

Reproductive & Reconstructive Gynecological Surgery

Assoc Prof Batuhan Özmen
Ankara University



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Gynecological surgery refers to surgery on the **female reproductive system**. Gynecological surgery is usually performed by **gynecologists**. It includes procedures for benign conditions, cancer, infertility, and incontinence. Gynecological surgery may occasionally be performed for elective or cosmetic purposes.

Gynecological surgery	
	<i>Intervention</i>
MeSH	D013509

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V · T · E		Female genital surgical and other procedures (gynecological surgery) (ICD-9-CM Y3 65–71, ICD-10-PCS 0U)		[hide]
Adnexa	Ovary	Oophorectomy · Salpingoophorectomy		
	Fallopian tubes	Fallopscopy · Salpingectomy · Tubal ligation · Essure · Tubal reversal		
Uterus	<i>general:</i>	Hysterectomy · Hysterotomy · Pelvic exenteration · Uterine artery embolization		
	<i>uterine cavity:</i>	Hysteroscopy · Vacuum aspiration		
	<i>endometrium:</i>	Endometrial biopsy · Endometrial ablation		
	<i>myometrium:</i>	Uterine myomectomy		
	<i>cervix:</i>	Colposcopy · Cervical conization (LEEP) · Cervical cerclage · Cervical screening (Pap test) · Cervicectomy		
Vagina	Vaginectomy · Culdoscopy · Culdocentesis · Hymenotomy · Colpocleisis · Hymenorrhaphy · Vaginal wet mount			
Vulva	Vulvectomy · Female genital mutilation · Labiaplasty · Clitoral hood reduction			
Medical imaging	Gynecologic ultrasonography · Hysterosalpingography			
	M: ♀ FRS	anat/phys/devp	noco/cong/impl, sys/epon	proc/asst, drug (G1/G2B/G3CD)



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Categories: Gynecological surgery | Surgical specialties | Surgery stubs

I. Reproductive Ovarian Surgery

1. Cysts, Lesions and Masses
 - Endometriomas
 - Non-Endometriomas
2. Surgeries for Ovulation Induction
 - Ovarian Drilling
3. Surgeries for Gamete Preservation
 - Transposition
 - Ovarian cortex cryopreservation

I.A Endometriosis & Endometriomas

1. Diagnostic Surgery
2. Conservative Surgery
3. Definitive Surgery

Diagnostic Surgery: Endometriosis

“Still the gold standard for making the diagnosis remains the laparoscopic visualization of lesions preferably with histologic confirmation”

Symptomatic Endometriosis

Asymptomatic Endometriosis

Diagnostic Laparoscopy

1. Reduction of FPR by histology (Stage I-II)
2. Enables staging and scoring (Objective Defining)
3. Uncorrelation of the stage/extent of disease and symptoms experienced, reproductive outcome or recurrence risk
4. Poor accuracy of diagnostic predictors (RANTES, MIF, MCP1, Cytokeratin 19, urinary peptide, endometrial nerve fibre density).

Conservative Surgery

“The benefit of L/S Stage I and II endometriosis is insufficient to recommend laparoscopy solely to increase the likelihood of pregnancy.”

Early Stage: I/II

1. If ablation/resection of visible endometriosis is performed vs no treatment. (NNT 12)
2. 30% of asymptomatic patients with otherwise unexplained infertility will be diagnosed with endometriosis (NNT 40)

Conservative Surgery

Late Stage, Stage III/IV endometriosis

1. L/S cystectomy > 4 cm endometriomas improved fertility compared to cyst drainage and coagulation.
2. No other identifiable infertility factors, L/S and L/T may increase fertility.
3. A possible adverse consequence is reduced ovarian reserve.
4. After the first infertility operation, additional surgery has only rarely increased fecundability, and these patients may be better served

Conservative Surgery

“To date, evidence suggests that surgery does not benefit asymptomatic women with an endometrioma prior to scheduled IVF/ICSI”

However, larger >4 cm, surgery

1. to confirm the diagnosis histologically,
2. to improve access to follicles during oocyte retrieval,
3. to improve ovarian response.

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Arch Gynecol Obstet. 2013 Jun;287(6):1251-7. doi: 10.1007/s00404-012-2704-9. Epub 2013 Jan 6.

Can ovarian damage be reduced using hemostatic matrix during laparoscopic endometrioma surgery? A prospective, randomized study.

Sönmezer M¹, Taşkın S, Gemici A, Kahraman K, Özmen B, Berker B, Atabekoğlu C.

Author information

¹Department of Obstetrics and Gynecology, Ankara University School of Medicine, Cebeci, Ankara 06100, Turkey.

Abstract

PURPOSE: To compare the effect of hemostatic matrix (HM) and electrosurgical bipolar coagulation (EBC) on ovarian reserve in patients undergoing endometrioma surgery.

METHODS: Thirty patients with single ovarian endometrioma ≥ 4 cm were randomized to two groups. Ovarian reserve after laparoscopic excision of endometrioma was assessed by serum anti-Müllerian hormone (AMH); preoperatively and in postoperative months 1 and 3.

RESULTS: The preoperative AMH levels were similar between the groups. Intra-group comparisons: the AMH levels were significantly lower in the first and third postoperative months as compared to basal levels in both groups. In each group, AMH levels were significantly higher in the third postoperative month as compared to first postoperative month. Inter-group comparisons: AMH levels were significantly lower in the EBC as compared to the HM at 1st postoperative month (1.64 ± 0.93 vs. 2.72 ± 1.49 ng/mL). However, the AMH levels were increased and became similar at 3rd postoperative month.

CONCLUSIONS: Although acute ovarian damage was more in EBC group, ovarian reserve was compensated at 3rd month. Further studies with long-term follow-up will clarify the importance of these findings.

PMID: 23291972 [PubMed - indexed for MEDLINE]

Publication Types, MeSH Terms, Substances

Publication Types

[Comparative Study](#)

[Randomized Controlled Trial](#)

Conservative Surgery

Stage III/IV + previously 1 surgery

1. IVF-ET is often a better therapeutic option than another surgical intervention, (No answers in RCT)
2. Medical adjunct therapy in conjunction with laparoscopic surgery has not been shown to have fertility benefit.

