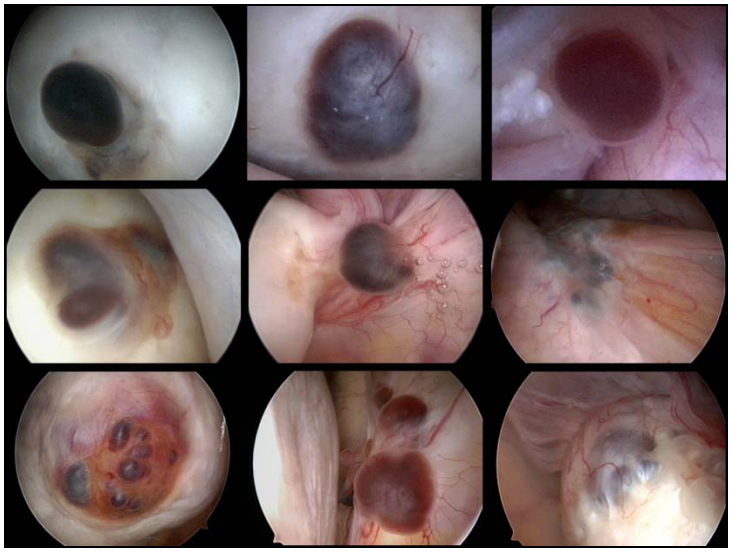
Transvaginal laparoscopy: diagnosis and operative treatment of subtle endometriotic lesions and adhesions.



Stephan Gordts

Edingburgh, 5 – 6 February 2013

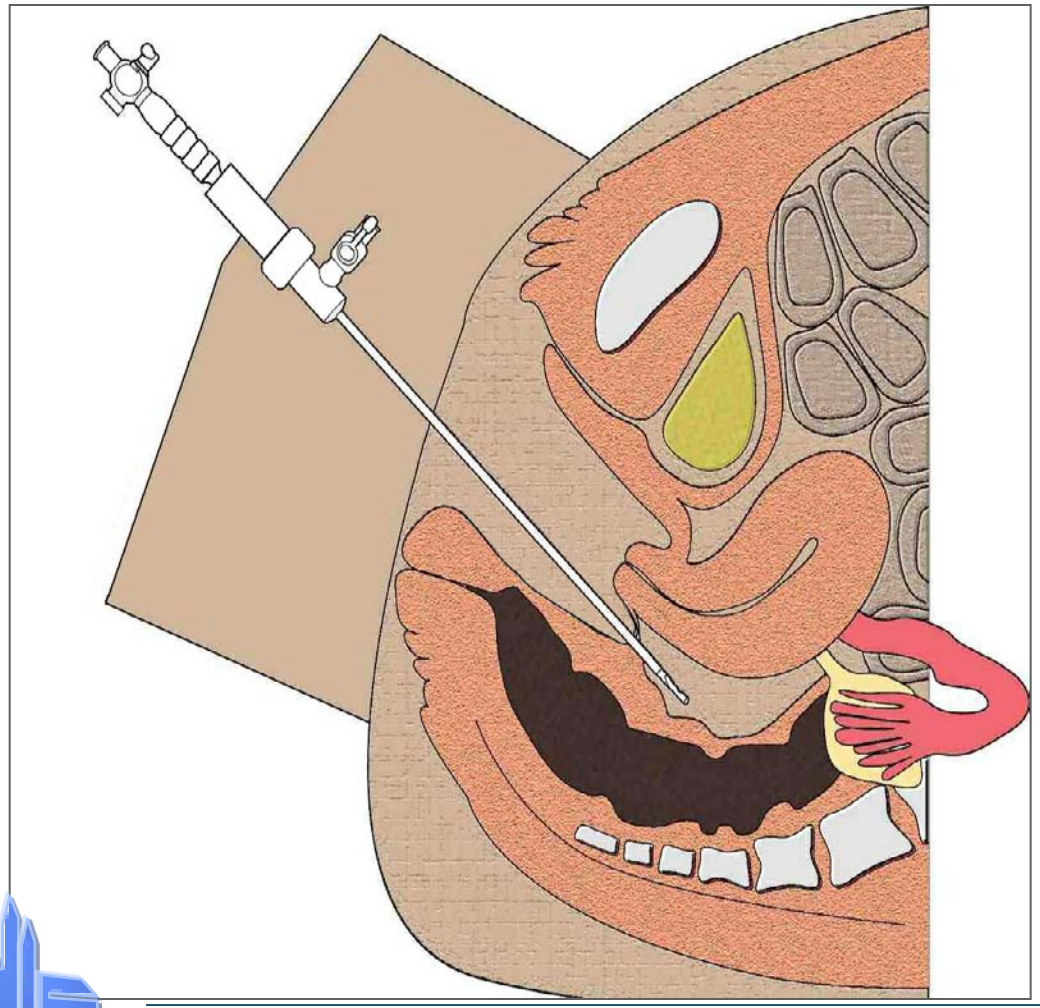
L.I.F.E.
Leuven Institute for Fertility & Embryology

