Overview of Hysterectomy

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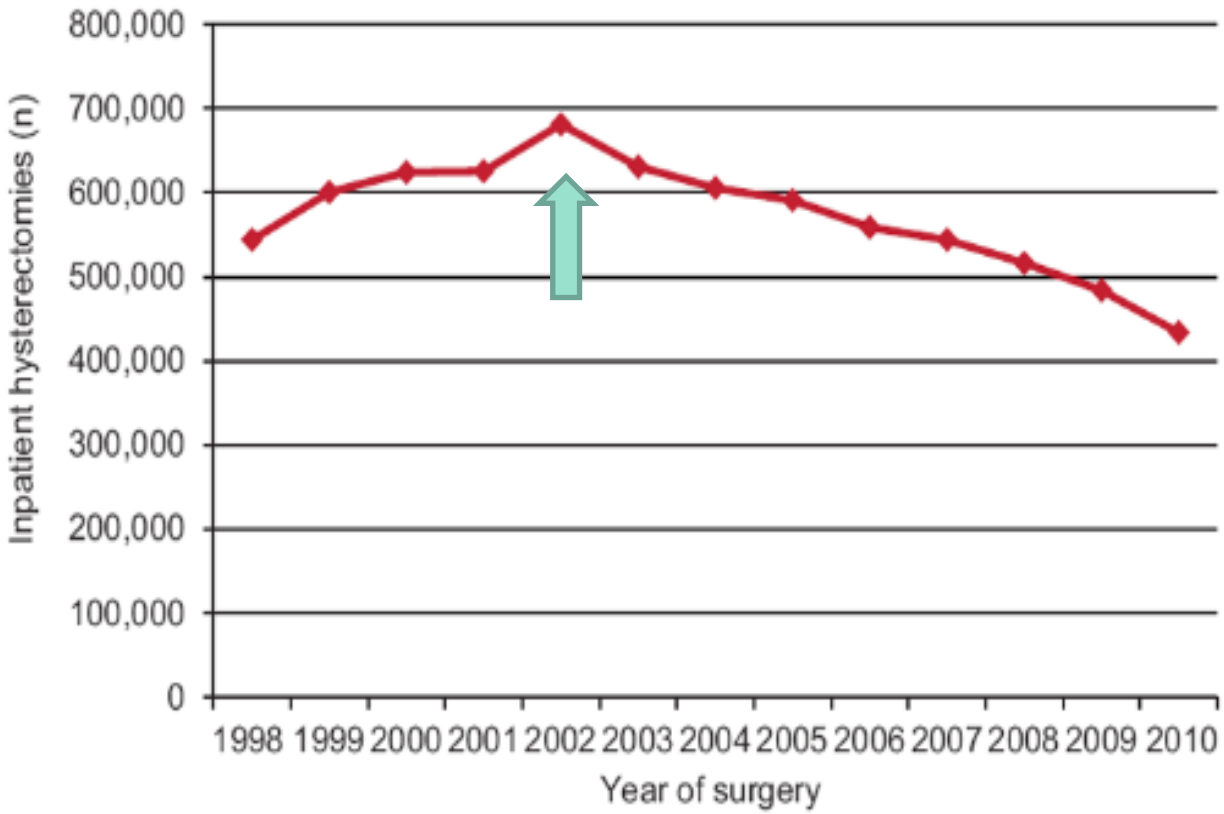
Hysterectomy is the most commonly performed gynecological surgical procedure.

- 430,000 hysterectomies were performed in US in 2010
- 680,000 hysterectomies were performed in US in 2002



Hysterectomy is the most commonly performed gynecological surgical procedure.

430,000 hysterectomies were performed in US in 2010

680,000 hysterectomies were performed in US in 2002

Five broad diagnostic categories of indications for Hysterectomy

- Uterine leiomyomas
- Pelvic organ prolapse (POP)
- Pelvic pain or infection (eg, endometriosis, PID)
- Abnormal uterine bleeding (AUB)
- Malignant & premalignant disease

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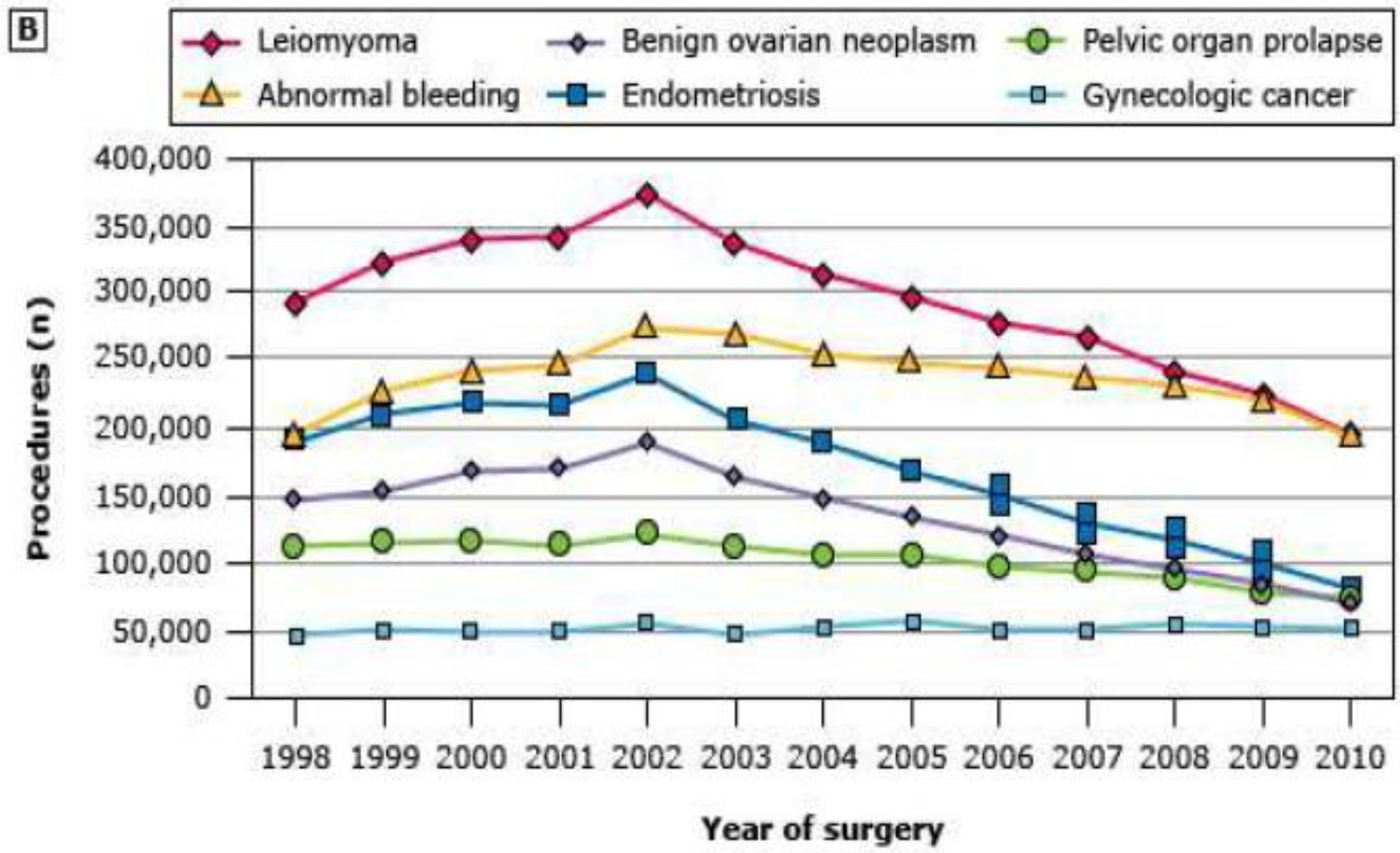
Procedures (n) performed each year stratified by indication for surgery (US)



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A number of the indication for Hysterectomy are based more upon opinion than evidence from well-designed studies

The decision to proceed with Hysterectomy is made mutually by the woman and her physician based upon:

- functional impairment
- childbearing plans
- respons to medical therapy
- discussion of alternatives
- perception that the risk of the procedure are outweighed by the expected benefits

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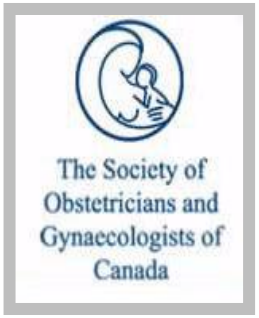

SOGC CLINICAL PRACTICE GUIDELINES

No. 128, May 2003

THE MANAGEMENT OF UTERINE LEIOMYOMAS

The following clinical practice guideline has been reviewed by the Clinical Practice Gynaecology Committee and approved by Executive and Council of the Society of Obstetricians and Gynaecologists of Canada.