LOD: How many punctures and Energy

1. Personalization

2. Minimum energy and puncture.

- ❖ 4 puncture, 5 sec 30 W optimal

Amer SA, Hum Reprod 2003;

3. Higher punctre and energy let

- ❖ Decrease in ovarian reserve (4-6 Punctures)
- ❖ Periovarian adhesions!!! (Right < Left)

4. Unilateral = Bilateral LOD

5. Mini-L/S, Vaginal Hydro L/S

Dabirashrafi H. Fertil Steril 1989
Zacherad M Fertil Steril 2011
Cochrane Library 2012, Issue 6
Mercorio Fertil Steril 2007
Kandil M, BJOG 2005
Salah IM Arc Obstet Gynecol 2013

LOD: Resistance

%20-30 Anovulation

- 1. Obesity (BMI) >34 kg/m²**
- 2. Significant hyperandrogenism**
 - FAI ≥ 15**
 - Testosterone >4.5 nmol/l.**
- 3. Infertility >3 years**

Fallopian Tubes

1. Surgeries for Hydrosalpinx
2. Surgeries for Tubal Obstructions
3. Tubal Reversal

Surgeries for Hydrosalpinx

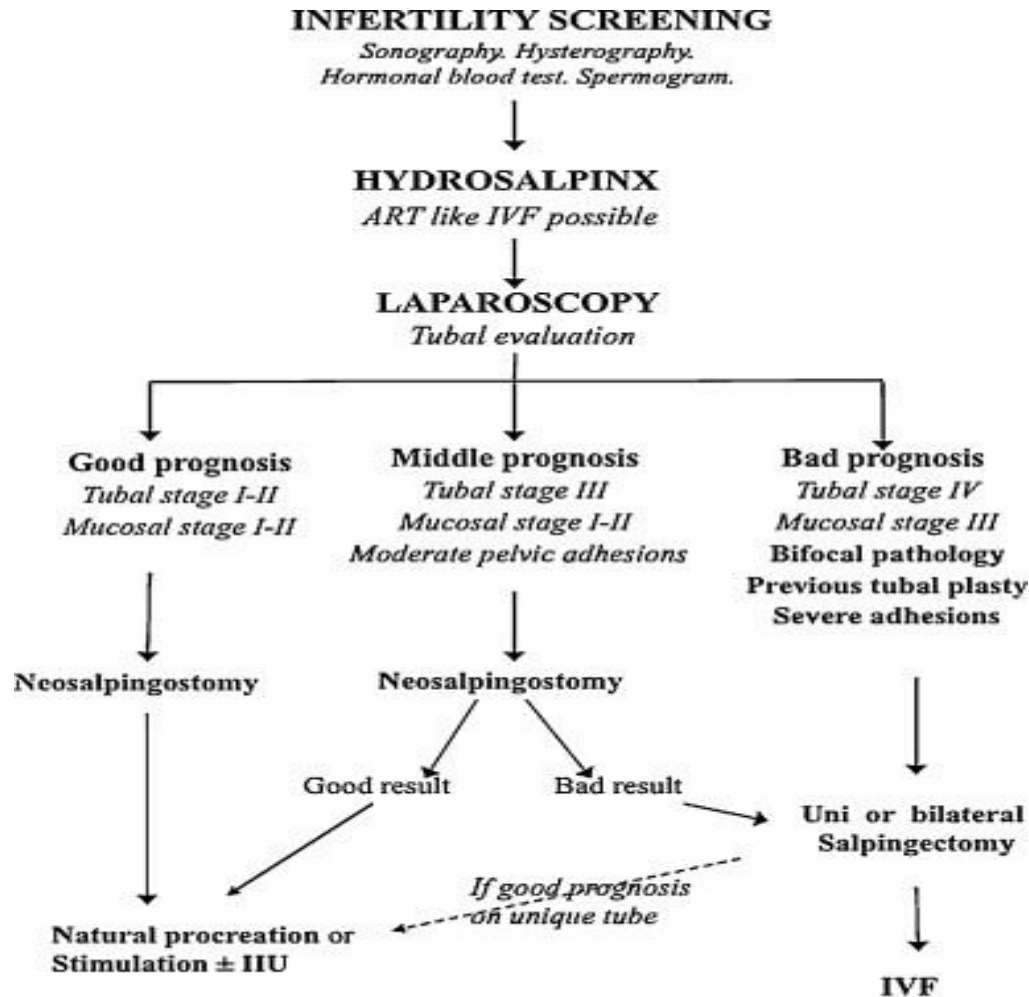
1. Salpingectomy
2. Salpingostomy
3. Tubal Ligation & Clips
4. Essure protocol
5. Adriana protocol
6. Ethanol Inj. (Sclerotherapy)