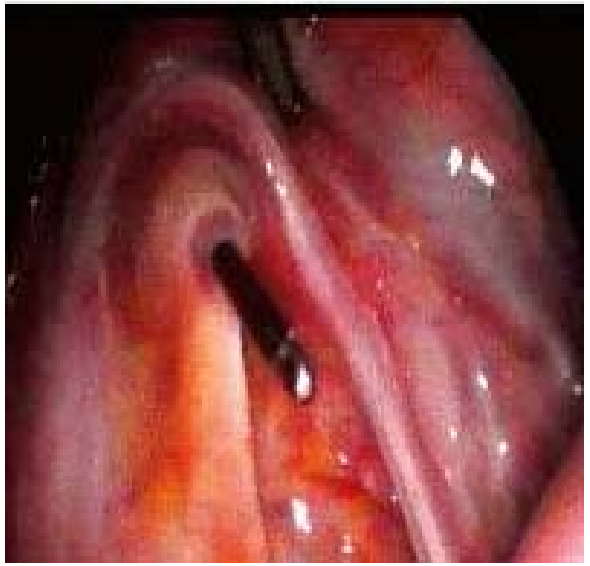
DISCLOSURE

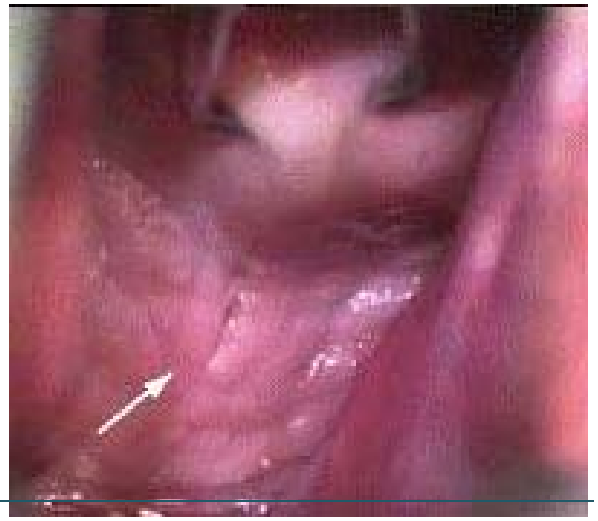
Consultant

Karl Storz, Germany

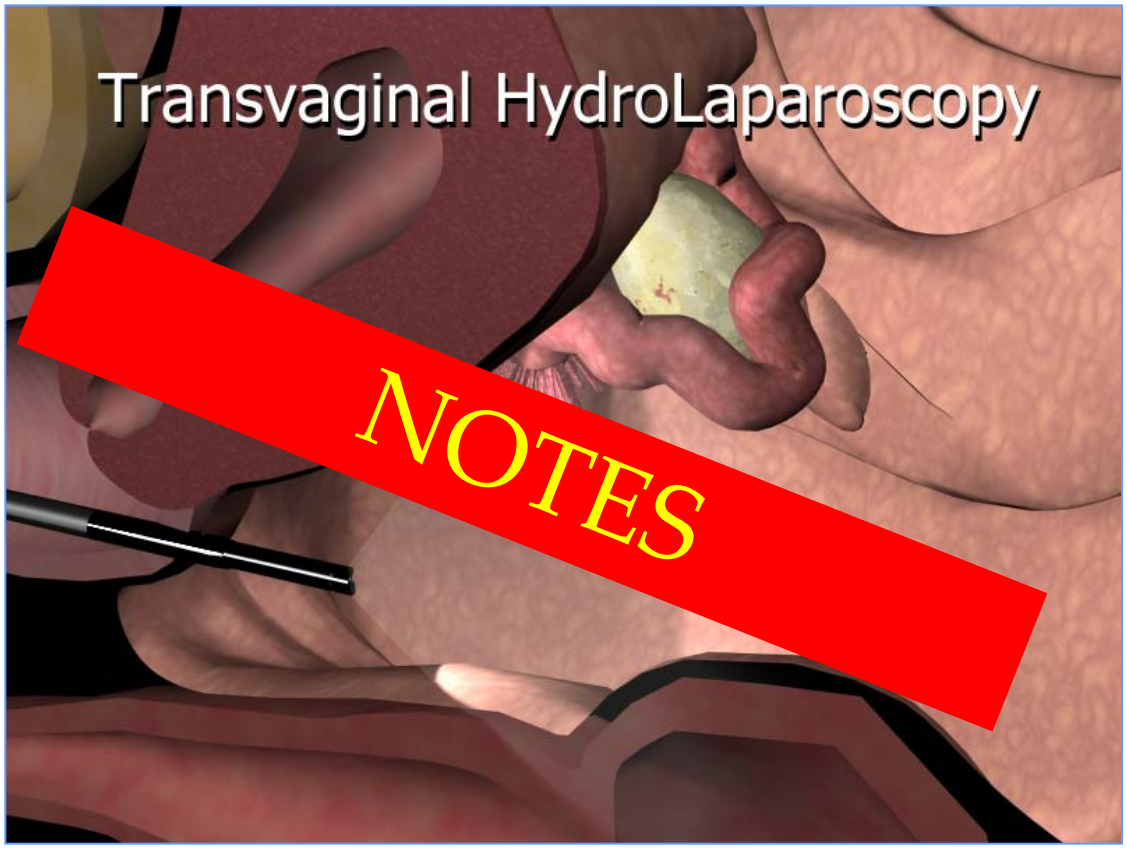
TECHNIQUE







Transvaginal Endoscopy



TRANSVAGINAL ENDOSCOPIC

EXPLORATION

Minimal invasive

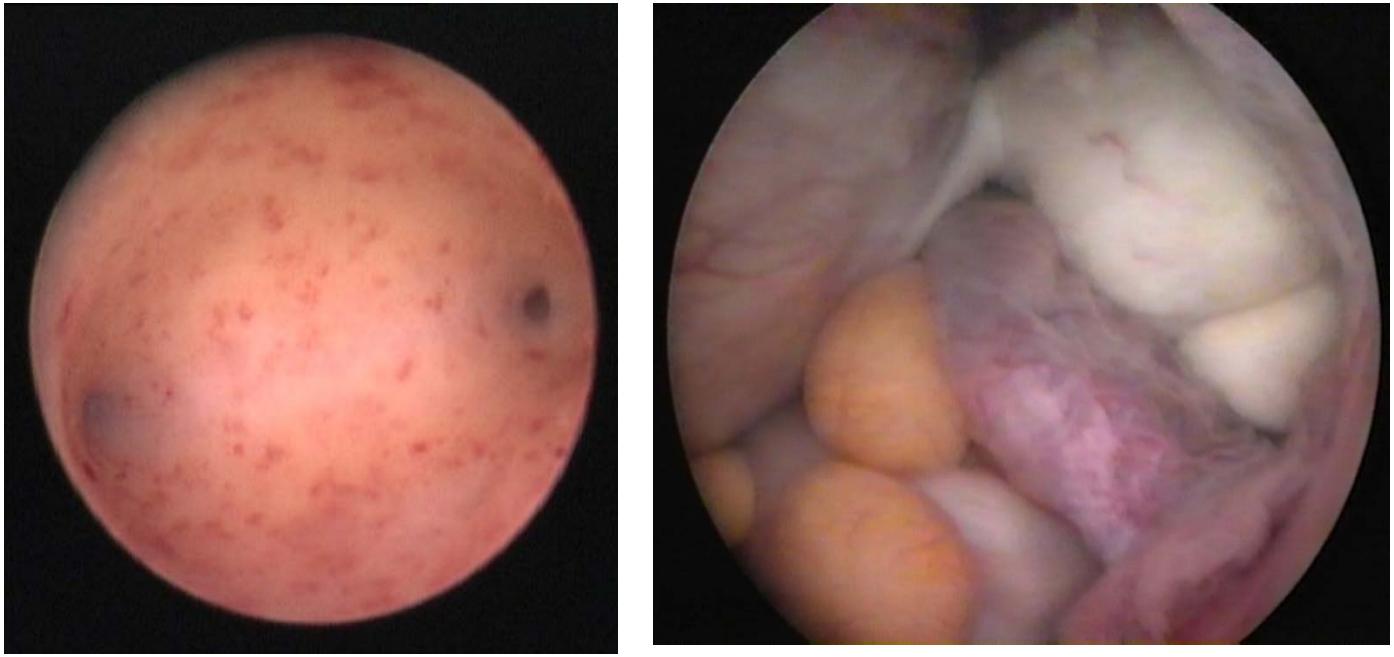
Accuracy

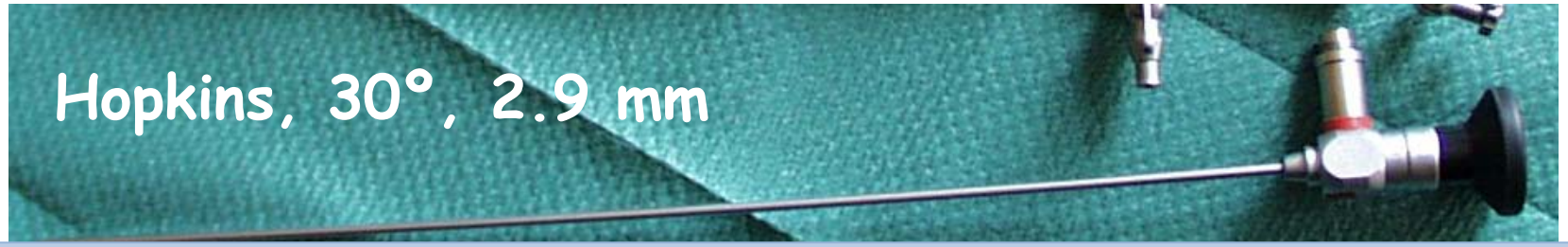
Ambulatory setting

Implantation function

Pick-up and transport

Mini endoscopes
for minimal invasive approach

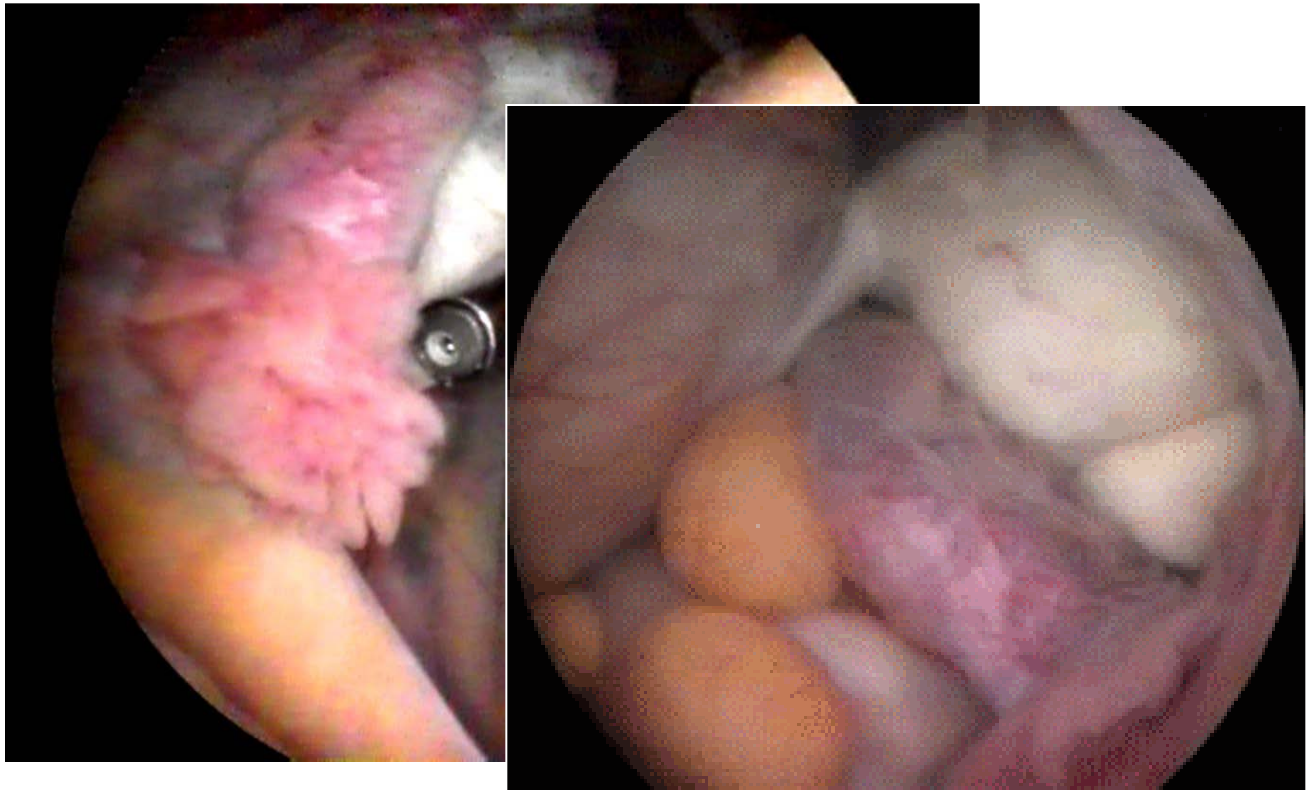




Instrumentation

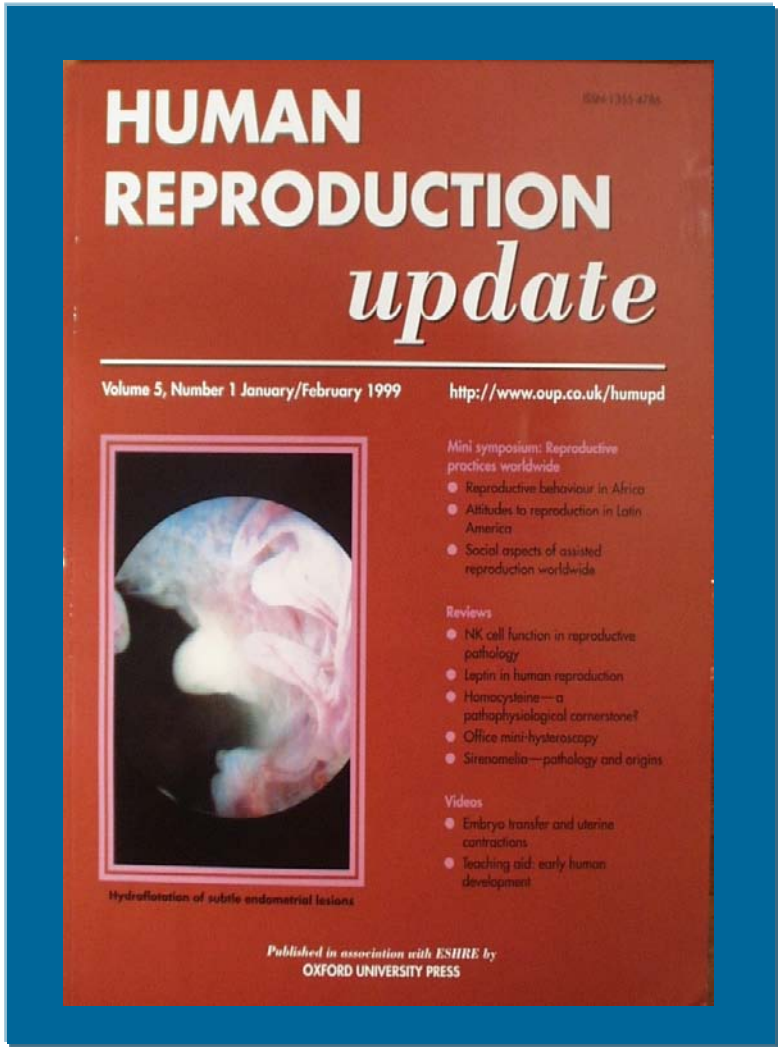
STORZ
KARL STORZ — ENDOSKOPE

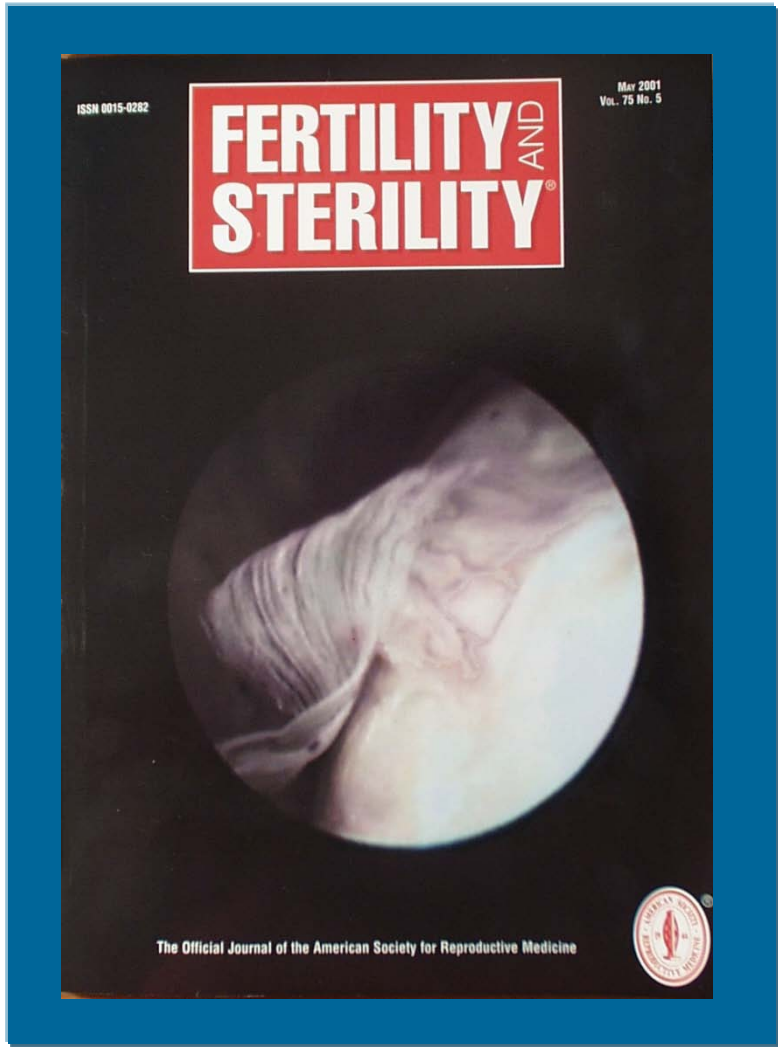
TRANSVAGINAL LAPAROSCOPY



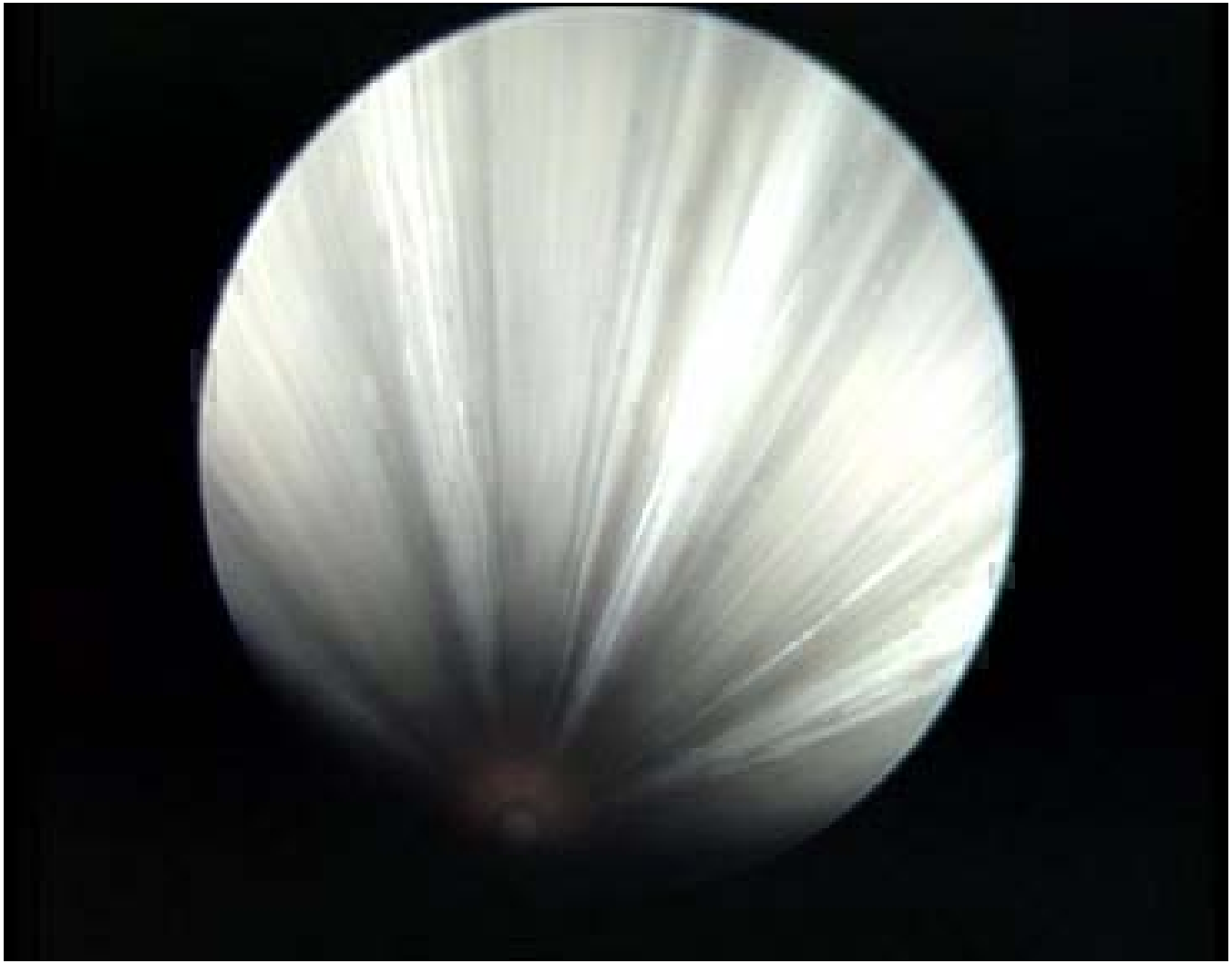
TVE

Watery distension medium





TRANSVAGINAL LAPAROSCOPY



TRANSVAGINAL LAPAROSCOPY

Bowel injuries and infections using a transvaginal access for pelviscopy

	Inf	Nb	Perf
Riva (1960)	2850	11	0
Diamond (1978)	4000	5	1
Gordts (2001)	3667	24	0
Current review	2843	10	0
Total	13360	50	1
			0.37%
	0.007%		