ACOG practice bulletin

Surgical Alternatives to Hysterectomy in the Management of Leiomyomas

Number 16, May 2000

"The majority of fibroids are asymptomatic and will not require intervention or further investigations"

Society of Obstetricians and Gynaecologistis of Canada
American College of Obstetrics and Gynecologists
New Zealand Guidelines Group
Royal College of Obstetrics and Gynaecologists …….

pnk

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Uterine size is a criteria for Hysterectomy?

"Asymptomatic women with fibroids wher the uterine size is less than 16 weeks in size (and where other causes of pelvic mass have been excluded) do not need further investigations but should be advised to seek medical advice if symptoms occur" (level D)

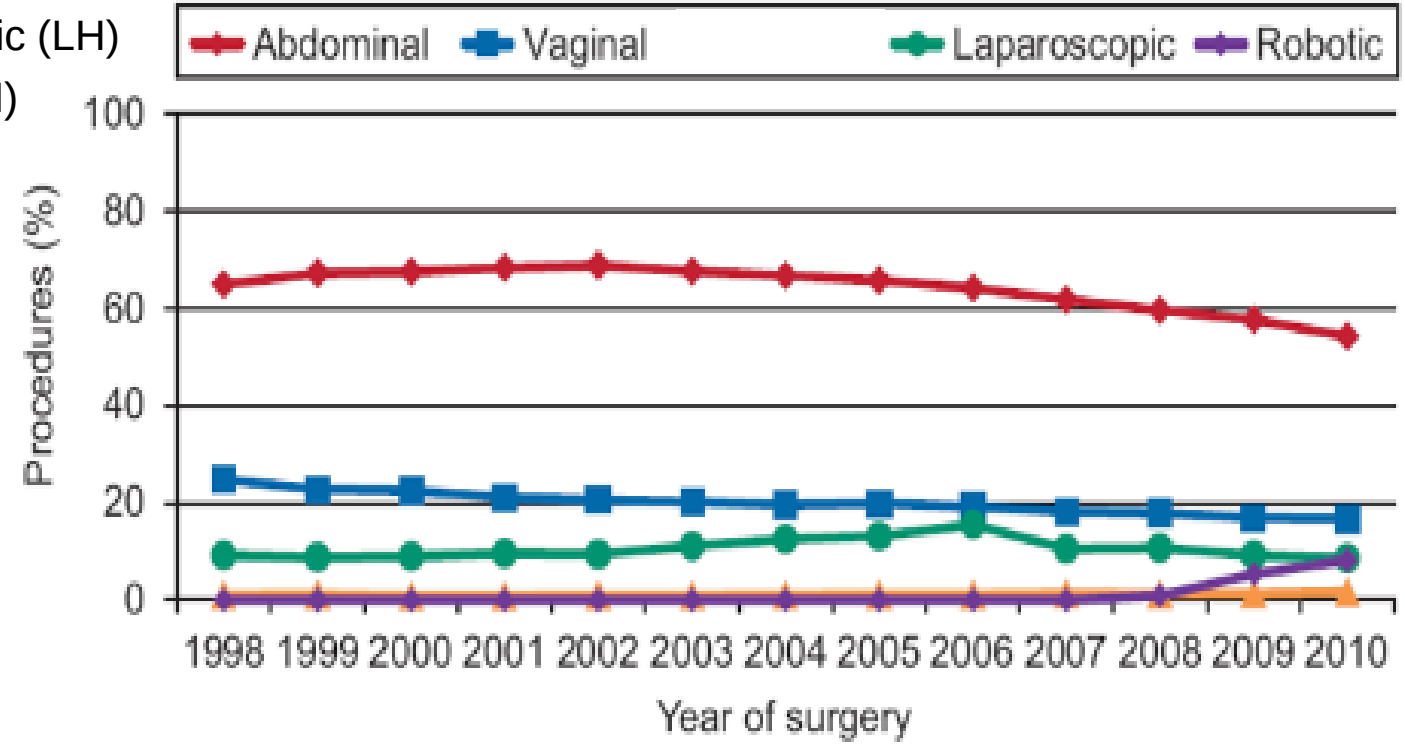
"Asymptomatic women with fibroids >16 <20 weeks in size should have specialist referral to discuss options including observation" (level D)

"Although there is no evidence that asymptomatic women with a fibroid uterus greater than 20 weeks will have future health problems, hysterectomy or myomectomy is an option" (level D)

Working Party of the New Zealand Guidelines Group*

Surgical approach for hysterectomy

Abdominal (AH)
Vaginal (VH)
Laparoscopic (LH)
Robotic (RH)



Surgical approach for hysterectomy

pnk

Surgical approach for hysterectomy

Abdominal (AH)
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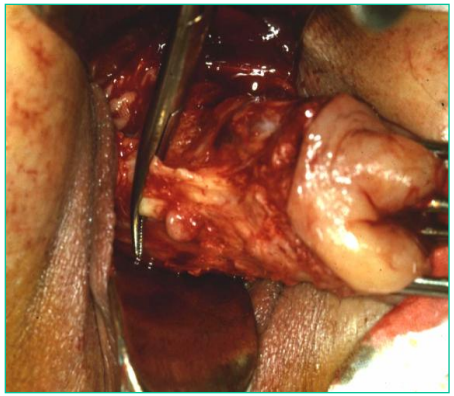

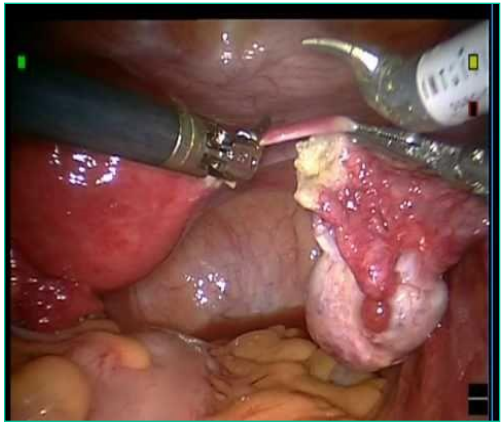

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Special Article

AAGL Position Statement: Route of Hysterectomy to Treat Benign Uterine Disease

AAGL *Advancing Minimally Invasive Gynecology Worldwide*

Conclusion

It is the position of the AAGL that most hysterectomies for benign disease should be performed either vaginally or laparoscopically and that continued efforts should be taken to facilitate these approaches. Surgeons without the requisite training and skills required for the safe performance of VH or LH should enlist the aid of colleagues who do or should refer patients requiring hysterectomy to such individuals for their surgical care.

JMIG, 2011

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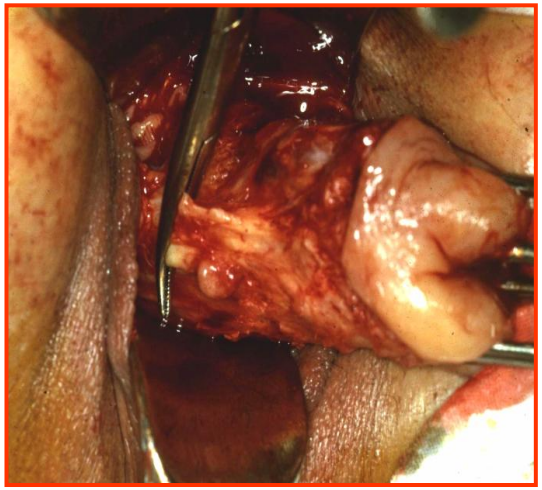
ACOG COMMITTEE OPINION

Number 444 • November 2009

Choosing the Route of Hysterectomy for Benign Disease

- Vaginal hysterectomy is the approach of choice whenever feasible, based on its well-documented advantages and lower complication rates.
- The choice of whether to perform prophylactic oophorectomy at the time of hysterectomy is based on the patient's age, risk factors, and informed wishes, but not on the route of hysterectomy.
- Laparoscopic hysterectomy is an alternative to abdominal hysterectomy for those patients in whom a vaginal hysterectomy is not indicated or feasible.