L/T or L/S

Hysteroscopy

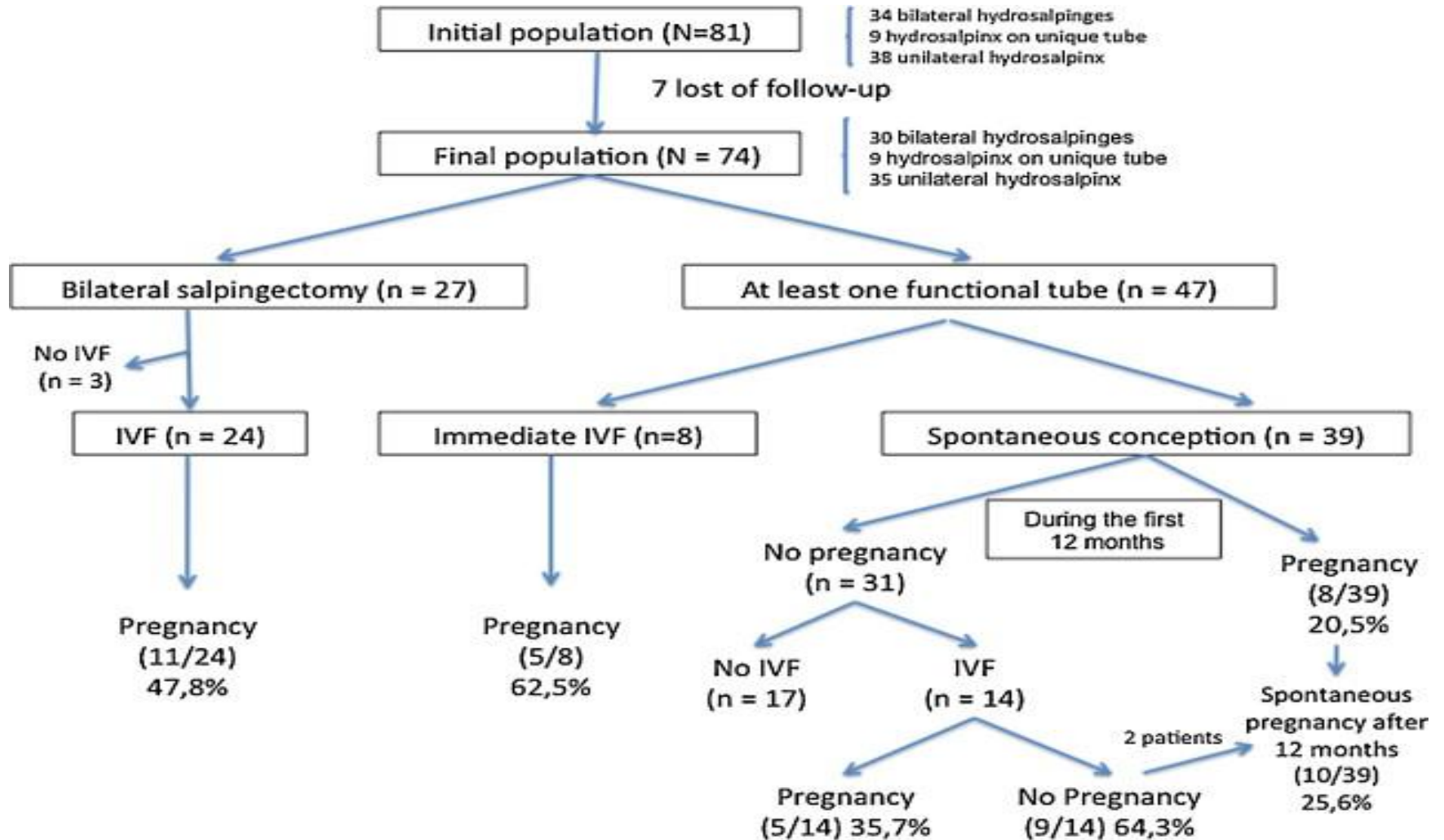
TV/USG

Conservative Surgery vs Slpx



Tubal stage from Mage [11], Mucosal stage from Boer-Meisel [10]

Conservative Surgery vs Slpx



Essure – IVF Results

Study ID	IVF-related outcomes					
	IVF	PRs/ET	MRs	LBRs/ET	Preterm birth	Ongoing PRs
Nichols and West	10	5/10	2/5	3/10	3/10	3/10
Galen et al.	21	13/21	1/13	12/21	3/21	12/21
Mijatovic et al.	45	18/45	6/18	12/45	1/45	12/45
Thébault et al.	34	7/34	4/7	3/34	0/34	3/34
Matorras et al.	21	5/21	1/5	4/21	3/21	4/21
Total	140	54/140 (38.6%)	14/54 (25.9%)	39/140 (27.9%)	7/140 (5%)	40/140 (28.6%)

Ethanol Injection vs Salpingectomy

Variable	Group 1 (sclerotherapy)	Group 2 (salpingectomy)	<i>p</i> -value
Patients	56	41	NS
Age	32.9 ± 4.1	32.4 ± 4.5	NS
Duration of infertility (yr)	2.9 ± 1.8	3.8 ± 3.4	NS
Body mass index (kg/m ²)	21.5 ± 2.2	22.2 ± 5.0	NS
Day 3 FSH	10.9 ± 17.1	8.2 ± 4.6	NS
IVF cycle	60	46	NS
Oocytes retrieved	12.1 ± 11	6.2 ± 1.0	NS
Clinical pregnancy rate	23/60 (38%)	17/43 (40%)	NS
Ectopic pregnancy rate	2/56 (3.6%)	0/41 (0%)	NS
Previous surgical history	29/56 (52%)	12/41 (29%)	0.027

The results showed that ultrasound-guided HSF aspiration and sclerotherapy have IVF outcomes comparable to L/S salpingectomy.

%98 Ethanol Injection

Parameters	No recurrence	Reccurent	Hydrospplx	Control	<i>P</i> value
No of patients	123	34	47	135	
No of IVF cycles	130	39	50	145	
Age of women, y	30.0 ± 3.6	30.4 ± 3.6	30.1 ± 3.7	30.3 ± 3.6	NS
Body mass index, kg/m ²	21.6 ± 1.6	21.3 ± 1.4	21.8 ± 1.9	21.4 ± 1.7	NS
No of transferred embbyros	2.3 ± 0.5	2.4 ± 0.5	2.3 ± 0.4	2.3 ± 0.5	NS
Implantation rate, n (%) ^b	26.4 (79/299)	24.5 (23/94)	8.8 (10/113) ^d	30 (100/333)	<i>P</i> < .01
PRs, n (% ^a , per ET) ^b	43.1 (56/130)	38.5 (15/39)	16.0 (8/50) ^d	50.3 (73/145)	<i>P</i> < .01
Abortion rate, n (%) ^a and	14.3 (8/56)	20.0 (3/15)	25.0 (2/8)	16.4 (12/73)	NS
Ectopic pregnancy rate, n (%) ^a and	7.1 (4/56)	6.7 (1/15)	12.5 (1/8)	5.5 (4/73)	NS
Live birth rate, n (% ^a , per ET) ^b	33.8 (44/130)	28.2 (11/39)	10.0 (5/50) ^d	39.3 (57/145)	<i>P</i> < .01

Debates: Fibrosis, Reduced Ovarian Reserve ???

Tubal Obs & Reversal Predictors

1. Age of the patient
2. Length of Remained Tube
3. Type of surgery
 - Type A—the more favorable prognosis group (ie, clip or ring tubal ligation)
 - Type B—the less favorable prognosis group encompassing all other types of tubal ligation (ie, postpartum tubal ligation, electrocautery, Parkland, or unknown type)

Tubal Reversal: Outcomes

Overall pregnancy	754/886 (85.1%)
Intrauterine pregnancy	732/886 (82.6%)
Spontaneous abortion	76/732 (10.4%)
Known deliveries	680/732 (92.3%)
Ectopic pregnancy	22/886 (2.5%)
Time length from anastomosis to pregnancy (mts)	6.2 ± 6.7 (1–55)

There is no difference between L/S vs L/T regarding overall PRs, Intrauterine & ectopic PRs.