TRANSVAGINAL LAPAROSCOPY

Accuracy

TRANSVAGINAL LAPAROSCOPY DIAGNOSTIC ACCURACY

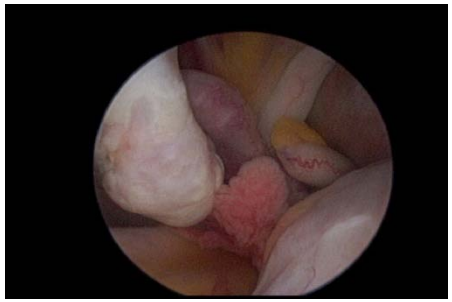
Subtle (endometriotic) ovarian adhesions

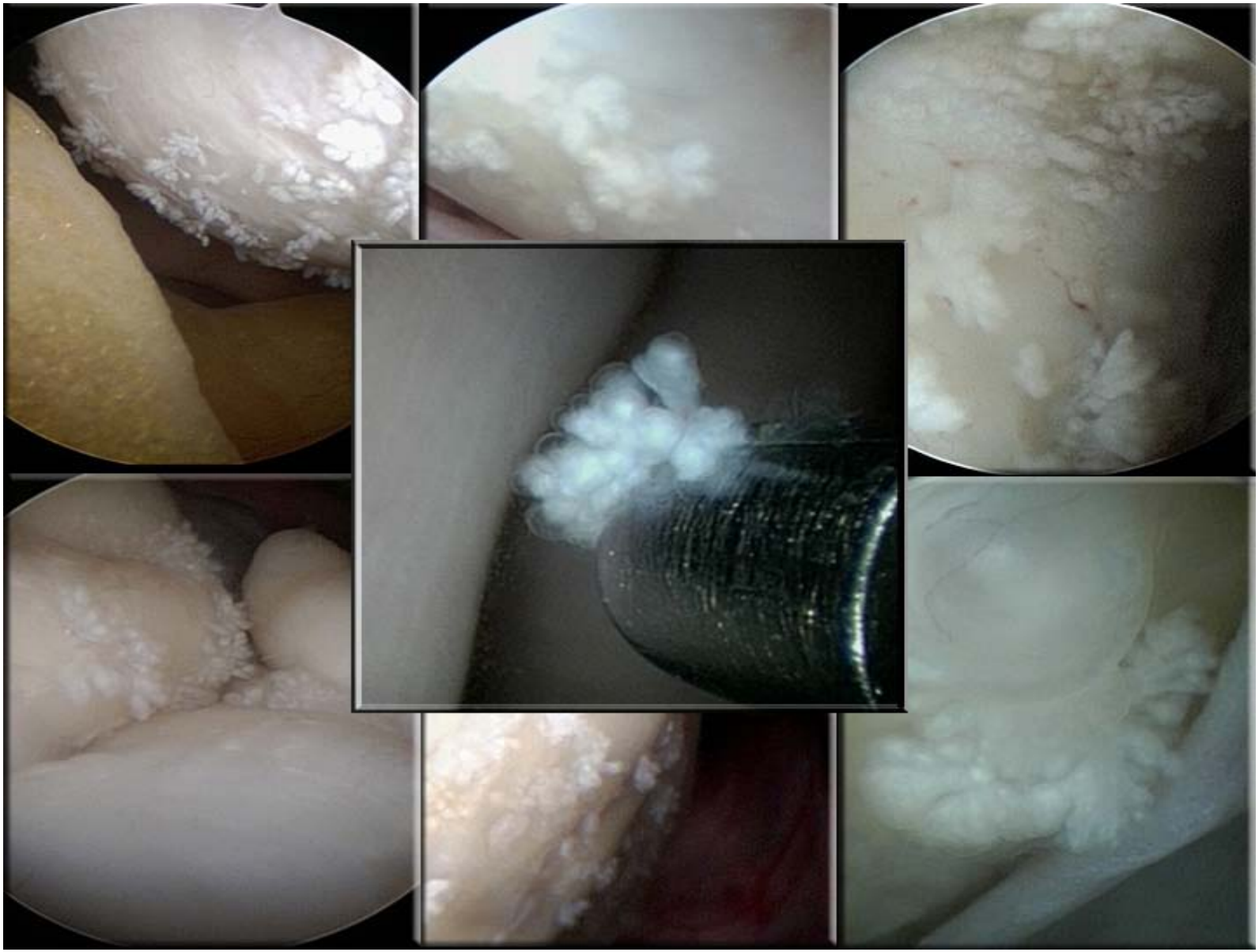
	mild endometriosis	unexplained infertility
S. laparoscopy	40%	0%
Transv.laparoscopy	70%	45%

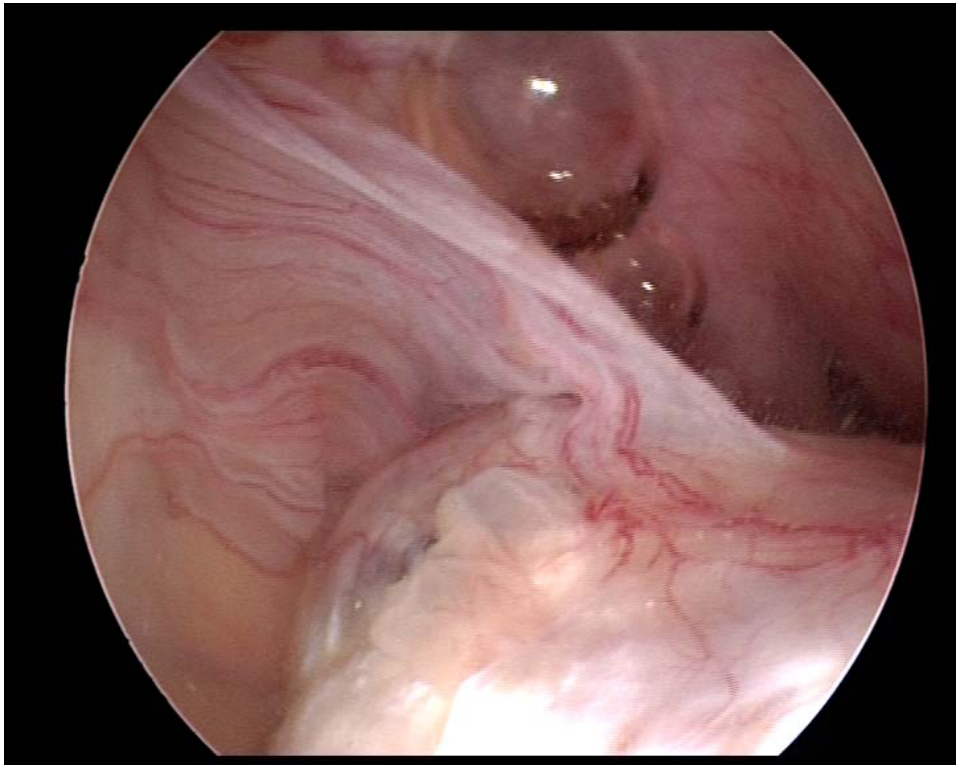
Advantages of transvaginal access

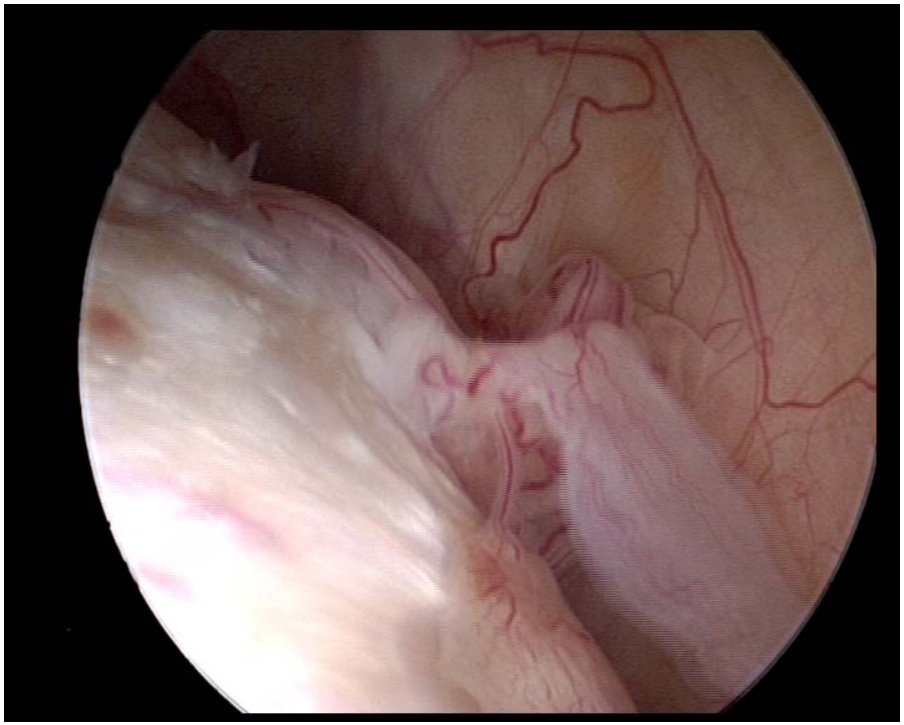
Minimal invasive: low morbidity
easy access (obese patients)
no scars
high patient satisfaction

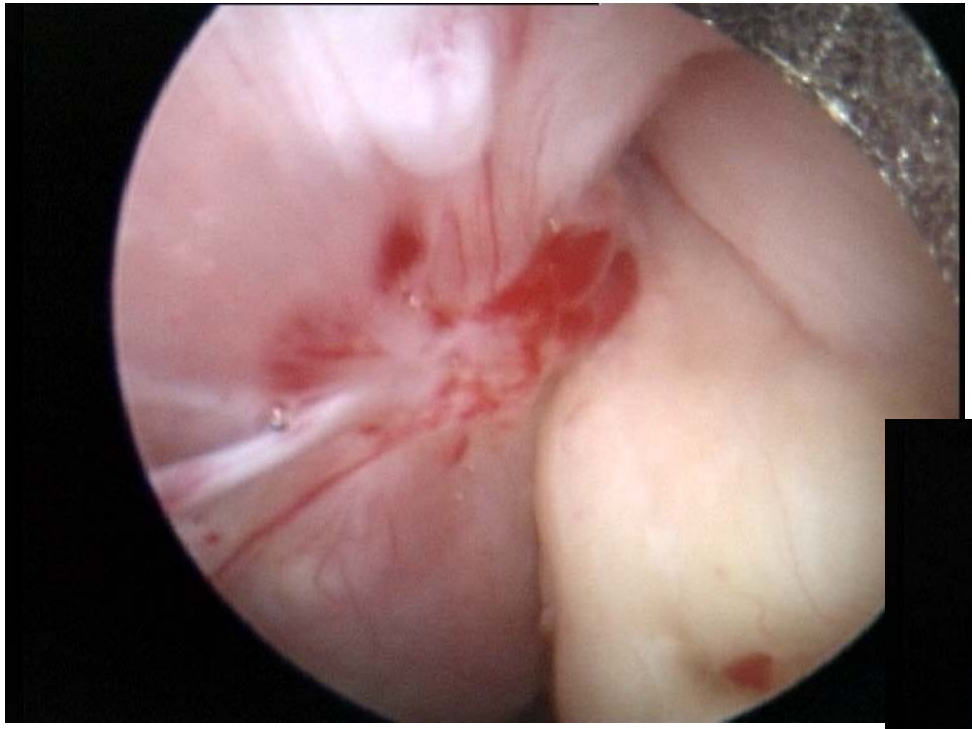
Technical advantages:
ovaries easy accessible
under water surgery (less adhesion formation)
clear visualisation
low risk profile