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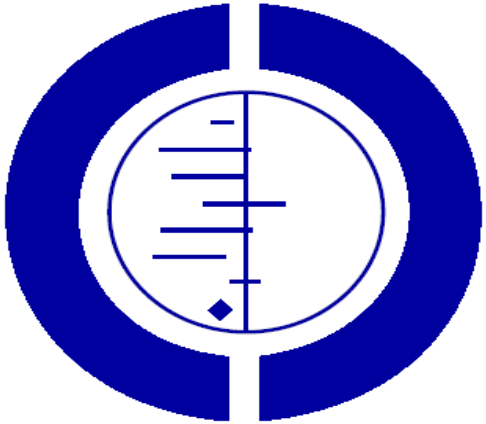
Surgical approach to hysterectomy for benign gynaecological disease (Review)

Johnson N, Barlow D, Lethaby A, Tavender E, Curr E, Garry R



THE COCHRANE COLLABORATION®

The Cochrane Library
2006

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Comparison of three approaches to hysterectomy for benign gynecological disease

Vaginal hysterectomy compared to abdominal hysterectomy
Shorter hospitalization (mean difference 1 day, 95% CI 0.7 -1.2)
Speedier return to normal activities (mean difference 9.5 days, 95% CI 6.4-12.6)
Fewer infections or fevers (OR 0.42, 95% CI 0.21-0.83)

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SHARING EXPERTISE

Comparison of three approaches to hysterectomy for benign gynecological disease

Laparoscopic hysterectomy compared to abdominal hysterectomy
Less blood loss (mean difference 45.3 mls, 95% CI 17.9-72.7)
Shorter hospital stay (mean difference 2 days, 95% CI 1.9-2.2)
Speedier return to normal activities (mean difference 13.6 days, 95% CI 11.8-15.4)
Fewer wound infections or fevers (OR 0.32, 95% CI 0.12-0.85)
Longer operating time (mean difference 10.6 minutes, 95% CI 7.4-13.8)
More urinary tract injuries (OR 2.61, 95% CI 1.22-5.60)

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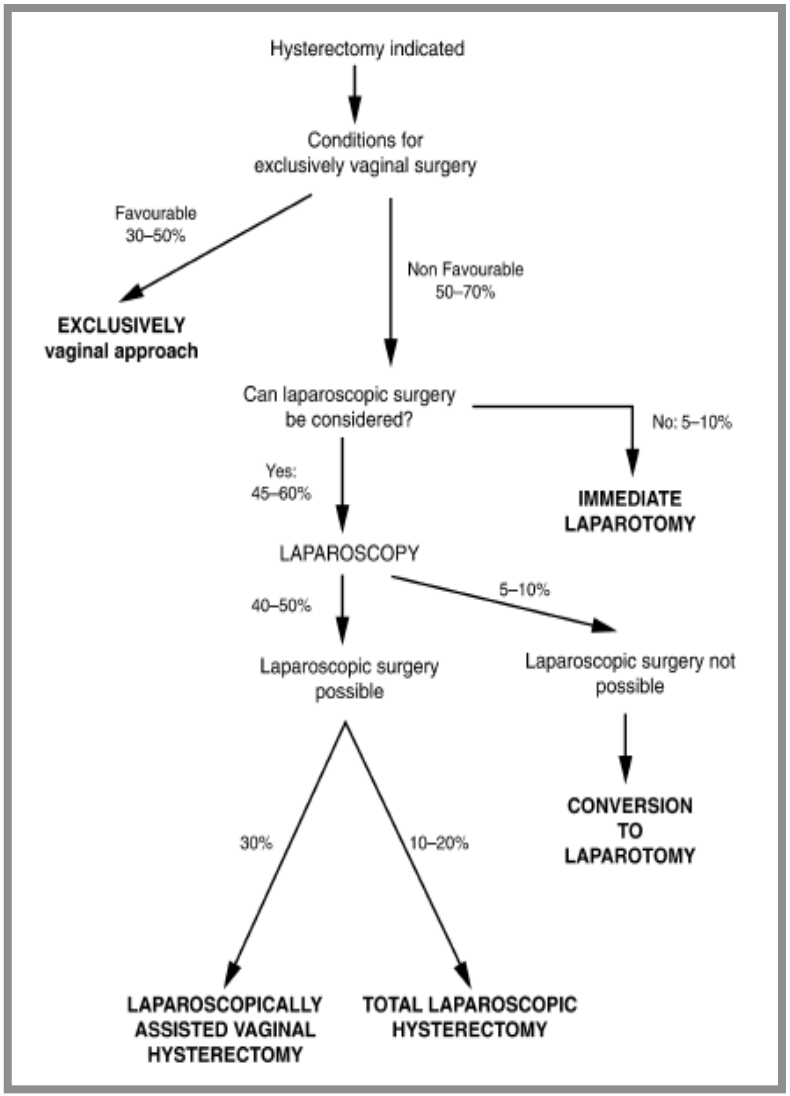
Comparison of three approaches to hysterectomy for benign gynecological disease

Laparoscopic hysterectomy compared to vaginal hysterectomy
Similar outcomes except longer operating time (mean difference 41.5 min, 95% CI 33.7-49.4)
Total laparoscopic hysterectomy compared to laparoscopically assisted vaginal hysterectomy
Similar outcomes except longer operating time (mean difference 25.3 min, 95% CI 10-40.6)

Authors' conclusions

Because of equal or significantly better outcomes on all parameters, VH should be performed in preference to AH where possible. Where VH is not possible, LH may avoid the need for AH however the length of the surgery increases as the extent of the surgery performed laparoscopically increases. The surgical approach to hysterectomy should be decided by the woman in discussion with her surgeon in light of the relative benefits and hazards.



Chapron C, 1999

Vantaggi della via vaginale

❑ Assenza di cicatrice addominale

- dolore chirurgico postoperatorio ridotto
- minori complicanze locali (deiscenza ferita, laparocele)
- vantaggi estetici

❑ Anestesia loco-regionale

- impiego in pazienti ad elevato rischio anestesiologico
- rapida mobilizzazione post-operatoria

❑ Vantaggi tecnici

- ideale nella paziente obesa
- possibilità di sincronia correzione difetti statica pelvica/incontinenza
- tempi chirurgici e perdita ematica contenuti

❑ Costo beneficio favorevole

- strumenti e materiali di basso costo
- degenza ridotta
- rapido ritorno all’attività lavorativa

Vantaggi della via vaginale

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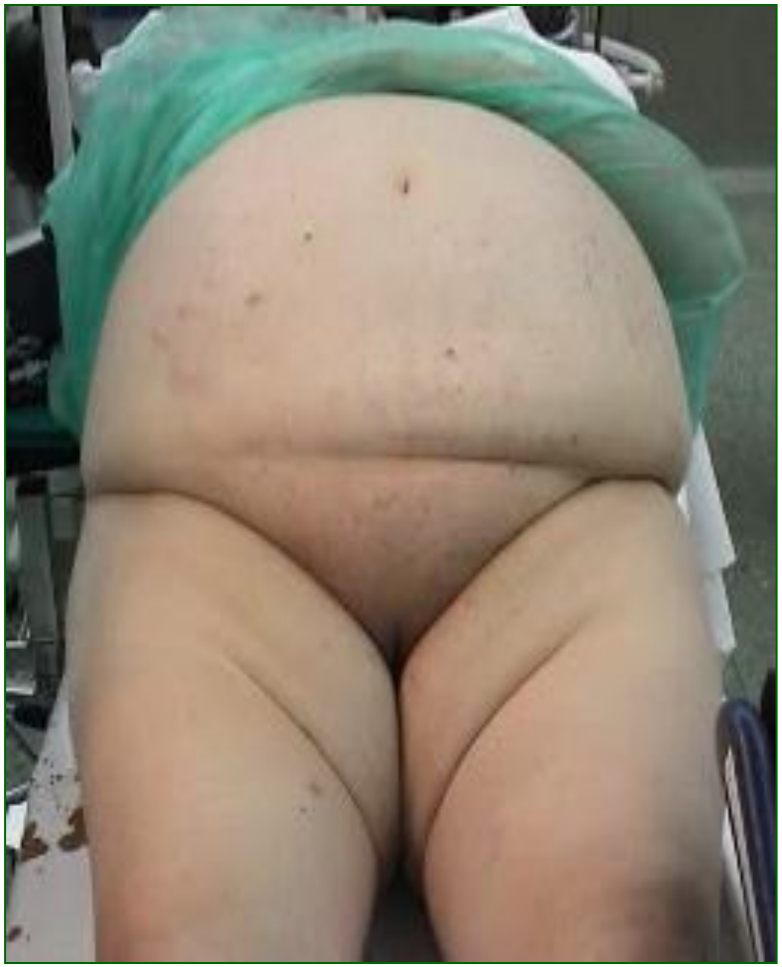
Impiego nella paziente obesa



Effect of Extreme Obesity on Outcomes in Laparoscopic Hysterectomy

Matthew T. Siedhoff, MD, MSCR*, Erin T. Carey, MD, MSCR, Austin D. Findley, MD, Lauren E. Riggins, MD, Joanne M. Garrett, PhD, and John F. Steege, MD