Clinical situation	Age range	Base case (range)
Successful tubal reanastomosis with A	NA	75% (56.6–100%)
Successful tubal reanastomosis with B	NA	67.5% (40–74.3%)
Live birth rate (singleton) after tubal reanastomosis	≤35	79.89% (50–100%)
Live birth rate (twins) after tubal reanastomosis	≤35	1.09% (0–2%)
Live birth rate (triples or more) after tubal reanastomosis	≤35	0.014% (0–0.3%)
IVF live birth rate singleton	≤35	27.3% (13–40%)
IVF live birth rate twins	≤35	12.9% (6–24%)
IVF live birth rate triplets or more	≤35	1.3% (0–3%)
Live birth rate (singleton) after tubal reanastomosis	35–40	66.08% (50–100%)
Live birth rate (twins) after tubal reanastomosis	35–40	0.9% (0–2%)
Live birth rate (triplets) after tubal reanastomosis	35–40	0.011% (0–0.3%)
IVF live birth rate singleton	35–40	19.5% (10–30%)
IVF live birth rate twins	35–40	9.2% (6–24%)
IVF live birth rate triplets or more	35–40	1% (0–3%)
Live birth rate (singleton) after tubal reanastomosis	>40	49.32% (50–100%)
Live birth rate (twins) after tubal reanastomosis	>40	0.68% (0–2%)
Live birth rate (triples or more) after tubal reanastomosis	>40	0.0085% (0–0.3%)
IVF live birth rate singleton	>40	10.1% (5–15%)
IVF live birth rate twins	>40	4.7% (6–24%)
IVF live birth rate triplets or more	>40	0.49% (0–3%)

Cost Effectiveness: Reversal

If IVF costs are $> \$4500$,

1. L/S reanastomosis after a prior clip or ring tubal ligation for women ≤ 40 years old.
2. L/S reanastomosis after other methods tubal ligation for women ≤ 35 years old.

Making an opening on the two tubal ends.



Moon H S et al. Hum. Reprod. 2012;27:1657-1662

Comparison IVF vs Unilateral Reversal

<i>Pregnancy</i>	<i>Tubal Reversal n=58</i>	<i>IVF n=76</i>	<i>χ^2 value^a</i>
Clinical	32 (55.2%)	12 (15.8%)	<.001
Ectopic	1 (1.7%)	1 (1.3%)	.85
<i>Pregnancy rates (%)</i>			
Age (years)			
<30	15/31 (48%)	6/33 (18%)	.01
30–37	14/24 (58%)	5/29 (17%)	.002
>37	3/3 (100%)	1/14 (1%)	.001
Ligation interval (years)			
<5	12/19 (63%)	7/38 (18%)	.001
5–10	11/28 (39%)	2/18 (22%)	.04
>10	9/11 (82%)	3/20 (15%)	<.001

Uterine Reproductive Surgery

1. Endometrium

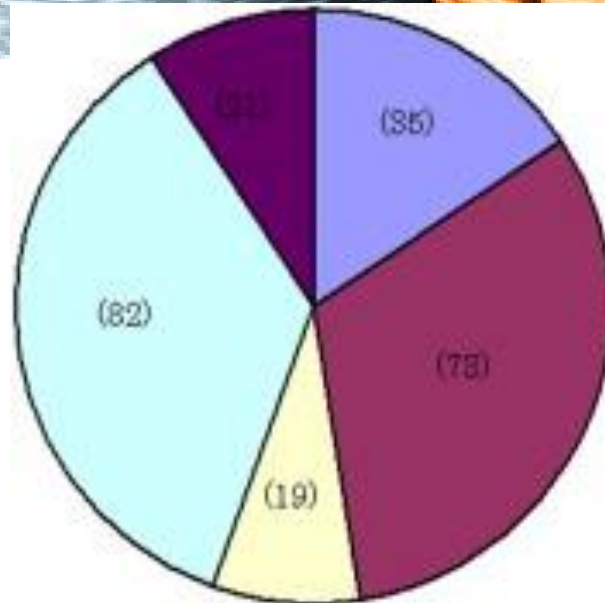
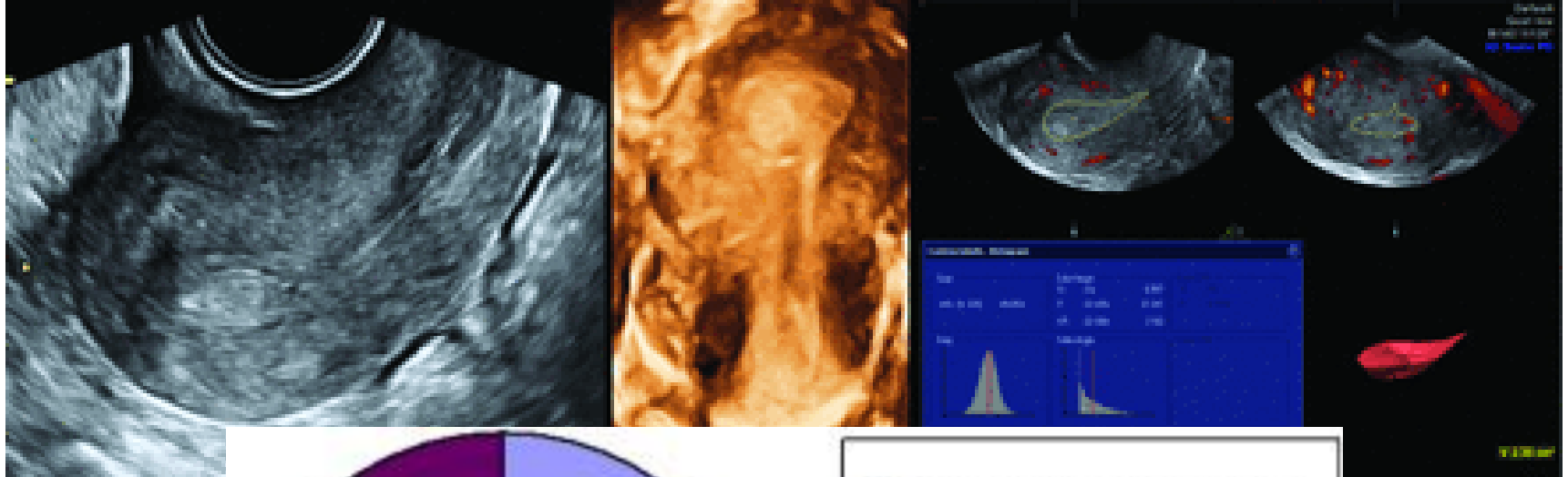
1. Endometrial Polyps
2. Submucosal Fibroids
3. Intrauterine synechia – Asherman synd