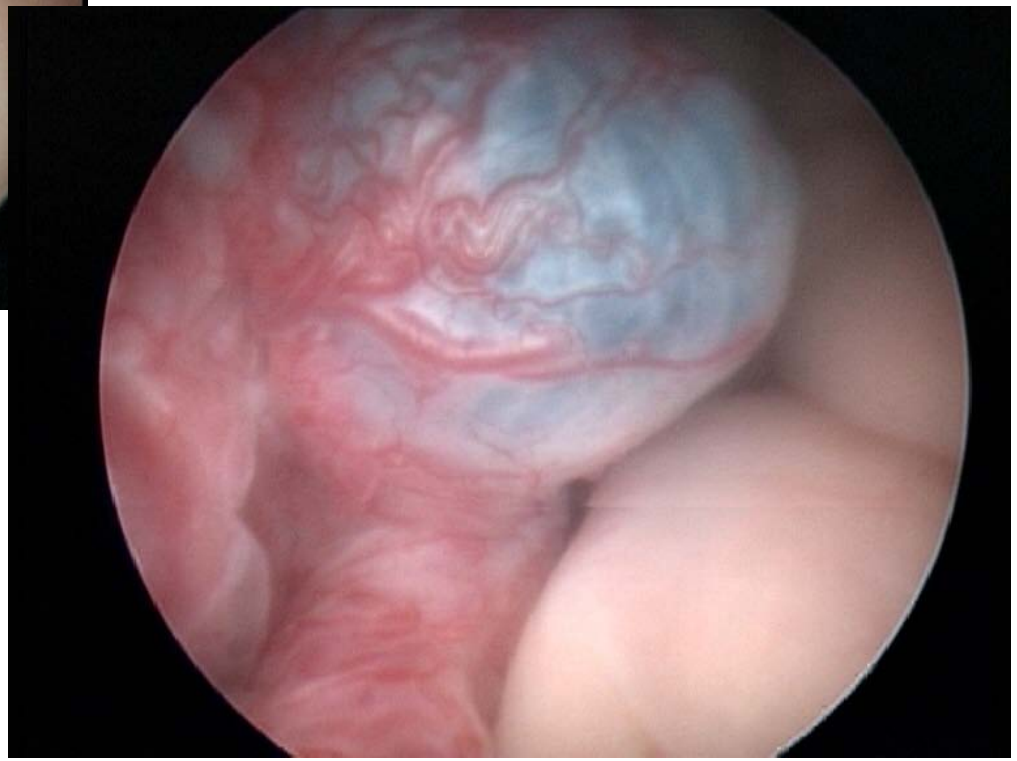




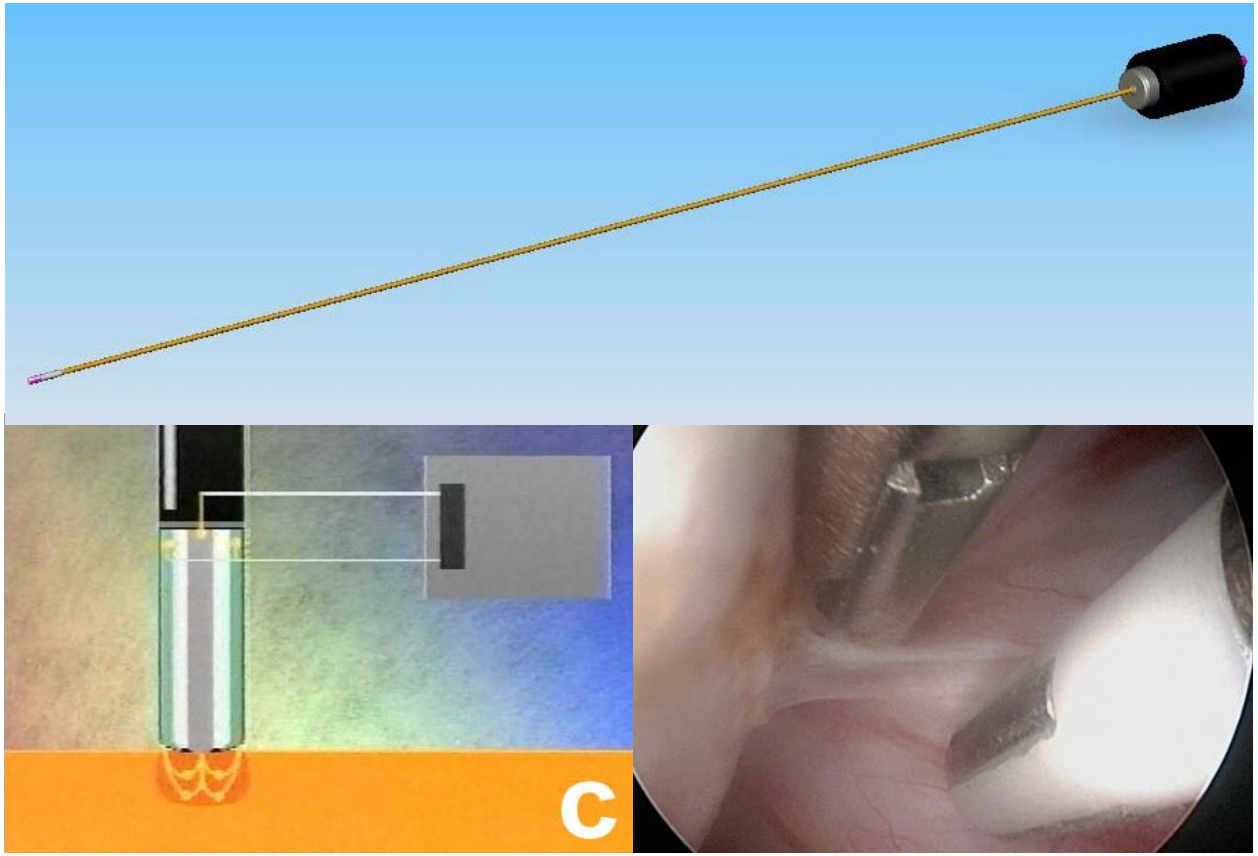


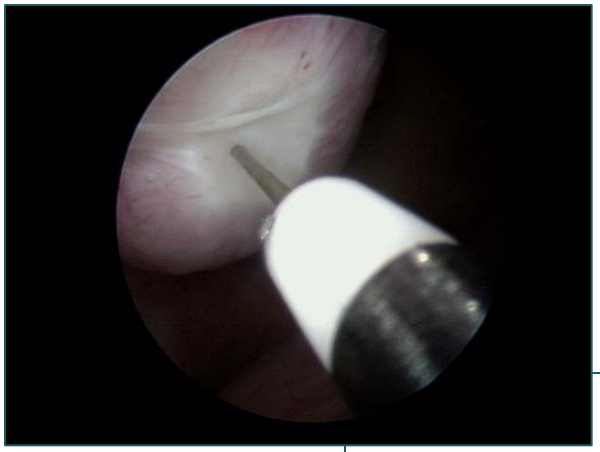


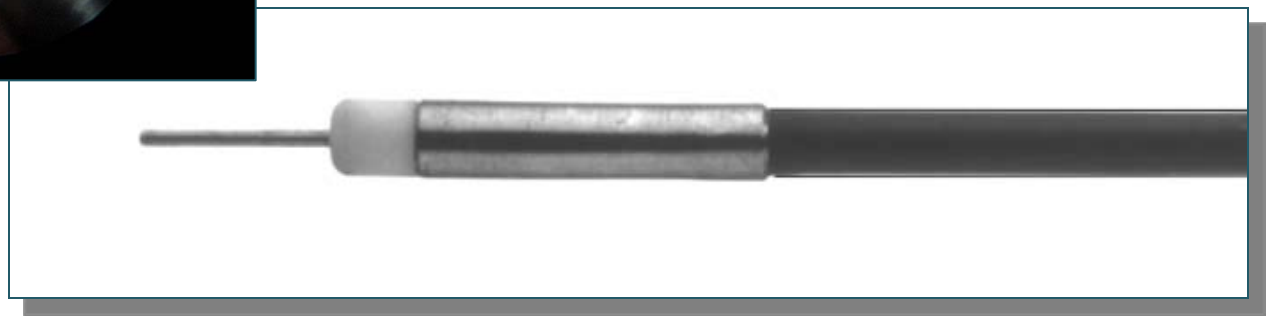


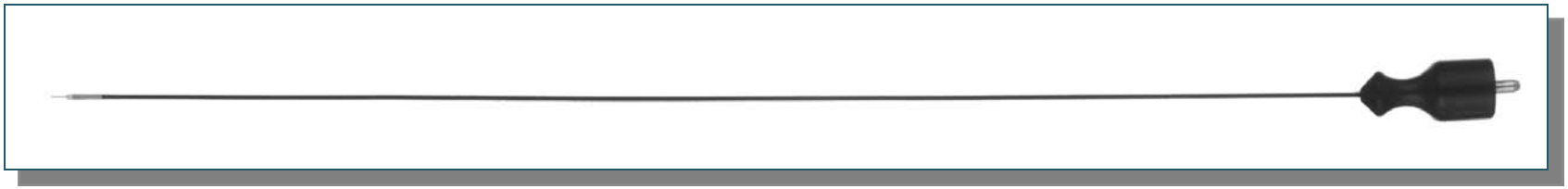


Bipolar coagulation probe (Storz)









5 Fr BIPOLAR NEEDLE

5 French Bipolar probes

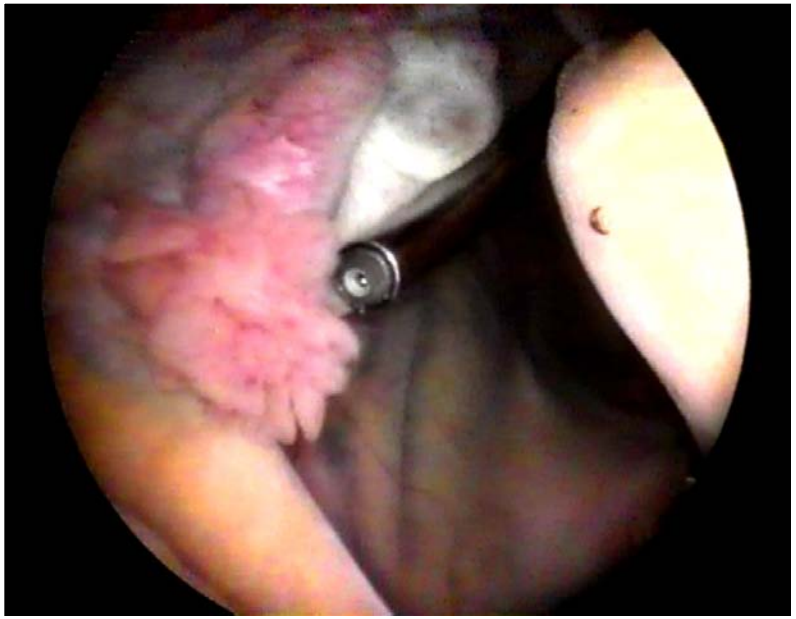
Operative Transvaginal laparoscopy

Number aug. 2006 – aug 2012:		1063	
	normal	500	47%
	endometriosis:	186	17.5%

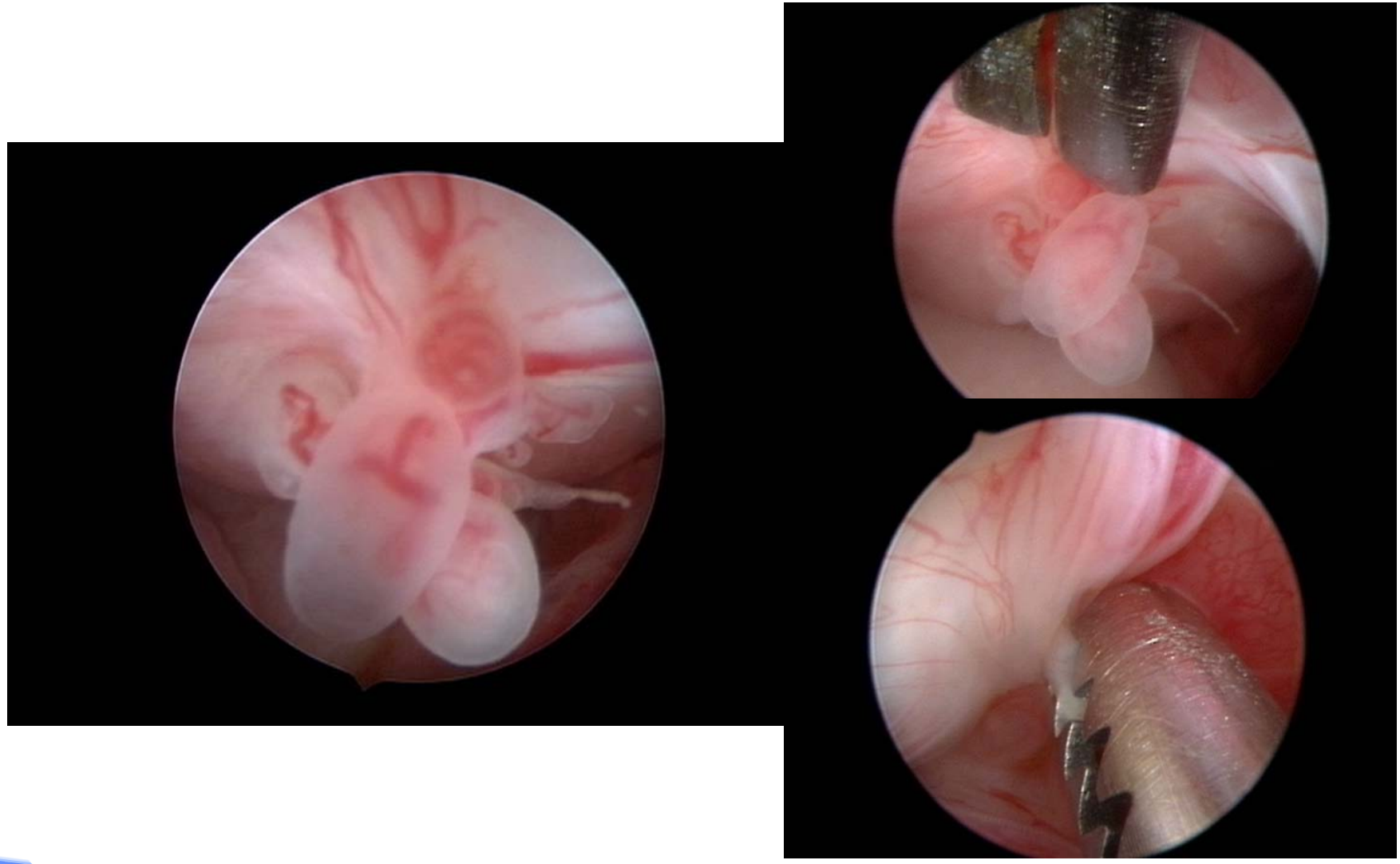
Peritoneal and ovarian endometriosis
Advantages of THL