1. EBL
- 1 point = 0-50 mL
- 2 = 51-150
- 3 = 151-500
- 4 = 501-1000
- 5= >1000

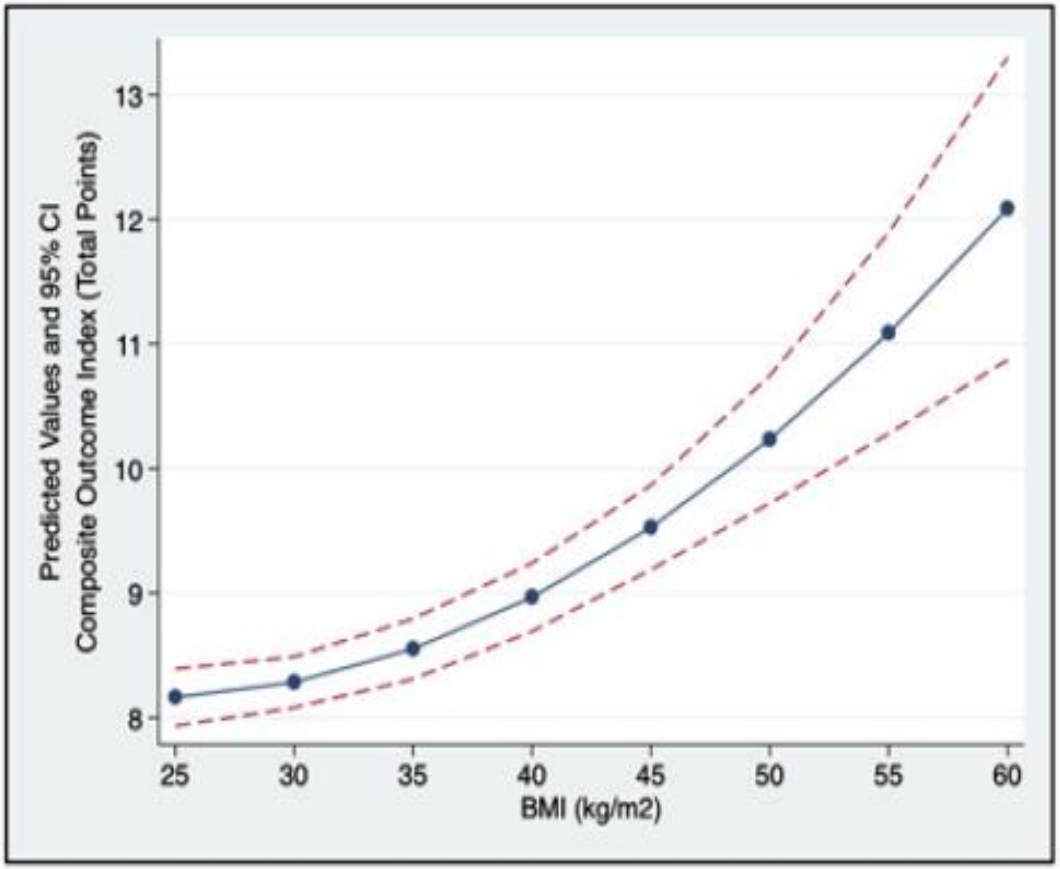
2. Surgery time *
- 1= 0-90 min
- 2 = 91-120
- 3 = 121-240
- 4 = 241-360
- 5 = > 360

3. Non-surgery OR time **
- 1 = 0-30 min
- 2 = 31-45
- 3 = 46-60
- 4 = 61-80
- 5 = > 80

4. Hospital stay
- Number of days = number of points

5. Dindo classification of complication
- 0 = no complication
- 1 = grade 1 (any deviation from normal post-op course)
- 2 = grade 2 (requiring pharmacologic treatment)
- 3 = grade 3a (requiring surgical, endoscopic, or radiologic treatment)
- 4 = grade 3b (same as 3a, but under general anesthesia)
- 5 = grade 4a (single organ dysfunction)
- 6 = grade 4b (multi-organ dysfunction)
- 7 = grade 5 (death)

6. Number of complications
- Number of points = number of complications



JMIG, 2012

Impiego nella paziente a rischio anestesiologico

Lo Strumentario

Tavolo madre

Tavolo servitore

LE “ISTERECTOMIE DIFFICILI”

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Definizione: *casi in cui l’asportazione vaginale dell’utero si presenta più complicata*

Cause più frequenti:

- Abnorme volume uterino
- Ristrettezza vaginale
- Concomitante patologia pelvica
- Precedenti interventi

Presupposti per affrontarle

- Accurata diagnosi preoperatoria
- Idonea esperienza pratica
- Strumentario adeguato
- Possibilità aiuto laparoscopico

Massi GB. Ruolo e significato della chirurgia vaginale, 2005

LE “ISTERECTOMIE DIFFICILI”
Soluzioni tecniche proposte

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ABNORME VOLUME

- Emisezione
- Miomectomia
- Morcellement

RISTRETTEZZA VAGINALE

- Incisione mediana vaginale
- Episiotomia
- Incisione di Schuchardt

MASSI GB. *Ruolo e significato della chirurgia vaginale*, 2005

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SHARING EXPERTISE

Vaginal hysterectomy for enlarged uteri, with or without laparoscopic assistance: randomized study

Conclusion:

*"Therefore, **laparoscopic assistance should not supplant inadequate surgical abilities** and selection of route of hysterectomy should be determined by clinical indications."*

Darai E. *Obstet Gynecol. 2001;97:712-6*

LE “ISTERECTOMIE DIFFICILI”

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CONCOMITANTE PATOLOGIA PELVICA

- Masse annessiali o intraligamentarie
- Sindromi aderenziali
- Endometriosi

PRECEDENTI INTERVENTI ADDOMINALI

- Taglio Cesareo
- Miomectomie
- Interventi sugli annessi

MASSI GB. *Ruolo e significato della chirurgia vaginale*, 2005

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Laparoscopically assisted vaginal hysterectomy

Table 2. Staging of laparoscopic hysterectomy - Richardson 1995

Stage	Laparoscopic content
0	Laparoscopy done but no laparoscopic procedure before vaginal hysterectomy
1	Procedure includes laparoscopic adhesiolysis and/or excision of endometriosis
2	Either or both adnexa freed laparoscopically
3	Bladder dissected from the uterus laparoscopically
4	Uterine artery transected laparoscopically
5	Anterior and/or posterior colpotomy or entire uterus freed laparoscopically

Minilaparotomia in chirurgia ginecologica
-definizione-

- Hoffman SM et al (1998): 5-6 cm
- Benedetti Panici et al (1999): 4-9 cm
- Benedetti Panici et al (2004): 6-**10** cm
- Fagotti A et al (2004): 7-9 cm *(K cervice/endometrio)*
- Glasser MH (2005): 3-6 cm
- Fanfani F et al (2005): 4-9 cm
- Fanfani F et al (2005): 4-7 cm
- Fambrini M et al (2006): 4-8 cm
- Alessandri F et al (2006): 4-6 cm
- Palomba S et al (2007): 4-7 cm
- Fambrini M et al (2007): 5-9 cm *(K endometrio)*
- Wen KC et al (2007): **2**-4 cm
- .....
- Kumar A et al (2014): < 4 cm

Surgery by minilaparotomy under spinal anesthesia for high-risk obese patients with early stage endometrial cancer

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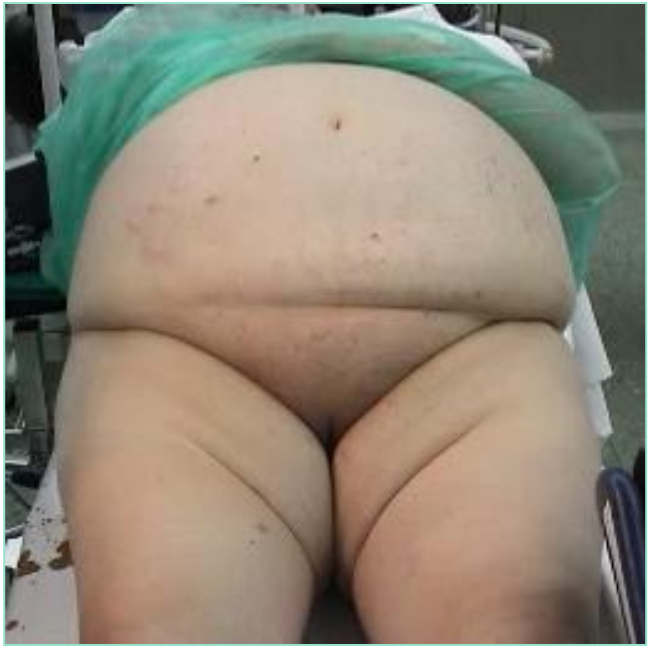
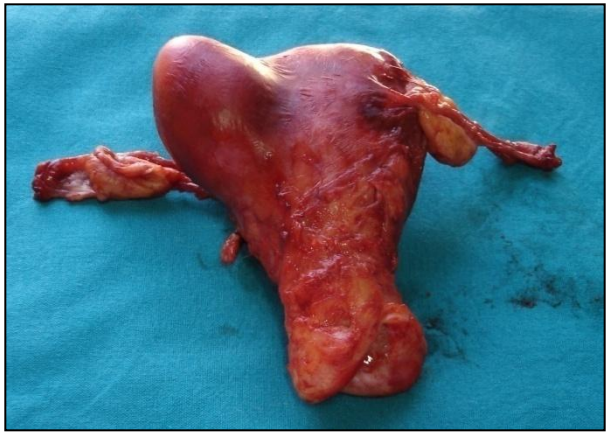
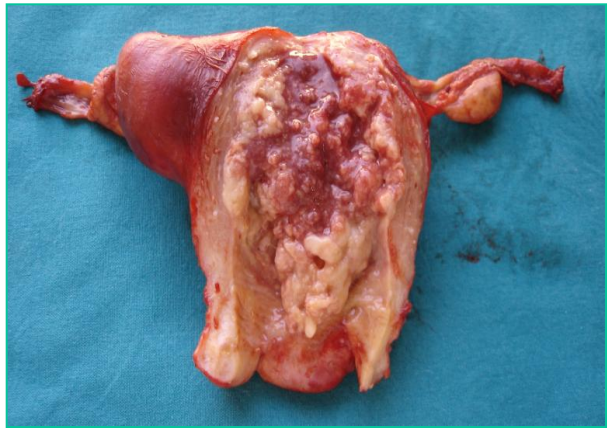
Fambrini M, et al. 2007







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Hysterectomy is the most commonly performed gynecological surgical procedure.