2. Myometrium

1. Intramural Fibroids
2. Mullerian Anomalies

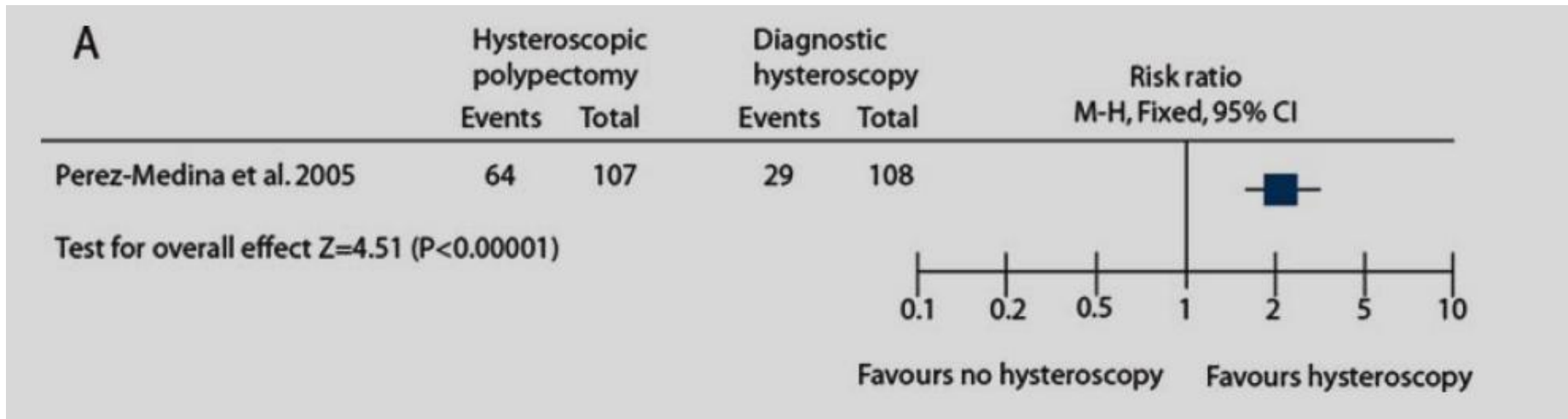
3. *Uterine Transplantation*

Endometrial Polyps



- anterior wall of uterus
- posterior wall of uterus
- utero-tubal junction
- multiple
- lateral wall of uterus

H/S Polypectomy Pregnancy Outcomes

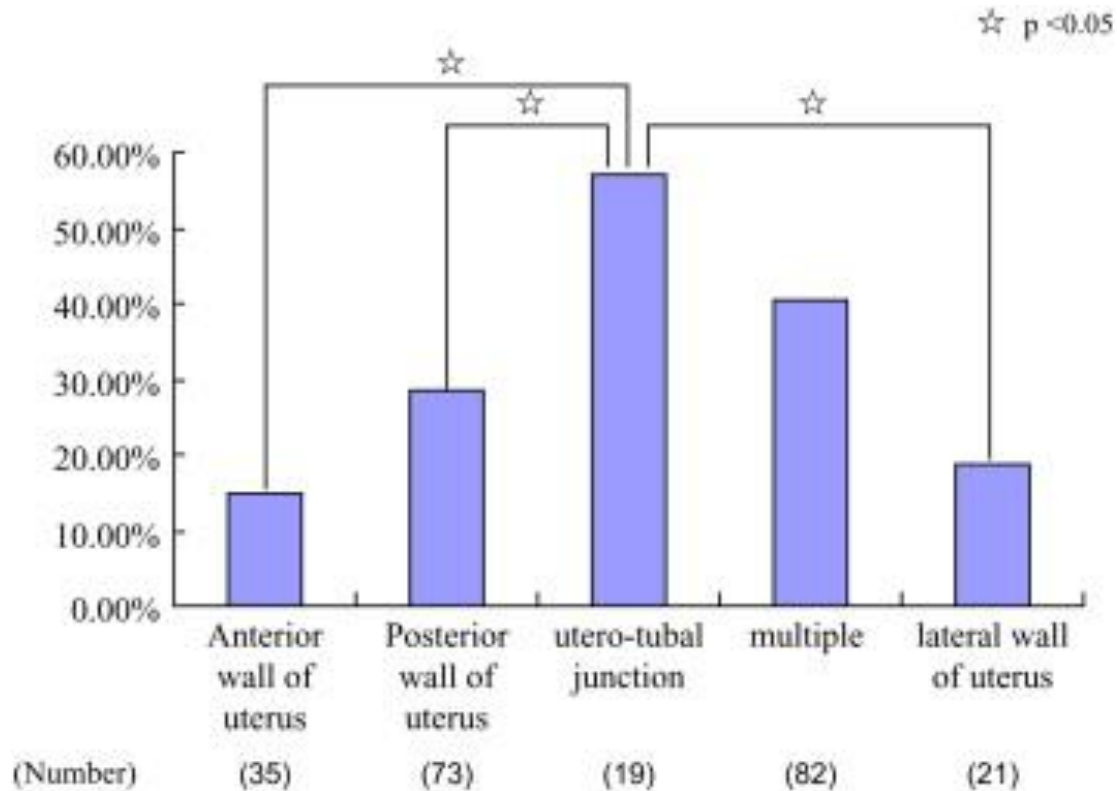


Spontaneous and with IUI PRs are increased in polypectomy cases (RR:2.3,%95 CI:1.6-3.2) (evidence level 1-).

NNT:3

*Perez-Medina et al.,2005(RCT)
Jan Bosteels et al, Human Reprod 2010,*

Endometrial Polyps: Location



Endometrial Polyps: Size

Table 4. Main outcome variables for the three groups of patients.

<i>Parameter</i>	<i>Group I^a</i>	<i>Group II^a</i>	<i>Group III^a</i>
Implantation rate%	26.4	17.6	17.9
Clinical pregnancy/ embryo transfer (%)	8 (53.3)	18 (45.0)	325 (40.1)

*Chi-squared test showed no statistically significant differences between groups.

*For description of the groups, see Materials and methods.

1.5-2 cm polyps does not interfere with PRs and outcomes.

Lass et al. 1999

Isikoglu et al 2006

The polyps are interfere with PRs and outcomes irrespective of the size and number.