Watery distension medium: accurate visualization

Easy access to the fossa ovarica



TRANSVAGINAL LAPAROSCOPY

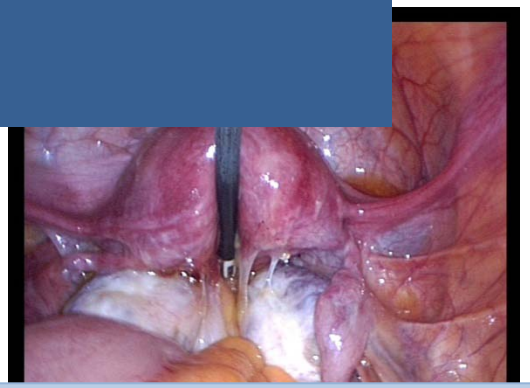


Surgery of ovarian endometrioma

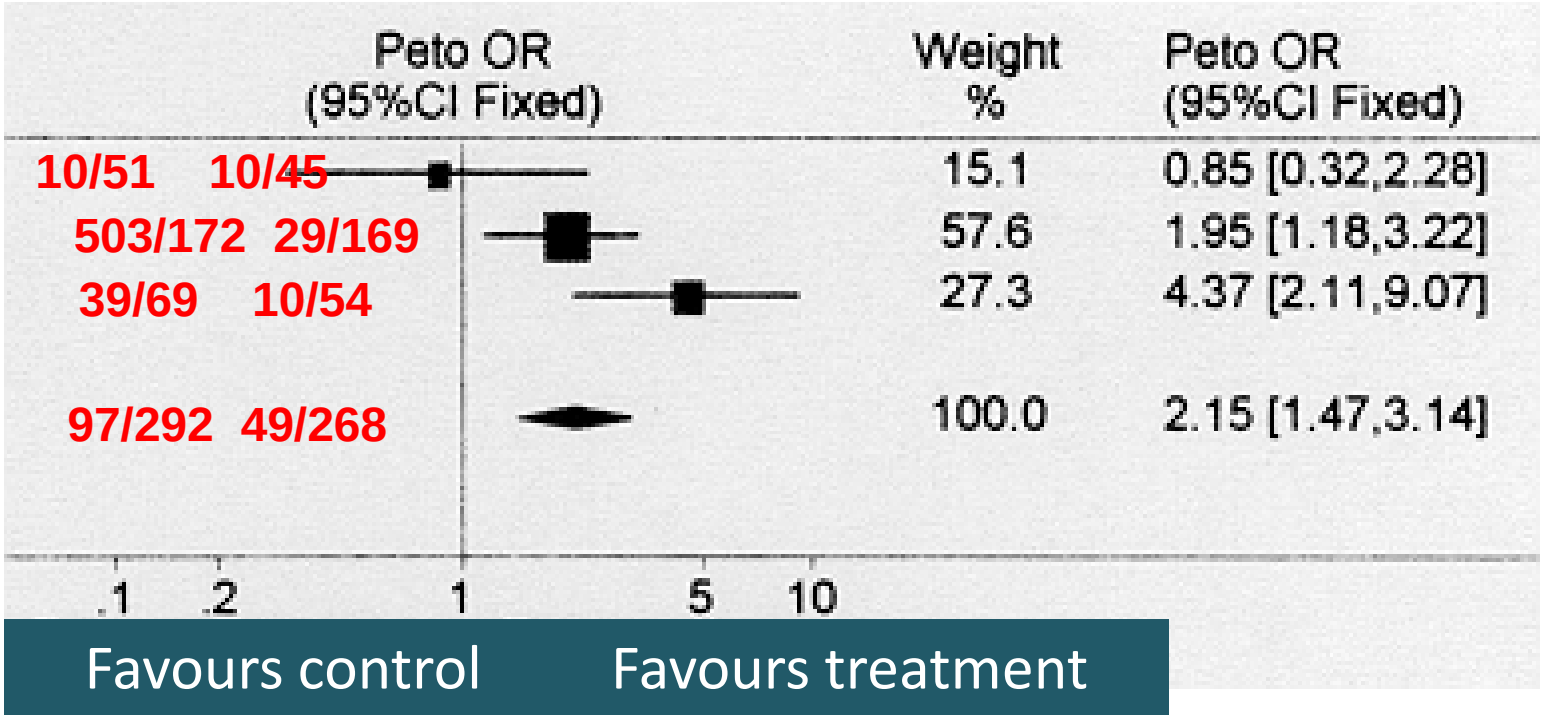
WHY SURGERY ?

POSITIVE APECTS:

1. *creates possibility of spontaneous pregnancy !!*
2. *relief of pain*
3. *increased risk ovarian cancer*



Laparoscopic surgery for subfertility associated with endometriosis - live birth



Cochrane Review - Jacobson, Barlow & Koninckx

Quid fertility preservation?

Growing concern:

the serious risk of diminished ovarian reserve up to POF:

cystectomy: aggressive stripping

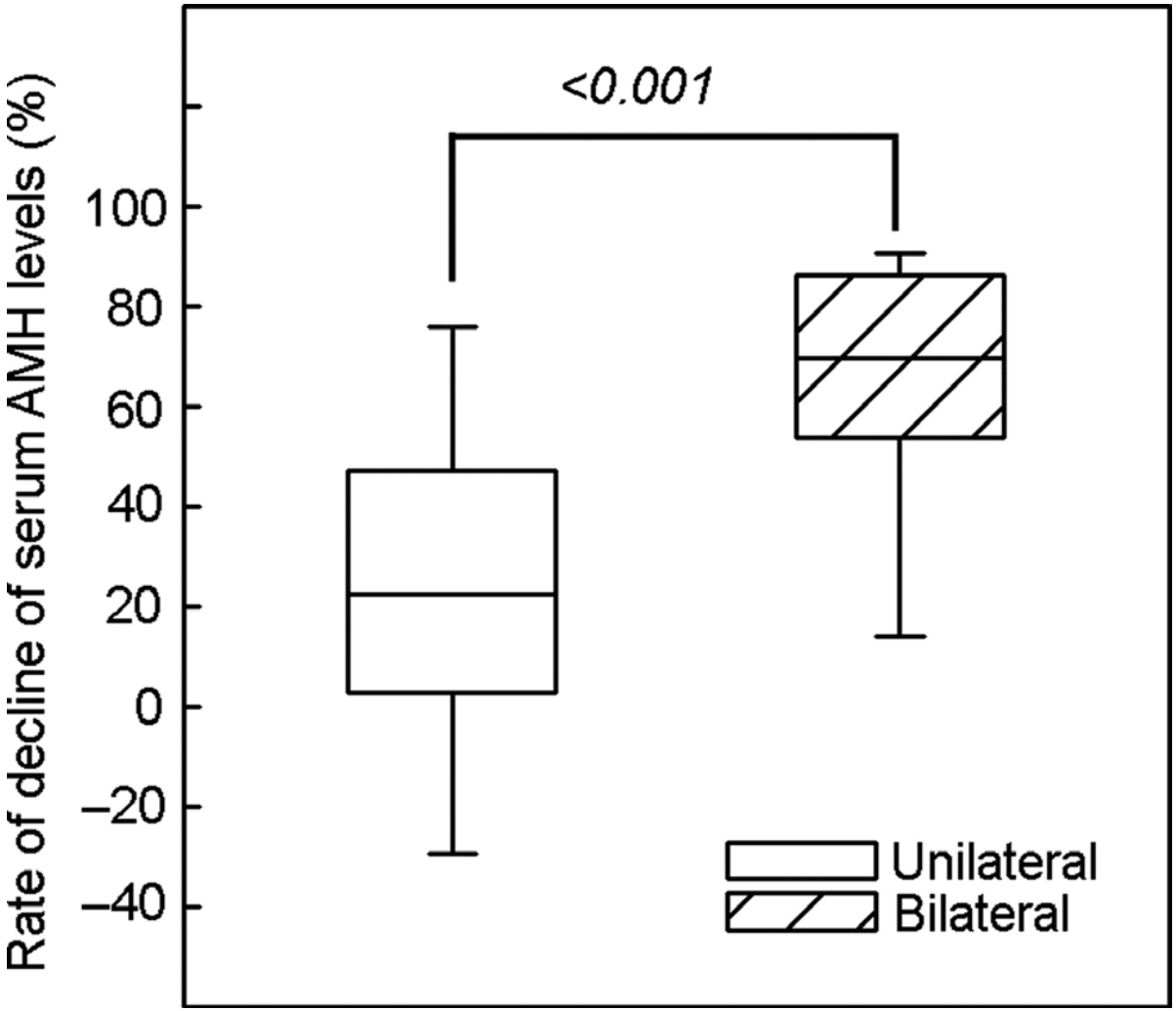
extensive and agressive hemostasis

Decline of AMH after cystectomy for ovarian endometrioma

Characteristics	Overall (n=38)	Unilateral (n=20)	Bilateral (n=18)	P-value
Age	33.8 ±4.7	34.0 ±3.9	33.6 ±5.4	0.830
BMI (kg/m^2)	20.1±2.3	20.4±2.7	19.7±1.7	0.781
Serum AMH				
Pre-operative	3.9±2.5	4.1±2.3	3.6±2.7	0.299
Post-operative	2.1±1.6	2.9±1.6	1.2±1.0	0.001

Hirokawa et al. Hum Reprod 2011; 26, 4

The rate of decline in serum AMH is defined as 100 × [preoperative AMH level – post-operative AMH level]/preoperative AMH level.



Hirokawa W et al. Hum. Reprod. 2011;26:904-910

Human Reproduction

OVARIAN RESERVE

	AFC		AMH	
	BEFORE	**AFTER**	**BEFORE**	**AFTER**
GROUP I STRIPPING	2,0 (±0.8)	2.4 (±0.8)	3.9 (±0.4)	2.9 (±0.2)
GROUP 2 3-STEP	1.3 (±0.5)	4.3 (±0.8)	4.5 (±0.4)	3.9 (±0.6)

Pados et al. Hum Reprod 2010

OVARIAN RESERVE

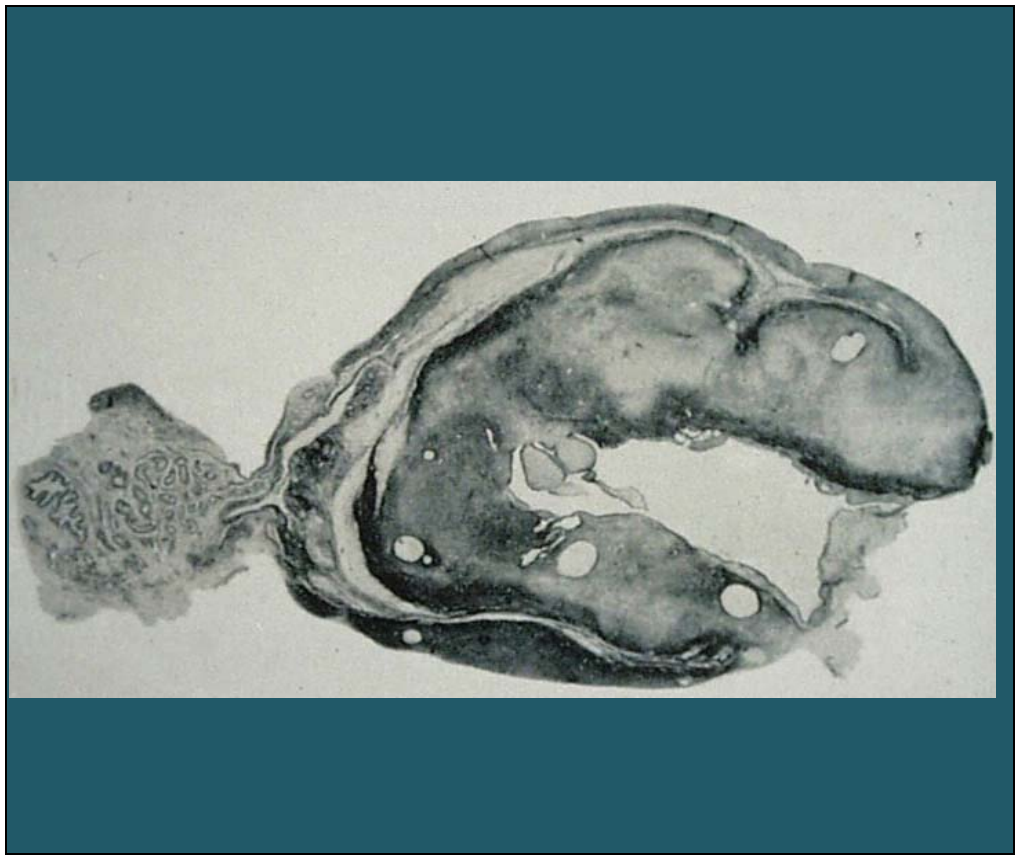
	Ablation plasmajet *N = 15*		Cystectomy *N= 15*	
	Non operated	**operated**	**Non operated**	**operated**
volume	7 (±2.7)	5.2 (±2.5)	8.8 (±4.2)	3 (±1.6)
AFC	6.8 (±3.5)	5.5 (±3.9)	8 (±5.3)	2.9 (±2.4)

Roman H Fertil Steril, 2011

Pathogenesis of ovarian endometrioma

- Superficial endometriotic implants, bleeding and invagination of ovarian cortex.
- Metaplasia of coelomic epithelium
- Involvement of functional ovarian cysts

Pathogenesis of ovarian endometrioma



Implantation of regurgitated endometrial cells on ovarian surface.