430,000 hysterectomies were performed in US in 2010

680,000 hysterectomies were performed in US in 2002

6% are supracervical Hysterectomies

Total versus subtotal hysterectomy for benign gynaecological conditions (Review)

Lethaby A, Mukhopadhyay A, Naik R

THE COCHRANE COLLABORATION®

Issue 4, 2012

urinary, bowel and sexual function
length of operation
complications

Total versus subtotal hysterectomy for benign gynaecological conditions (Review)

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Comparison 1. Subtotal hysterectomy versus total hysterectomy

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
11 Satisfaction with sex within 2 years post surgery	2	454	Odds Ratio (M-H, Fixed, 95% CI)	1.04 [0.68, 1.59]
11.1 Abdominal surgery	2	454	Odds Ratio (M-H, Fixed, 95% CI)	1.04 [0.68, 1.59]
11.2 Laparoscopic surgery	0	0	Odds Ratio (M-H, Fixed, 95% CI)	0.0 [0.0, 0.0]
12 Satisfaction with sex >2 years post surgery	1	131	Odds Ratio (M-H, Fixed, 95% CI)	0.95 [0.13, 6.98]
12.1 Abdominal hysterectomy	1	131	Odds Ratio (M-H, Fixed, 95% CI)	0.95 [0.13, 6.98]
12.2 Laparoscopic hysterectomy	0	0	Odds Ratio (M-H, Fixed, 95% CI)	0.0 [0.0, 0.0]

n.s.

Total versus subtotal hysterectomy for benign gynaecological conditions (Review)

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B|BRAUN SHARING EXPERTISE

Comparison 1. Subtotal hysterectomy versus total hysterectomy

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
19 Operating time (mins)	5		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
19.1 Abdominal surgery	4	694	Mean Difference (IV, Fixed, 95% CI)	-11.26 [-15.07, -7.45]
19.2 Laparoscopic surgery	1	141	Mean Difference (IV, Fixed, 95% CI)	-5.0 [-14.80, 4.80]
22 Requirement for blood transfusion	5		Odds Ratio (M-H, Fixed, 95% CI)	Subtotals only
22.1 Abdominal surgery	4	694	Odds Ratio (M-H, Fixed, 95% CI)	1.24 [0.61, 2.54]
22.2 Laparoscopic surgery	1	141	Odds Ratio (M-H, Fixed, 95% CI)	1.25 [0.32, 4.86]
23 Blood loss during surgery (mls)	4		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
23.1 Abdominal surgery	3	589	Mean Difference (IV, Fixed, 95% CI)	-56.63 [-99.58, -13.68]
23.2 Laparoscopic surgery	1	141	Mean Difference (IV, Fixed, 95% CI)	-36.0 [-145.35, 73.35]

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Total versus subtotal hysterectomy for benign gynaecological conditions (Review)

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24 Short term complications (predischarge)	6		Odds Ratio (M-H, Fixed, 95% CI)	Subtotals only
24.1 Surgical injury	3	549	Odds Ratio (M-H, Fixed, 95% CI)	0.28 [0.06, 1.36]
24.2 Pelvic haematoma/ abscess	3	660	Odds Ratio (M-H, Fixed, 95% CI)	0.41 [0.13, 1.32]
24.3 Vaginal bleeding	3	660	Odds Ratio (M-H, Fixed, 95% CI)	0.74 [0.29, 1.91]
24.4 Wound infection	3	733	Odds Ratio (M-H, Fixed, 95% CI)	0.86 [0.38, 1.95]
24.5 Pyrexia (fever)	5	933	Odds Ratio (M-H, Fixed, 95% CI)	0.48 [0.31, 0.75]
24.6 Urinary retention	5	933	Odds Ratio (M-H, Fixed, 95% CI)	0.23 [0.06, 0.81]
24.7 Bowel obstruction/ileus	4	731	Odds Ratio (M-H, Fixed, 95% CI)	0.59 [0.24, 1.46]

Total versus subtotal hysterectomy for benign gynaecological conditions (Review)

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25 Intermediate term complications (after discharge and within 2 years post surgery)	5		Odds Ratio (M-H, Fixed, 95% CI)	Subtotals only
25.1 Ongoing cyclical bleeding	5	964	Odds Ratio (M-H, Fixed, 95% CI)	15.97 [6.14, 41.56]
25.2 Persistent pain	5	963	Odds Ratio (M-H, Fixed, 95% CI)	0.90 [0.58, 1.38]
25.3 Removal of cervical stump	2	457	Odds Ratio (M-H, Fixed, 95% CI)	5.14 [0.60, 44.35]
25.4 Pelvic prolapse	4	839	Odds Ratio (M-H, Fixed, 95% CI)	2.74 [0.80, 9.34]
25.5 Gynaecological cancer	0	0	Odds Ratio (M-H, Fixed, 95% CI)	0.0 [0.0, 0.0]
26 Long term complications (>2 years post surgery)	1		Odds Ratio (M-H, Fixed, 95% CI)	Subtotals only
26.1 Fistula	0	0	Odds Ratio (M-H, Fixed, 95% CI)	0.0 [0.0, 0.0]
26.2 Pelvic prolapse	1	127	Odds Ratio (M-H, Fixed, 95% CI)	0.84 [0.41, 1.70]
26.3 Gynaecological cancer	0	0	Odds Ratio (M-H, Fixed, 95% CI)	0.0 [0.0, 0.0]

True Incidence of Vaginal Vault Prolapse

Thirteen Years of Experience

Marchionni M, *et al. J Reprod Med 1999;44(8):679*

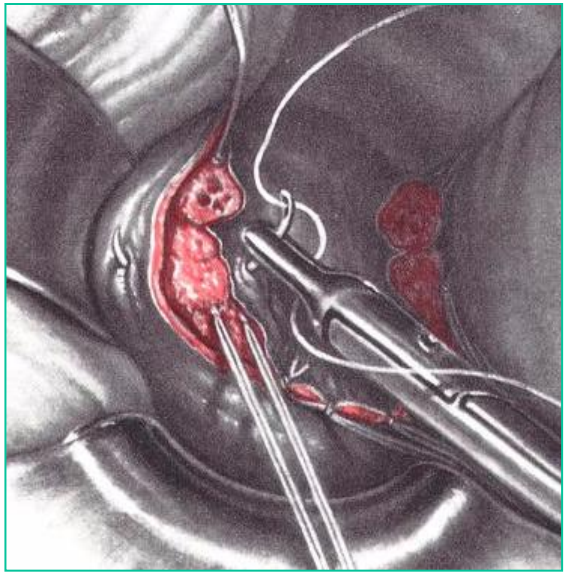
B|BRAUN SHARING EXPERTISE

20 prolassi della volta su 448 isterectomie

4.5%

Dopo isterectomia addominale
6/308 → **2%**

Dopo isterectomia vaginale
14/140 → **10%**



Dopo isterectomie per prolasso
14/120
↓
11.6%

Dopo isterectomie non per prolasso
0/20
↓
0%

Total versus subtotal hysterectomy for benign gynaecological conditions (Review)

Lethaby A, Mukhopadhyay A, Naik R

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Authors' conclusions

This review has not confirmed the perception that subtotal hysterectomy offers improved outcomes for sexual, urinary or bowel function when compared with total abdominal hysterectomy. Women are more likely to experience ongoing cyclical bleeding up to a year after surgery with subtotal hysterectomy compared to total hysterectomy.

18 Quality of life within 2 years post abdominal surgery (low better)	2		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
18.1 General (abdominal)	1	179	Mean Difference (IV, Fixed, 95% CI)	-1.0 [-4.92, 2.92]
18.2 Anxiety (abdominal)	1	179	Mean Difference (IV, Fixed, 95% CI)	0.20 [-2.68, 3.08]
18.3 Depression (abdominal and laparoscopic)	2	242	Mean Difference (IV, Fixed, 95% CI)	-0.27 [-1.55, 1.00]
18.4 Psychological domain (laparoscopic)	1	63	Mean Difference (IV, Fixed, 95% CI)	-2.0 [-15.66, 11.66]

n.s.