Stamatellos et al. 2008

Preutthipan & Herabutya et al 2005

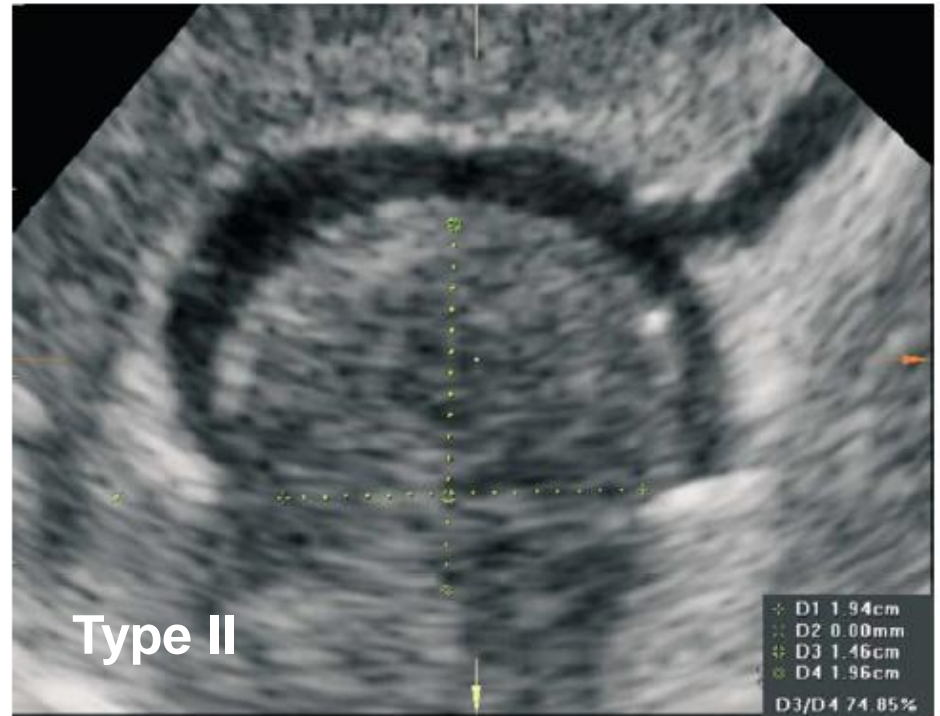
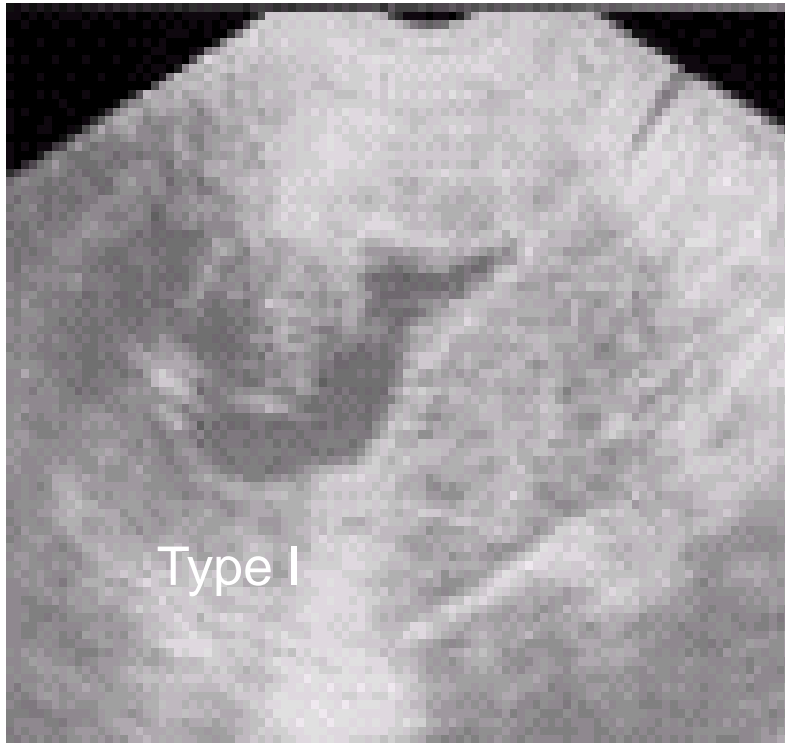
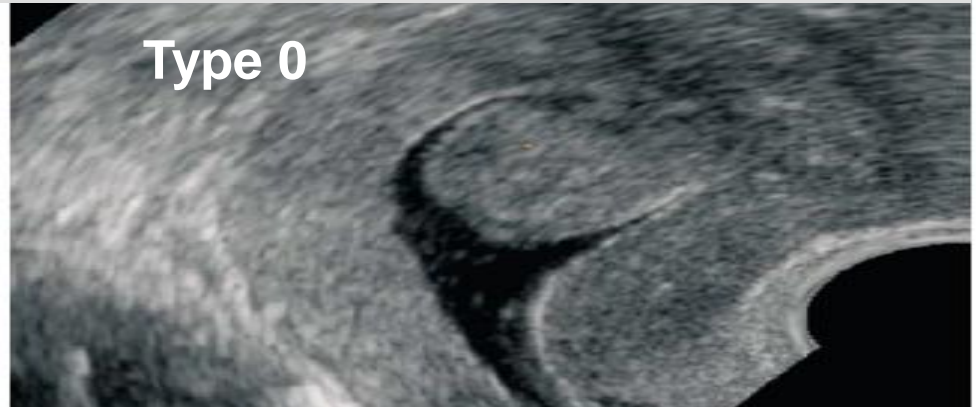
Perez-Medina et al., 2005

ESGE Classification

Type 0: fibroid polyp.