Adhesion formation

Bleeding at implantation site and invagination cortex

Hughesdon,1957 J Obst.Gynec. 44:481

Pathogenesis

- Factors contributing to the growth of the endometrioma:
  - shedding/bleeding of peritoneal implants
  - important fibrosis at the hilus of the ovary with repeated bleeding of venules
  - ovulation towards and hemorrhagic cystic corpus luteum formation inside the endometrioma

Types of endometriomas

Ovarian endometrioma :

type 1: free or loosely fixed, usually small

type 2: densely adherent to pelvic structures in fossa ovarica

type 3: with adenomyosis in adherent tissue

Unilateral/ bilateral

Ovarian endometrioma

Accuracy of US

	Nr	Size (mm)	Sens.	Spec.
Kurjak	113	18-160	84	97
Guerriero	29	40 (SD:10)	84	95
Alcazar	27	?	89	91
Guerriero	58	40 (SD:16)	81	96

564 consecutive infertile women, 169 of whom show endometriosis at TVE

Detection of small endometriomas at TVS & TVE
in 169 patients with endometriosis (15-16% of all TVE)

size	TVS +	TVE +	TVS sensitivity
≤ 15 mm	5	11	45 %
> 15 mm	11	11	100 %
total	16	22	16/22 (73%)

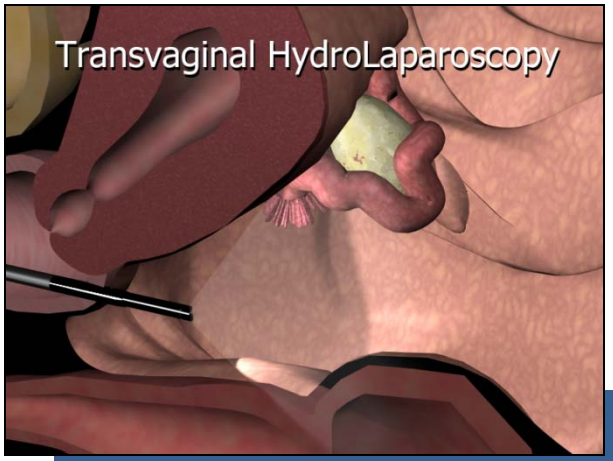
Ovarian endometrioma

Transvaginal sonography

TVS is useful, if diameter of cyst is 15 mm or more

TVS is the preferred method of diagnosing an asymptomatic endometrioma, but cannot exclude the presence of endometriosis.

The Transvaginal endoscopy

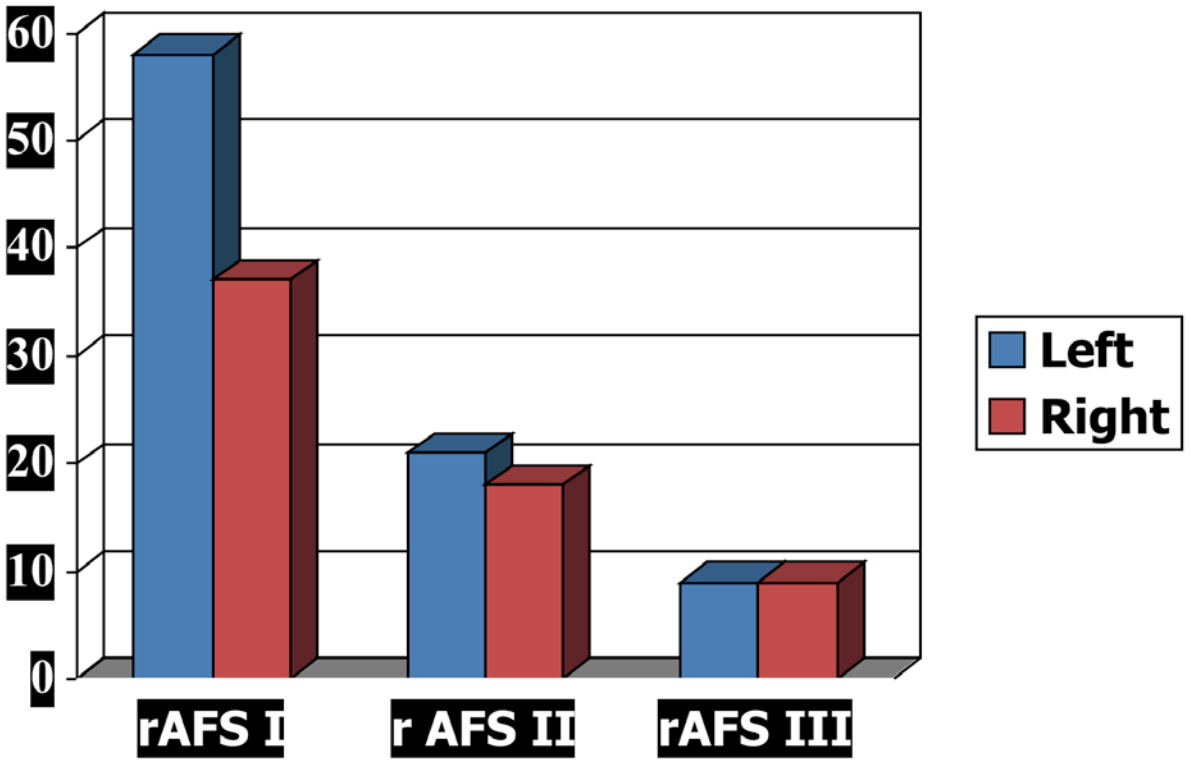


- Hydrolaparoscopy offers the ideal inclination angle to explore the ovarian fossa
- TVE allows for the detection of endometriomas that may be invisible at TVS (<15 mm)

OPERATIVE TRANSVAGINAL LAPAROSCOPY

RESULTS

Operative endometriosis and distribution



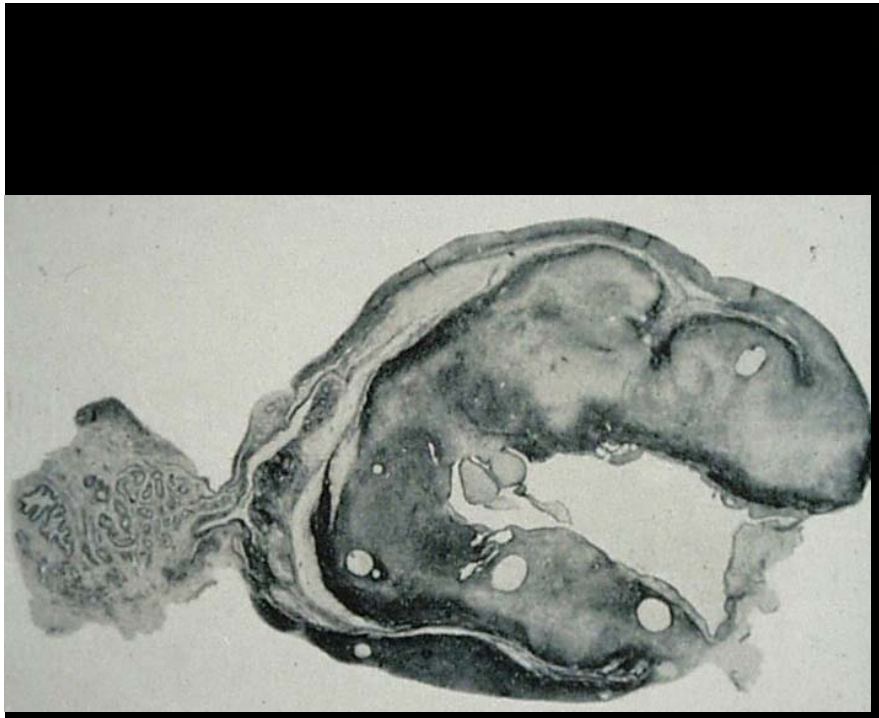
TRANSVAGINAL LAPAROSCOPY

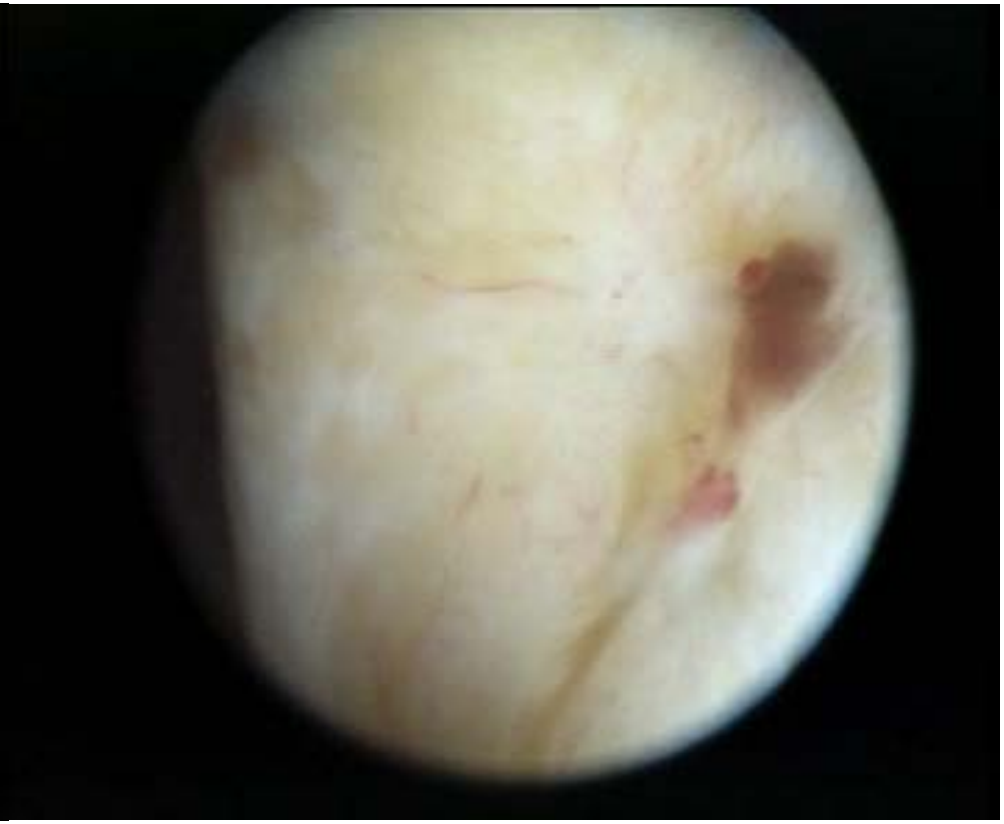
Side dependent distribution of endometriosis during THL

	Endometriosis n= 77
Left side	n= 43 (55,8%)
Both side	n= 29 (37.7%)
Right side	n= 5 (6.5%)
	p>0.0001

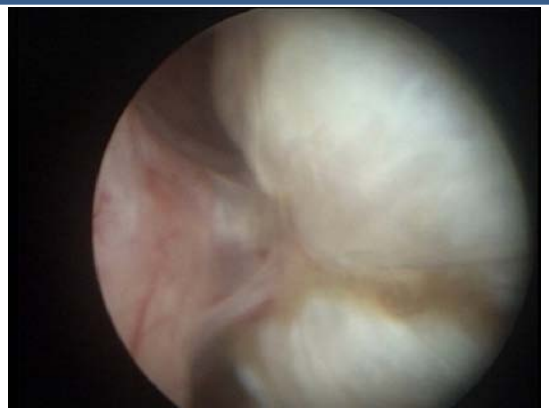
Kissler S. et al. EJOG, 2011; 158: 285-88