B|BRAUN
SHARING EXPERTISE

technical questions for the experts

Urinary tract injuries
Vaginal cuff dehiscence

Urinary tract injuries

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SHARING EXPERTISE

The eVALuate study: two parallel randomised trials, one comparing laparoscopic with abdominal hysterectomy, the other comparing laparoscopic with vaginal hysterectomy

Ray Garry, Jayne Fountain, Su Mason, Vicky Napp, Julia Brown, Jeremy Hawe, Richard Clayton, Jason Abbott, Graham Phillips, Mark Whittaker, Richard Lilford, Stephen Bridgman

	Abdominal trial		Vaginal trial	
	Abdominal hysterectomy (n=292)	Laparoscopic hysterectomy (n=584)	Vaginal hysterectomy (n=168)	Laparoscopic hysterectomy (n=336)
Major haemorrhage	7* (2.4)	27* (4.6)	5 (2.9)	17 (5.1)
Bowel injury	3 (1)	1 (0.2)	0	0
Ureteric injury	0	5 (0.9)	0	1 (0.3)
Bladder injury	3 (1)	12* (2.1)	2 (1.2)	3 (0.9)
Pulmonary embolus	2 (0.7)	1 (0.2)	0	2 (0.6)
Anaesthesia problems	0	5* (0.9)	0	2 (0.6)
Unintended laparotomy:				
Intraoperative conversion	1† (0.3)	23 (3.9)	7 (4.2)	9 (2.7)
Return to theatre	1 (0.3)	3 (0.5)	0	1 (0.3)
Wound dehiscence	1 (0.3)	1 (0.2)	0	1 (0.3)
Haematoma	2 (0.7)	4 (0.7)	2 (1.2)	7 (2.1)
Other complications	0	0 (0)	1 (0.6)	0 (0)
At least one major complication	18 (6.2)	65 (11.1)	16 (9.5)	33 (9.8)

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Laparoscopic Hysterectomy vs Abdominal Hysterectomy

THE COCHRANE COLLABORATION®

5 Intraoperative visceral injury (dich)	15		Odds Ratio (M-H, Fixed, 95% CI)	Subtotals only
5.1 Bladder injury	11	1988	Odds Ratio (M-H, Fixed, 95% CI)	1.83 [0.87, 3.87]
5.2 Ureter injury	5	1327	Odds Ratio (M-H, Fixed, 95% CI)	3.46 [0.94, 12.71]
5.3 Urinary tract (bladder or ureter) injury	12	2090	Odds Ratio (M-H, Fixed, 95% CI)	2.41 [1.21, 4.82]
5.4 Bowel injury	3	1125	Odds Ratio (M-H, Fixed, 95% CI)	0.17 [0.02, 1.60]
5.5 Vascular injury	2	956	Odds Ratio (M-H, Fixed, 95% CI)	1.76 [0.52, 5.87]
5.6 Bleeding	5	1266	Odds Ratio (M-H, Fixed, 95% CI)	0.38 [0.12, 1.19]

Laparoscopic Hysterectomy vs Vaginal Hysterectomy

THE COCHRANE COLLABORATION®

4 Urinary tract (bladder or ureter) injury	7	1205	Odds Ratio (M-H, Fixed, 95% CI)	2.06 [0.94, 4.54]
4.1 LAVH versus VH	1	80	Odds Ratio (M-H, Fixed, 95% CI)	0.33 [0.01, 8.22]
4.2 LH(a) versus VH	2	136	Odds Ratio (M-H, Fixed, 95% CI)	2.98 [0.30, 29.43]
4.3 TLH versus VH	2	440	Odds Ratio (M-H, Fixed, 95% CI)	3.69 [1.11, 12.24]
4.4 Non-categorisable LH versus VH	2	549	Odds Ratio (M-H, Fixed, 95% CI)	1.01 [0.23, 4.38]

Vaginal cuff dehiscence

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Incidence (%): 0.24 – 0.31

- Laparoscopic: 0.64 – 0.75
- Robotic: 0.46 – 4.12
- Abdominal: 0.15 – 0.26
- Vaginal: 0.08 – 0.25

Risk factors

- Vaginal cuff cellulitis or abscess
- Vaginal trauma (eg, intercourse, instrumentation)
- Cigarette smoking
- Pelvic organ prolapse
- Vaginal hematoma
- Pelvic radiation therapy
- Postmenopausal status
- Chronic conditions that increase intraabdominal pressure (eg, obesity, cough, constipation)
- Impaired wound healing (eg, malnutrition, anemia, diabetes, immunosuppression)
- Mode of surgery (eg, total laparoscopic hysterectomy, robotic-assisted total laparoscopic hysterectomy)

Vaginal cuff closure after minimally invasive hysterectomy: our experience and systematic review of the literature

Stefano Uccella, MD; Fabio Ghezzi, MD; Andrea Mariani, MD; Antonella Cromi, MD, PhD; Giorgio Bogani, MD; Maurizio Serati, MD; Pierfrancesco Bolis, MD

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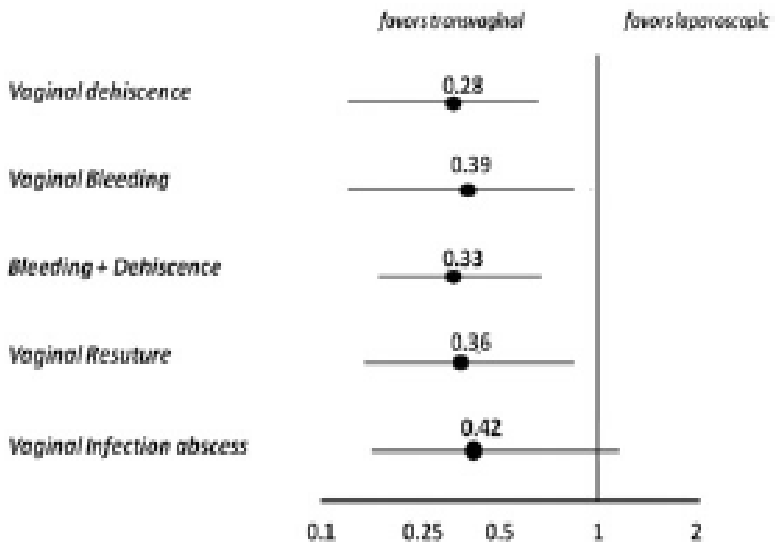
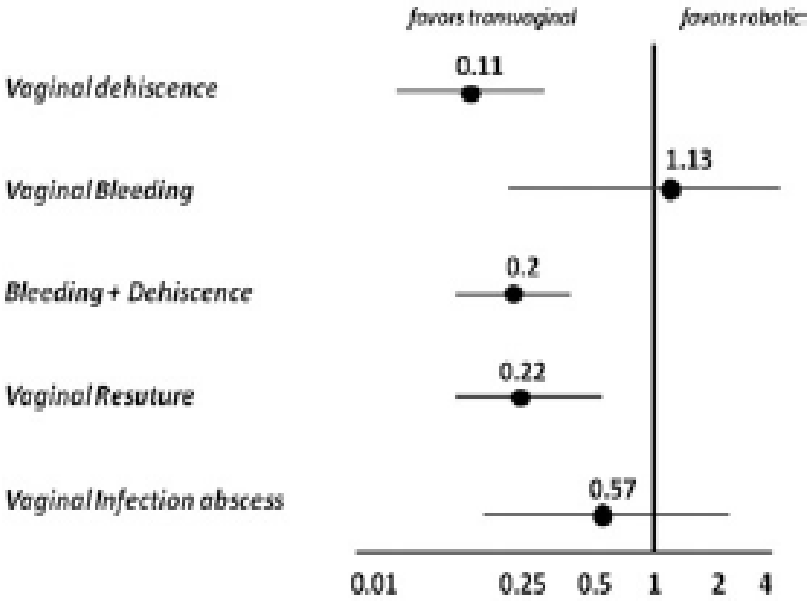
Vaginal cuff complications: transvaginal vs laparoscopic suture



Vaginal cuff complications: transvaginal vs robotic suture



AJOG, 2011

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TABLE 6
Vaginal cuff complications in benign vs malignant disease

Type of complication	Benign disease (n = 9469)	Malignant disease (n = 1750)	OR (95% CI)	*P* value
Dehiscence	47 (0.50%)	23 (1.31%)	0.37 (0.23–0.62)	< .0001[a]
Bleeding	24 (0.25%)	3 (0.17%)	1.48 (0.45–4.92)	.52
Dehiscence + bleeding	71 (0.75%)	26 (1.49%)	0.5 (0.32–0.79)	.002[a]
Resuture	46 (0.49%)	12 (0.69%)	0.71 (0.37–1.34)	.28
Vaginal infection/abscess	22 (0.23%)	6 (0.34%)	0.68 (0.27–1.67)	.39

CI, confidence interval; *OR*, odds ratio.
Data available for 11,219 patients: 9469 benign and 1750 malignant cases.

[a] Significant *P* values (< .05).

Uccella. Vaginal cuff closure after minimally invasive hysterectomy. Am J Obstet Gynecol 2011.