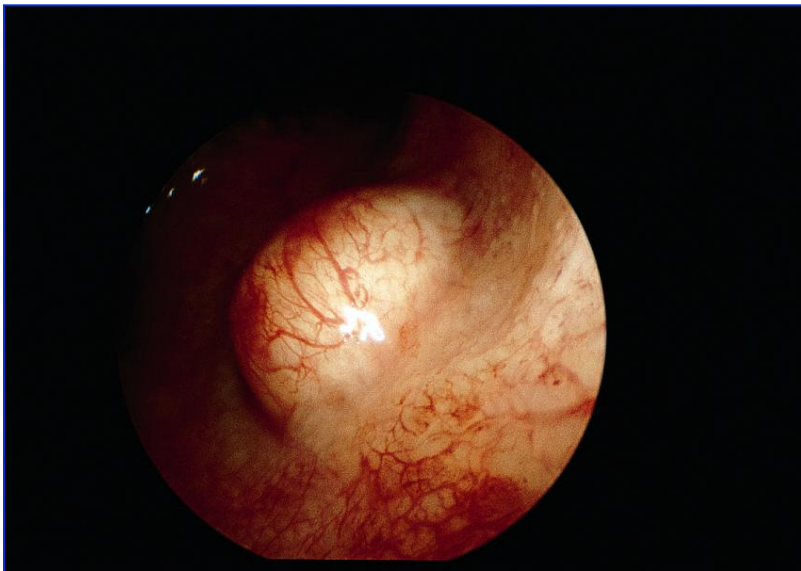
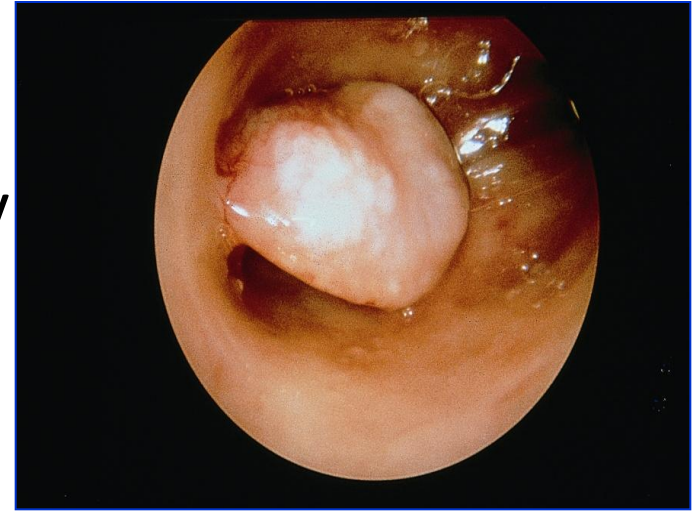
Type I: <50% contained within the myometrium.

Type II: >50% contained within the myometrium.



Uterine Fibroids

1. Myomas not distorting the cavity
2. Myomas distorting cavity



- **Hysteroscopic resection of submucous myomas is now well established and is the preferred approach**
- **Advanced intramural part of submucosal myoma, “one-or two step surgery required“**

Hysteroscopic Myomectomy

TABLE 3

Effect of fibroids on fertility: submucous fibroids.

Outcome	Number of studies/ substudies	Relative risk	95% confidence interval	Significance
Clinical pregnancy rate	4	0.363	0.179–0.737	$P=.005$
Implantation rate	2	0.283	0.123–0.649	$P=.003$
Ongoing pregnancy/live birth rate	2	0.318	0.119–0.850	$P<.001$
Spontaneous abortion rate	2	1.678	1.373–2.051	$P=.022$
Preterm delivery rate	0	—	—	—

Pritts. Fibroids and infertility. Fertil Steril 2009.

Submucous myomas and their implications in the pregnancy rates of patients with otherwise unexplained primary infertility undergoing hysteroscopic myomectomy: a randomized matched control study

Tarek Shokeir, M.D., Muhammed El-Shafei, M.D., Hamed Yousef, M.D., Abdel-Fattah Allam, M.D., and Ehab Sadek, M.D.

Department of Obstetrics and Gynecology, Fertility Care Unit, Mansoura University Hospital, Mansoura Faculty of Medicine, Mansoura, Egypt

TABLE 2

Pregnancy rates according to the characteristics of submucous myomas.			
Myoma characteristic	Pregnancy rates		P value
	Myomectomy	No myomectomy	
	Study (n = 101)	Control (n = 103)	
Size (mm), %			NS
<5	68.0	69.6	
5-10	56.2	53.3	
11-20	61.5	58.3	
>20	61.1	61.5	
Number, %			NS
1	44.4	40.9	
≥2	36.4	30.0	NS
Type, %			
0	57.9	33.3	<0.001
I	35.7	17.2	<0.001
II	31.3	29.0	NS
Location, %			NS
Fundal	50.0	53.8	
Lower uterine segment	41.5	42.1	

Note: NS = not significant.

Shokeir. Hysteroscopic myomectomy in unexplained infertility. *Fertil Steril* 2010.

The uterus and fertility

Elizabeth Taylor, M.D., and Victor Gomel, M.D.

Department of Obstetrics and Gynecology, University of British Columbia, BC Women's Hospital and Women's Health Centre, Vancouver, British Columbia, Canada

Objective: To review the current understanding of the role the uterus plays in embryo implantation and to outline congenital anomalies and acquired diseases that impact normal uterine function.

Design: The publications related to the embryo implantation, Mullerian anomalies, uterine polyps, uterine synechiae, and myomas were identified through Medline and reviewed.

Conclusion(s): Congenital anomalies and acquired diseases of the uterus may negatively impact on the complex processes of embryo implantation. Hysteroscopic surgery to correct uterine septa, intrauterine synechiae, and myomas that distort the uterine cavity may benefit women with infertility or recurrent pregnancy loss. The effect of endometrial polyps on fertility is uncertain, but their removal, once identified, is justifiable. Complex congenital anomalies such as unicornuate uterus and uterus didelphys may negatively affect fertility and pregnancy outcome, and surgical treatment may benefit select patients. (*Fertil Steril*® 2008;89: 1–16. ©2008 by American Society for Reproductive Medicine.)

Key Words: Uterus, implantation, infertility, Mullerian anomalies, endometrial polyps, intrauterine adhesions, uterine leiomyoma

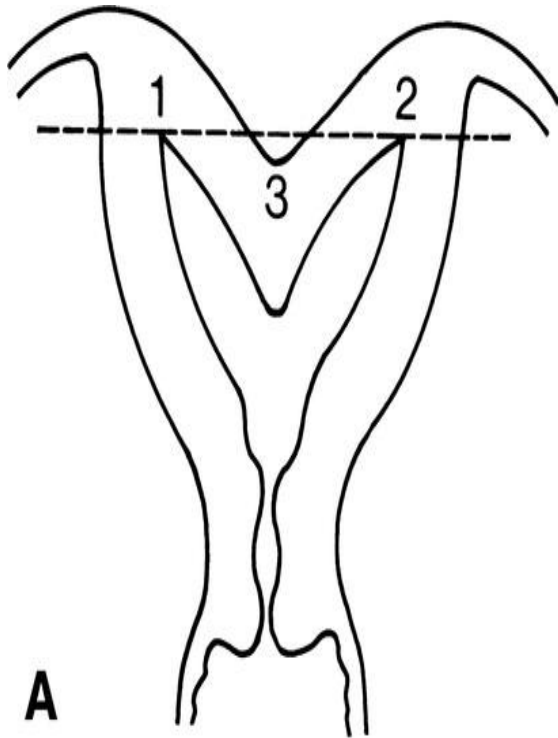
- **Hysteroscopic resection of Submucous & intramural fibroids with distortion increases clinical PRs.**