Pathogenesis of ovarian endometrioma



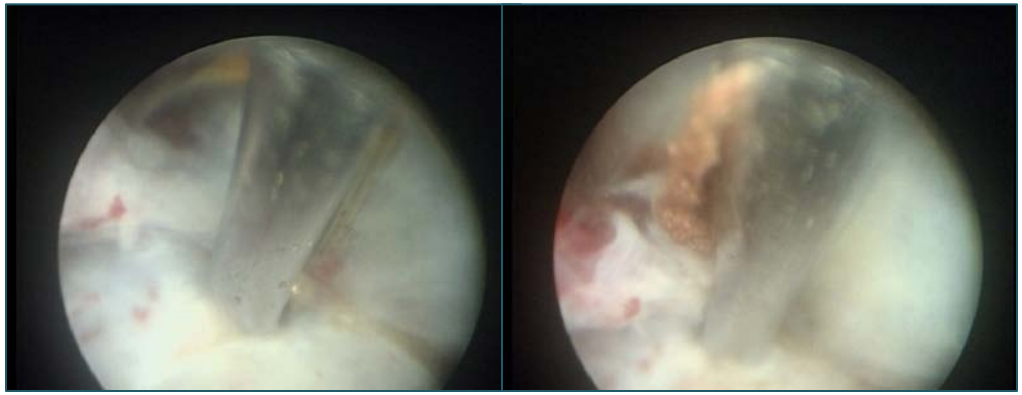


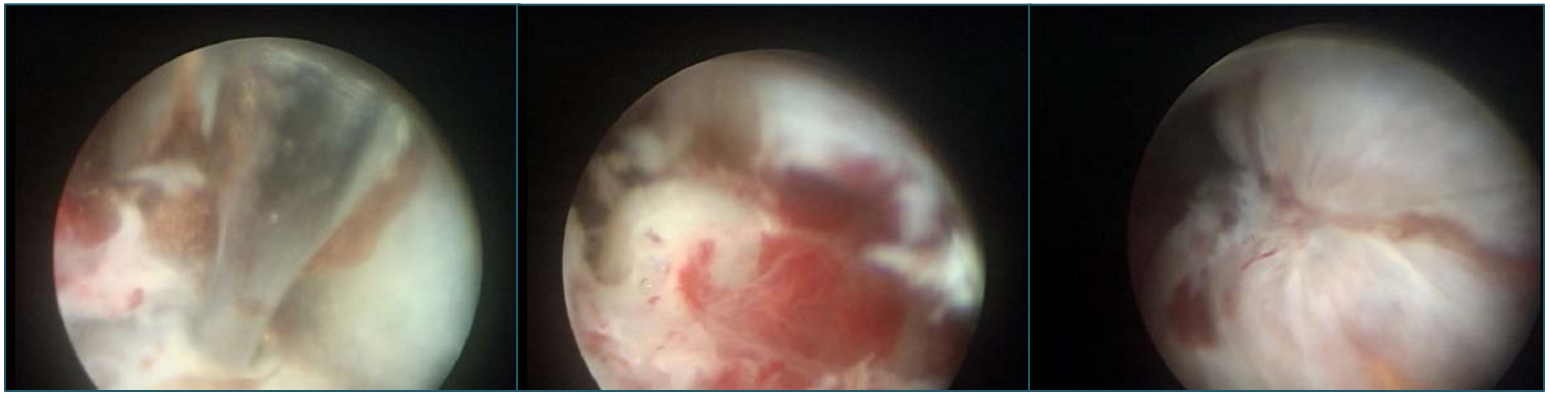
Hughesdon,1957 J Obst.Gynec. 44:481



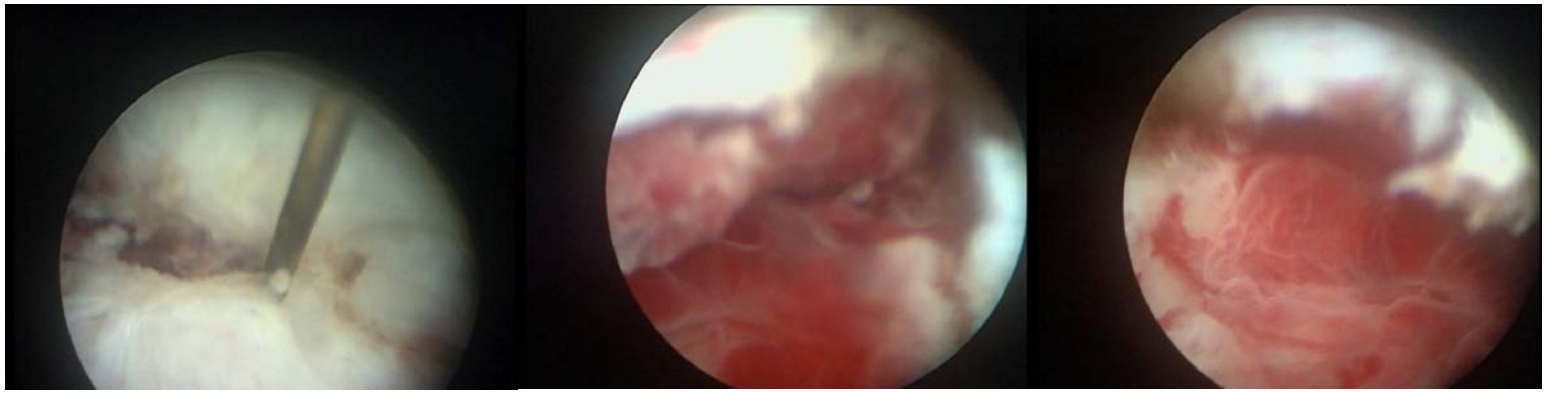
Site of invagination with adhesions

1st step Adhesiolysis

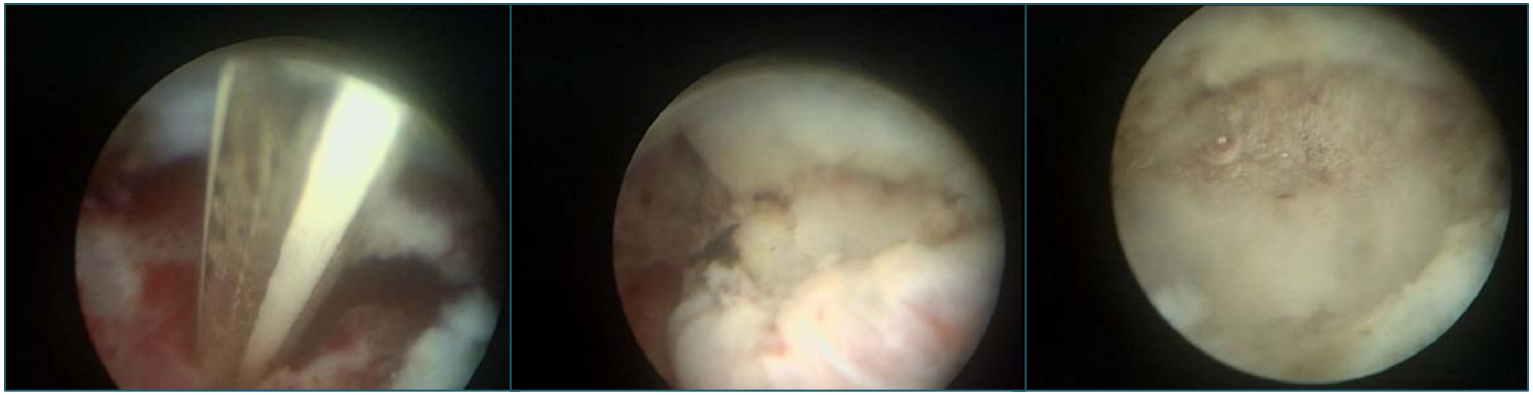


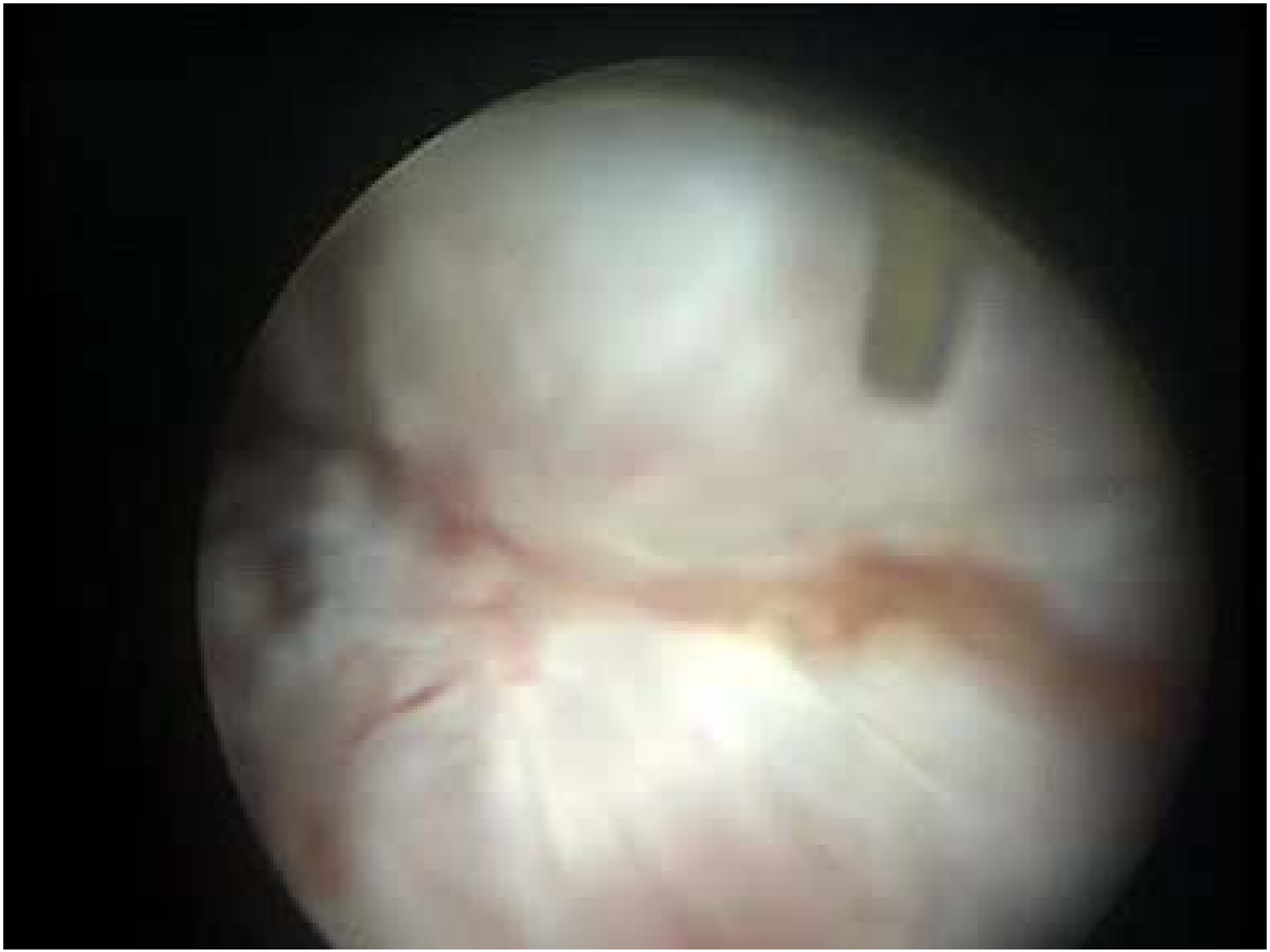


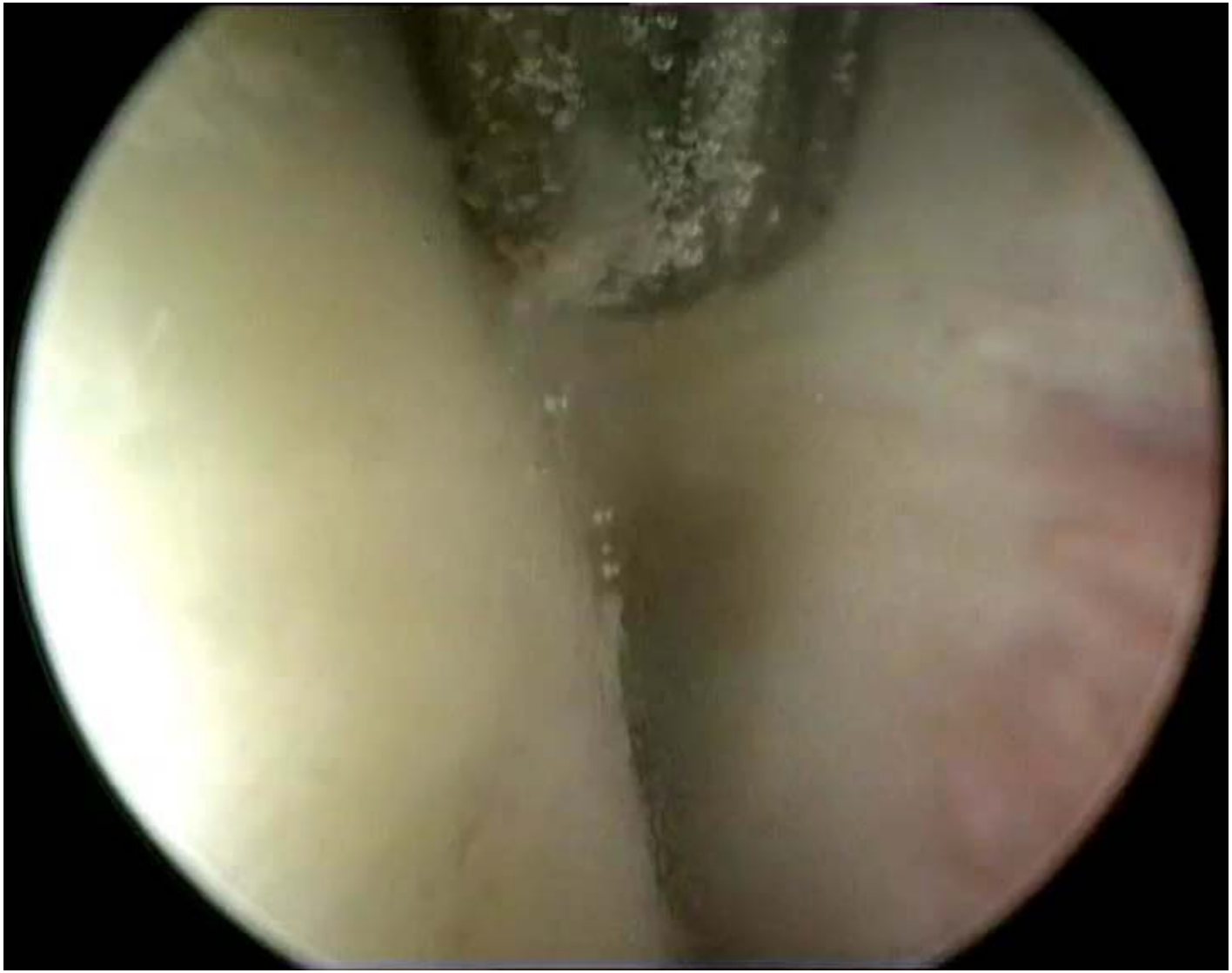
2nd step: opening at site of invagination

