in Gynecologic
Oncology
Conference