TABLE 8
Comparison of intracorporeal vs extracorporeal laparoscopic knots

Type of complication	Intracorporeal knots (n = 1596)	Extracorporeal knots (n = 3456)	OR (95% CI)	*P* value
Dehiscence	9 (0.56%)	25 (0.72%)	0.78 (0.36–1.67)	.52
Bleeding	15 (0.94%)	16 (0.46%)	2.04 (1.01–4.1)	.04[a]
Dehiscence + bleeding	24 (1.5%)	41 (1.19%)	1.27 (0.77–2.11)	.35
Resuture	8 (0.5%)	28 (0.81%)	0.62 (0.28–1.36)	.22
Vaginal infection/abscess	1 (0.06%)	26 (0.75%)	0.08 (0.01–0.61)	.0018[a]

Data available for 5052 patients: 1566 intracorporeal and 3456 extracorporeal knots.
CI, confidence interval; *OR*, odds ratio.

[a] Significant *P* values (< .05).

Uccella. Vaginal cuff closure after minimally invasive hysterectomy. Am J Obstet Gynecol 2011.

AJOG, 2011

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SHARING EXPERTISE

Amanda Stevens, MD
M. Ali Parsa, MD
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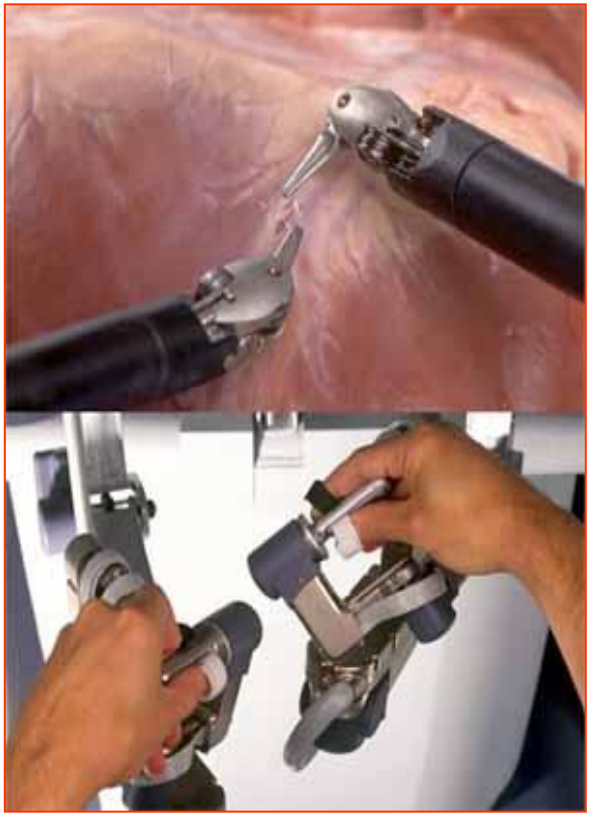
Jacqualin Miller, DO
Elizabeth Buescher, MD
Azadeh Nezhat, MD
Center for Special Minimally Invasive and Robotic Surgery, Stanford University Medical Center, Palo Alto, California

Vaginal Cuff Dehiscence in a Series of 12,398 Hysterectomies: Effect of Different Types of Colpotomy and Vaginal Closure

During the laparoscopic portion of the surgery, it is crucial to develop the vesicovaginal space adequately and to limit the use of coagulation energy at the vaginal cuff to prevent tissue necrosis, which would later affect healing. Suturing the cuff from the vaginal perspective usually allows for easier and more generous tissue purchase. When cuff closure is performed endoscopically by less experienced endoscopic surgeons, an insufficient amount of tissue may be included in the suture owing to magnification.

- Develop VVS adequately
- Limit coagulation
- Suturing by vaginal route
- Generous tissue purchase

Chirurgia robotica



- Magnificazione 10x
- Visione 3D
- Assenza tremore
- 7 gradi di libertà
- Omolateralità del gesto
- Comfort dell'operatore
- Sicurezza per la paziente
- Rapida curva di apprendimento

- Mancanza sensazione tattile
- Tecnologia complessa
- Costi elevati

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Robotic surgery for benign gynaecological disease (Review)

Liu H, Lu D, Wang L, Shi G, Song H, Clarke J

THE COCHRANE COLLABORATION® Issue 2, 2012

Main results

Two trials involving 158 participants were included. Since one included trial was published in conference proceedings, limited usable data were available for further analysis. The only analysis in this trial showed comparable rates of conversions to open surgery between the robotic group and the laparoscopic group (OR 1.41, 95% CI 0.22 to 9.01; P = 0.72). One RCT showed longer operation time (MD 66.00, 95% CI 40.93 to 91.07; P < 0.00001), higher cost (MD 1936.00, 95% CI 445.69 to 3426.31; P = 0.01) in the robotic group compared with the laparoscopic group. Also, both studies reported that robotic and laparoscopic surgery seemed comparable regarding intraoperative outcome, complications, length of hospital stay and quality of life.

Authors' conclusions

Currently, the limited evidence showed that robotic surgery did not benefit women with benign gynaecological disease in effectiveness or in safety. Further well-designed RCTs with complete reported data are required to confirm or refute this conclusion.

Robotically Assisted vs Laparoscopic Hysterectomy Among Women With Benign Gynecologic Disease

Jason D. Wright, MD
Cande V. Ananth, PhD, MPH
Sharyn N. Lewin, MD
William M. Burke, MD
Yu-Shiang Lu, MS
Alfred I. Neugut, MD, PhD
Thomas J. Herzog, MD
Dawn L. Hershman, MD

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JAMA, 2013

Design, Setting, and Patients Cohort study of 264 758 women who underwent hysterectomy for benign gynecologic disorders at 441 hospitals across the United States from 2007 to 2010.

Comparison of Robotic and Laparoscopic Hysterectomy for Benign Gynecologic Disease

Eric B. Rosero, MD, Kimberly A. Kho, MD, MPH, Girish P. Joshi, MD, Martin Giesecke, MD, and Joseph I. Schaffer, MD

Obstet Gynecol, 2013

METHODS: Women undergoing robotic or laparoscopic hysterectomy for benign disease were identified from the United States 2009 and 2010 Nationwide Inpatient Sample.

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B|BRAUN SHARING EXPERTISE

JAMA, 2013

Conclusions and Relevance Between 2007 and 2010, the use of robotically assisted hysterectomy for benign gynecologic disorders increased substantially. Robotically assisted and laparoscopic hysterectomy had similar morbidity profiles, but the use of robotic technology resulted in substantially more costs.

Comparison of Robotic and Laparoscopic Hysterectomy for Benign Gynecologic Disease

Eric B. Rosero, MD, Kimberly A. Kho, MD, MPH, Girish P. Joshi, MD, Martin Giesecke, MD, and Joseph I. Schaffer, MD

Obstet Gynecol, 2013

CONCLUSION: The use of robotic hysterectomy has increased. Perioperative outcomes are similar between laparoscopic and robotic hysterectomy, but robotic cases cost substantially more.

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SHARING EXPERTISE

Special Article

AAGL Position Statement: Robotic-Assisted Laparoscopic Surgery in Benign Gynecology

AAGL *Advancing Minimally Invasive Gynecology Worldwide*

Conclusion

The available evidence indicates that robotic-assisted and conventional laparoscopic techniques for benign gynecologic surgery are comparable regarding perioperative outcomes, intraoperative complications, length of hospital stay, and rate of conversion to open surgery. However, published reports demonstrate that robotic-assisted laparoscopic surgery has similar or longer operating times and higher associated costs [6]. Efforts should be focused on the proper credentialing and privileging of surgeons to utilize robotic surgical systems as a means to minimize cases otherwise performed by laparotomy. Robotic-assisted laparoscopic surgery should not replace conventional laparoscopic or vaginal procedures for women who could otherwise undergo conventional laparoscopic or vaginal surgery for benign gynecologic diseases. This is congruent with the findings of a 2012 Cochrane Review [2].

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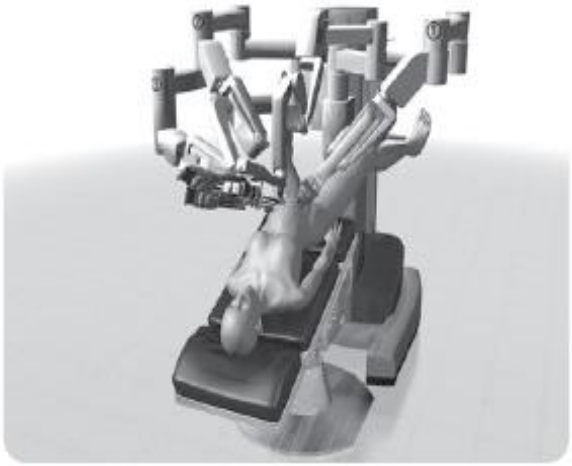

Orientation of the robotic system cart to the patient.

JMIG, 2013

The NEW ENGLAND JOURNAL of MEDICINE

New Technology and Health Care Costs — The Case of Robot-Assisted Surgery

Gabriel I. Barbash, M.D., M.P.H., and Sherry A. Glied, Ph.D.