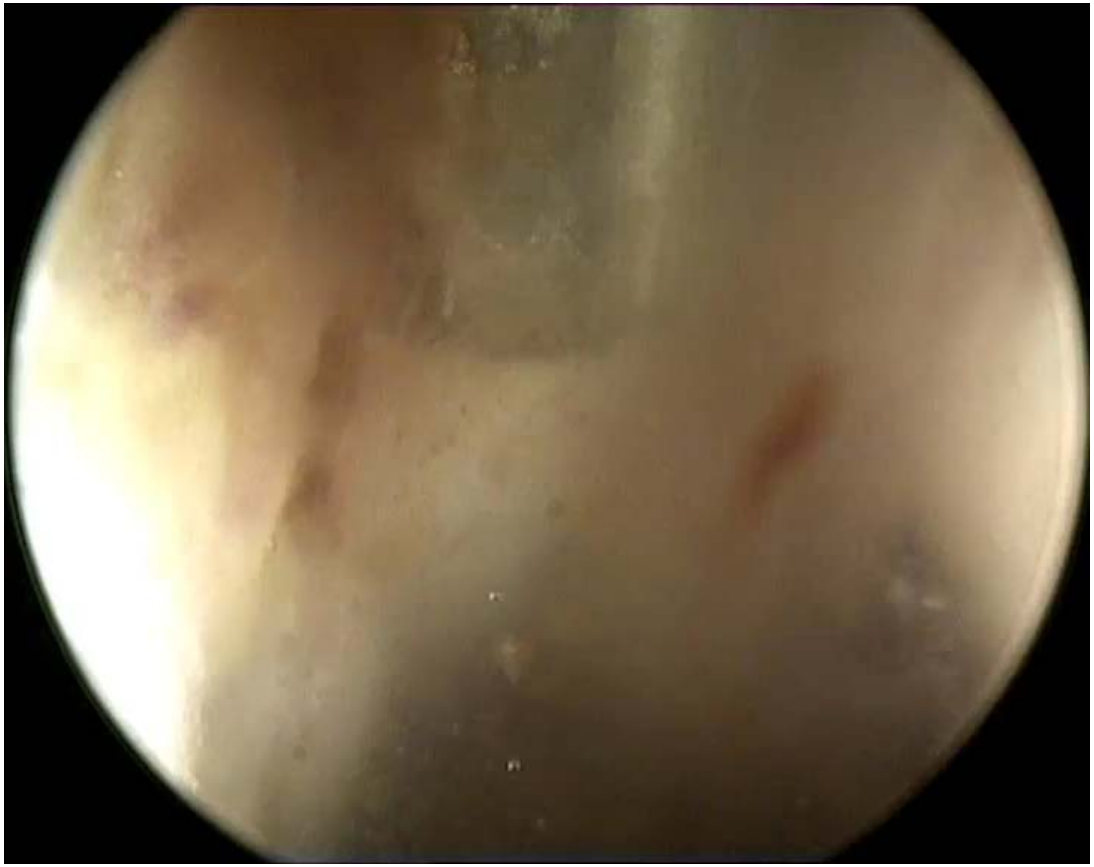


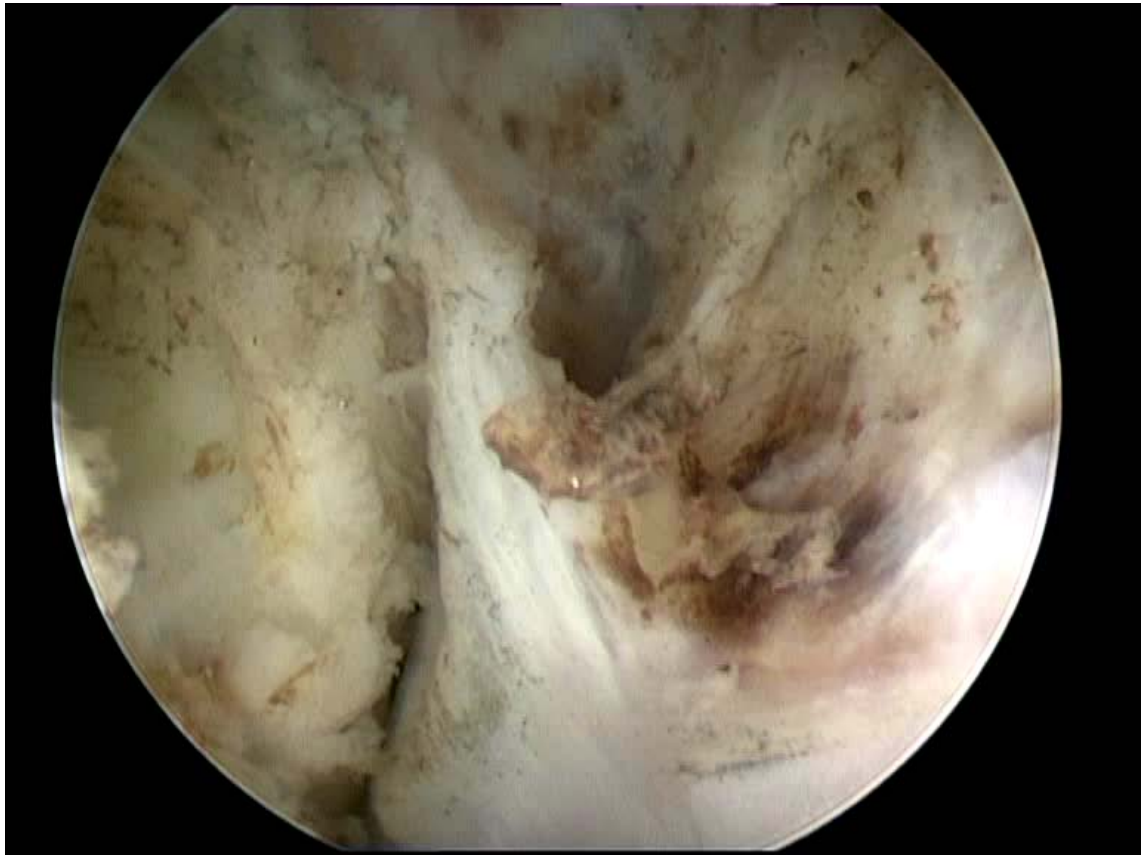
3th step: superficial coagulation

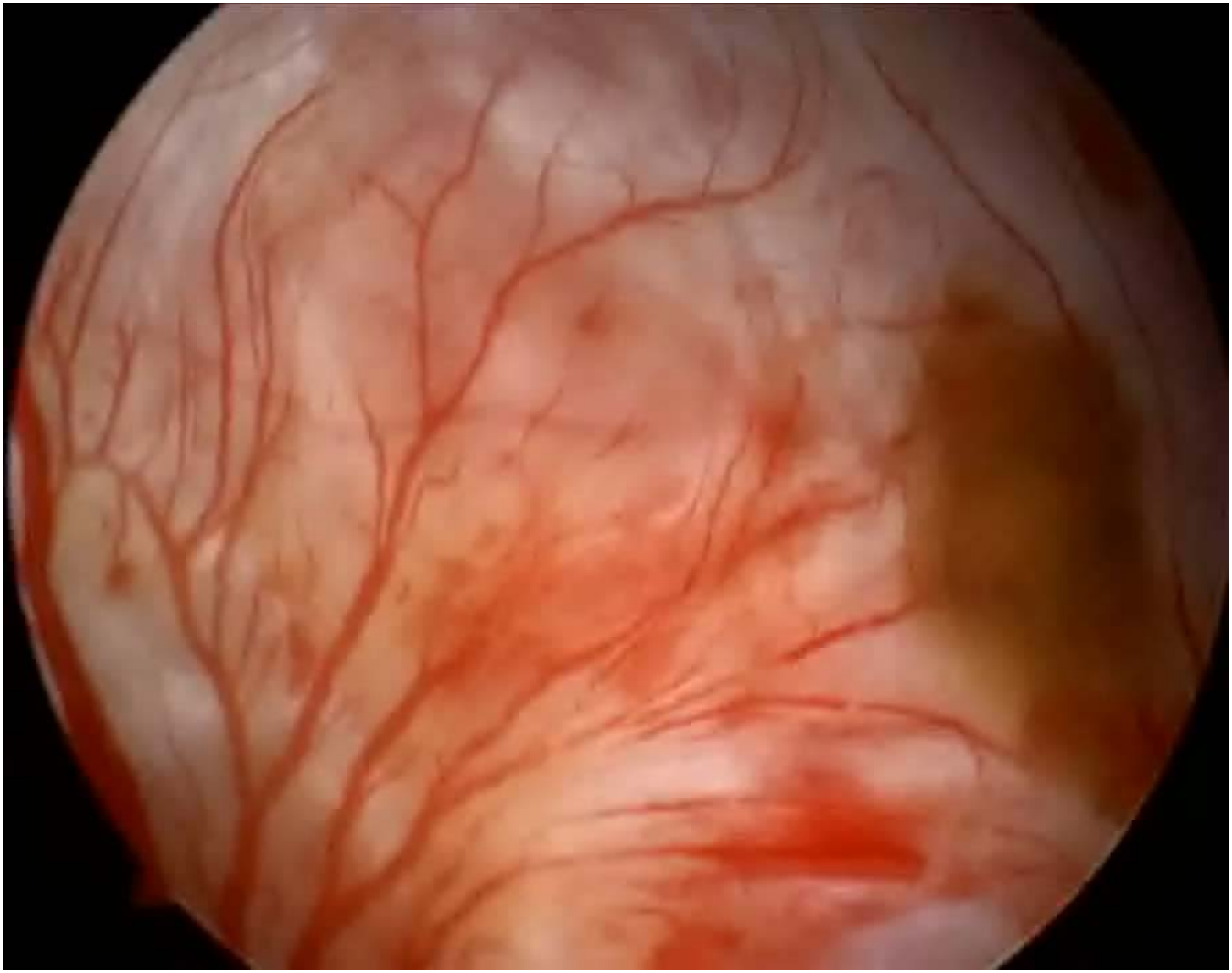












TVE and small endometrioma

- We need to focus on the *early detection* of the small endometrioma in the young female patient (TVS, MRI, CA-125, TVE)
  - We can't make a distinction between the small endometrioma with a good prognosis and the one that will continue to grow towards the more destructive stages of the disease.
- Treat when surgery is feasible & efficient, with distinct cleavage planes, minimal fibrosis.
  - ~ maximal preservation of healthy ovarian tissue, i.e. functional prognosis (↓ postop adhesion formation) and reproductive potential of the affected ovary

THL and small endometrioma

Number 747 THL procedures (2006-2011)

All infertile women without obvious preoperative pathology

Aged between 19 and 45

143 endometriosis (19%) I – II:

95 Peritoneal 66.5%

48 endometrioma max 2cm 33.5%

THL and small endometrioma

48 small endometrioma: 2 referred laparoscopy

46 operative procedures: 2 recurrences (4%);
8 pat. lost follow-up

10 spontaneous pregnancies
6 IUI : 1 pregnant

13 IVF-ICSI: 8 pregnant

→ 24 %

Conclusions

- TVE is a feasible, accurate and well tolerated procedure with low complication rates.

- With the direct access to tubes and ovaries, the transvaginal access offers a lot of advantages, not only for diagnosis but also for operative procedures.

Conclusions

In couples with diagnosis of “unexplained” infertility without preceding laparoscopy, endometriosis must always be excluded.

Conclusions

FERTILITY PRESERVATION AND ENDOMETRIOSIS

Ovarian surgery:

minimal tissue damage *(decline ovarian reserve)*

ablative surgery: lower impact ovarian reserve

early intervention

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