Procedure	Mean Cost per Procedure in 2007	Change in Cost	
		Excluding Robot	Including Robot
		dollars	
Mainly laparoscopic procedures			
Pyeloplasty	10,065	1,400	3,400
Nephrectomy	14,943	10,600	NA
Nissen fundoplication	13,060	600 to 2,100	1,200 to 22,300
Cholecystectomy	10,366	500	1,700
Unilateral adrenalectomy	14,707	1,400	2,900
Rectopexy	9,040	NA	700
Splenectomy	28,205	3,000	3,200
Gastric bypass	21,275	NA	2,900
Thymectomy	17,983	NA	2,400
Laparoscopic hysterectomy	8,951	2,500	NA

It is unlikely that robot-assisted surgeries will completely replace conventional surgeries for the full range of procedures for which cost studies have been done. If such a substitution did occur, however, it would generate nearly $1.5 billion in additional health care costs annually — excluding the (amortized) costs of the robots, which would bring the total to more than $2.5 billion.

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Robotic assisted surgery for gynaecological cancer (Review)

Shi G, Lu D, Liu Z, Liu D, Zhou X

THE COCHRANE COLLABORATION®

Authors' conclusions

Well-designed RCTs are required as only low quality evidence from CCTs is available. These studies support the use of robotic assisted surgery for endometrial cancer and cervical cancer, but these findings present a high risk of bias.

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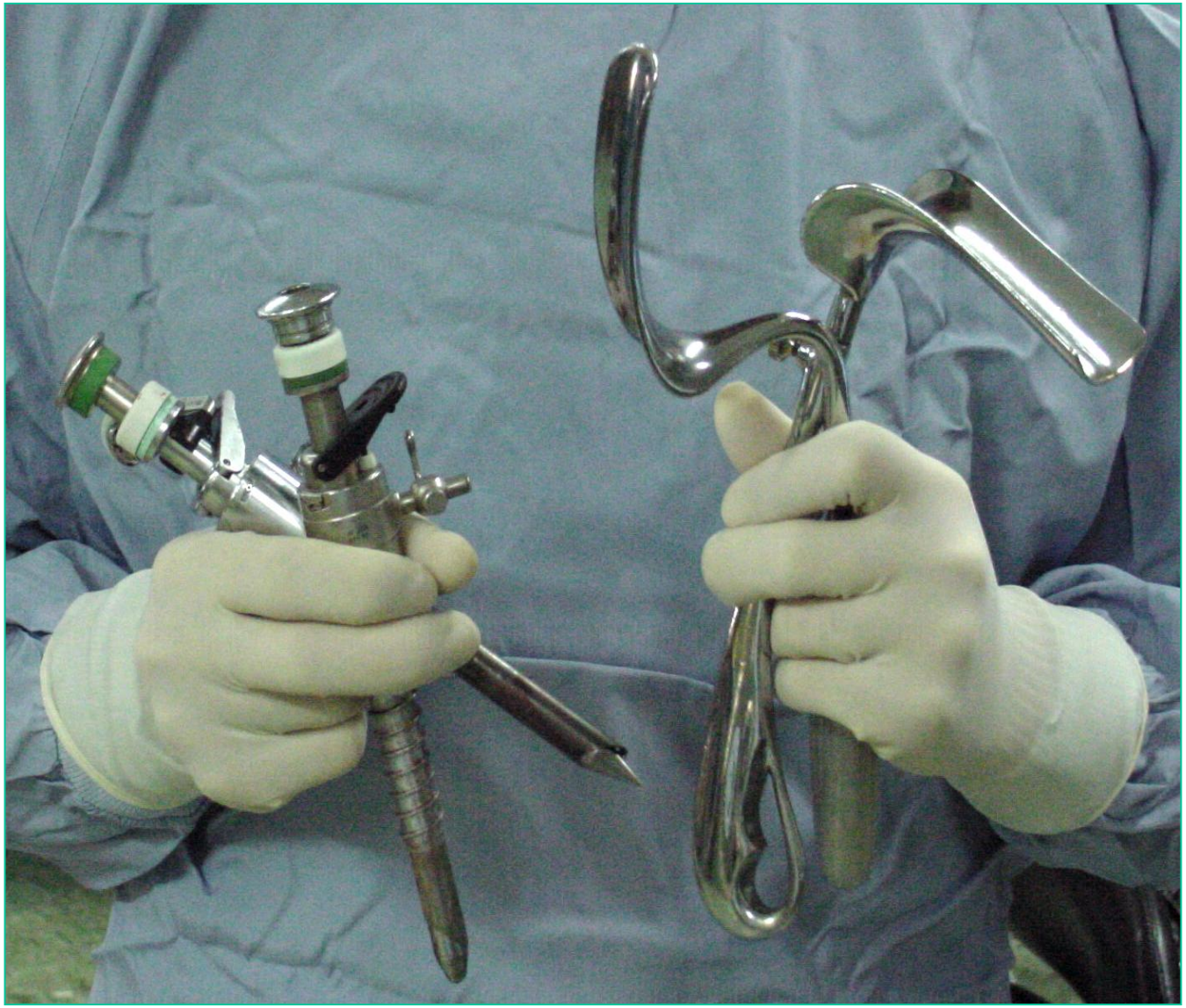
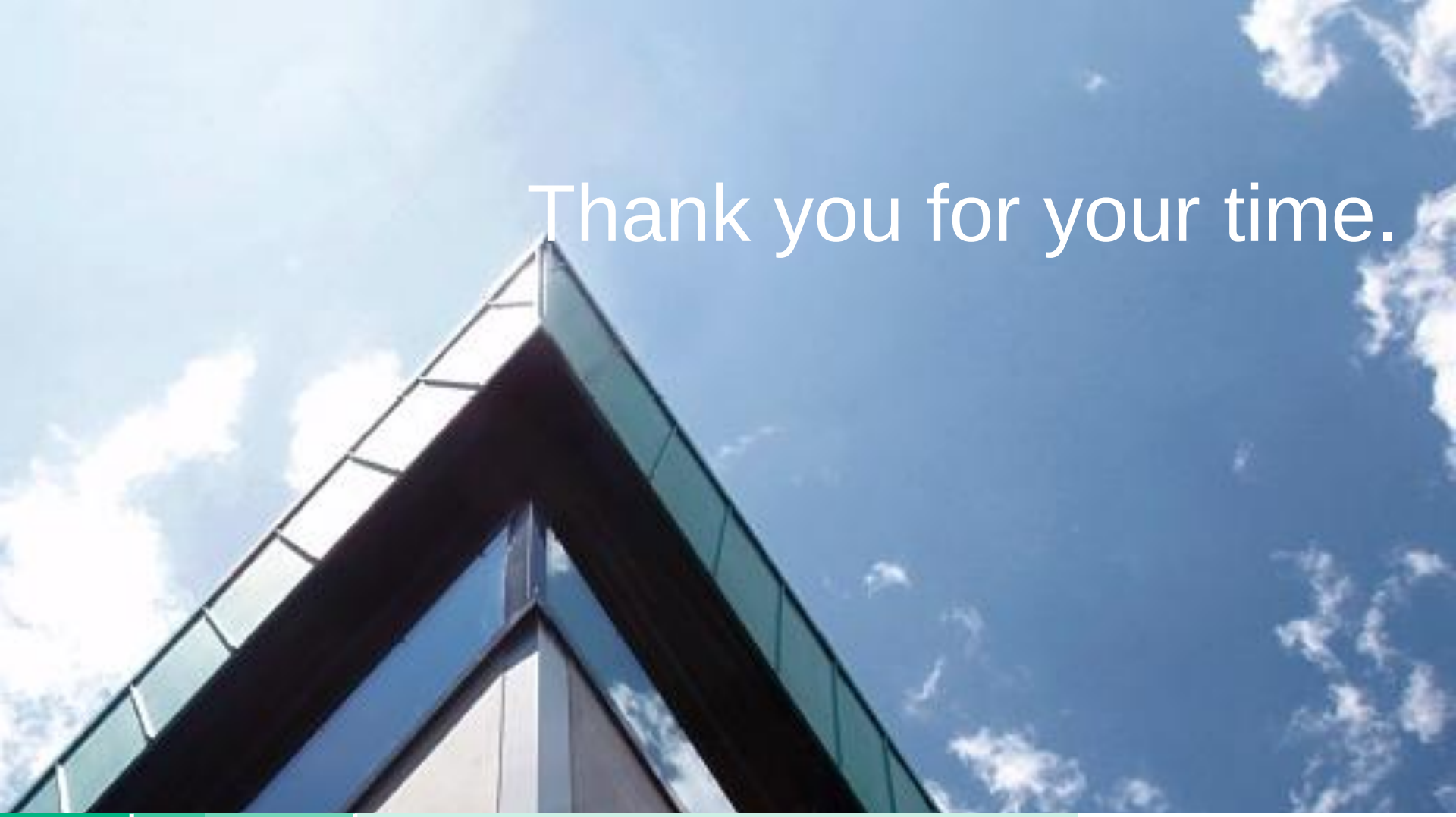


Grazie …



Thank you for your time.

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