Tarek Shakeir et al. Arch Gynecol Obstet 2005

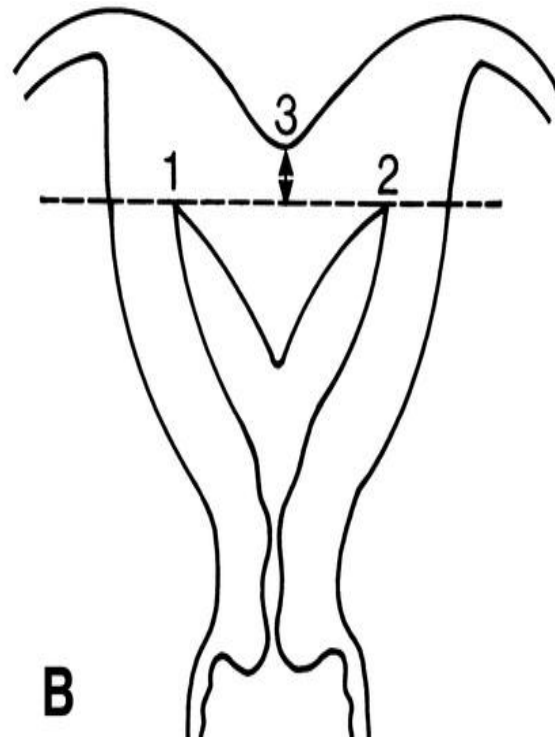
- **Diameter is correlated with treatment success.**

Fernandez et al. Hum Reprod 2001

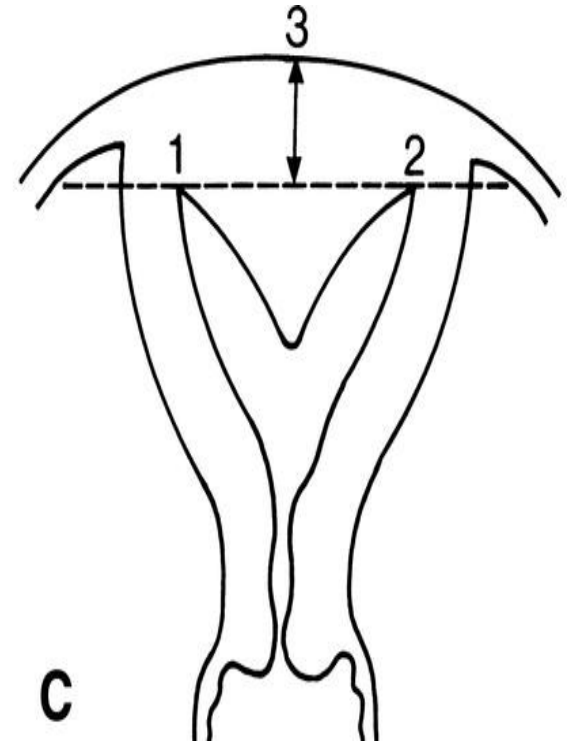
Bicornuate uterus – septum difference



A



B



C

BICORNUATE UTERUS

UTERINE SEPTUM

Mullerian Anomalies: Management

Unicornuate uterus	Uterine didelphys	Bicornuate uterus	Arcuate uterus	Septate uterus
<p>Expectant therapy</p> <p>Cervical length measurement</p> <p>Cervical cerclage for special cases</p> <p>Rudimentary horn resection</p>	<p>Surgery is not essential</p> <p>Metroplasty for special cases</p>	<p>Expectant therapy</p> <p>Cervical cerclage for special cases</p>	<p>Expectant therapy</p>	<p>Hysteroscopic metroplasty</p>

Reproductive Outcome: Septum

Comparison of reproductive outcome before and after hysteroscopic metroplasty for the septate uterus in selected series.

Author (ref.)	No. of patients	Before metroplasty				After metroplasty			
		No. of pregnancies	No. of miscarriages (%)	No. of preterm deliveries (%)	No. of term deliveries (%)	No. of pregnancies	No. of miscarriages (%)	No. of preterm deliveries (%)	No. of term deliveries (%)
Chervenak and Neuwirth (72)	2	3	3 (100)	0	0	2	0	0	2 (100)
Daly et al.* (70)	17	40	34 (85)	5 (12.5)	1 (2.5)	9	2 (22)	1 (11)	6 (67)
De Cherney and Polan* (81)	15	NR	>30	NR	NR	11	2 (18)	0	9 (82)
Israel and March* (71)	12	28	26 (93)	0	2 (7)	2	1 (50)	0	1 (50)
De Cherney et al. (79)	103	NR	>206	NR	NR	>71	>8	1	NR
Valle and Sciarra* (18)	12	42	30 (71)	12 (29)	0	10	2 (20)	2 (20)	6 (60)
Fayez (20)	12	21	19 (90)	2 (10)	0	16	2 (13)	0	14 (87.5)
March and Israel (16)	57	240	212 (88)	21 (9)	7 (3)	56	8 (14)	4 (7)	44 (79)
Perino et al. (33)	24	27	24 (89)	3 (11)	0	15	1 (7)	0	14 (93)
Daly et al. (69)	55	150	130 (87)	13 (9)	7 (5)	75	15 (20)	5 (7)	55 (73)
Choe and Baggish (17)	14	38	31 (82)	6 (16)	1 (3)	12	1 (8.3)	1 (8.3)	10 (83.3)
Fedele et al. (73)	71	>139	>139	NR	NR	65	10 (16)	10 (16)	45 (69.2)
Cararach et al. (74)	62	176	160 (91)	11 (6)	5 (3)	41	12 (29)	0	29 (48)
Pabuccu et al. (76)	49	108	96 (89)	11 (10)	1 (1)	44	2 (4.5)	2 (4.5)	40 (9.1)
Valle (77)	115	299	258 (86.3)	28 (9.4)	13 (4.3)	103	12 (12)	7 (7)	84 (81)
Mencaglia and Tantini† (40)	94	NR	>94	NR	NR	62	4 (6)	0	58 (94)
Total	658	1,062	933 (88)	95 (9)	34 (3)	491	67 (14)	29 (6)	395 (80)

Note: NR = not recorded.

* Not included in total to avoid duplication of patients.

† Not included in total because of incomplete data.

- Abortion rate decreases from 88% to %4 after resection.
- Live birth rate increases from 3% to %80 after resection.

Results after hysteroscopic metroplasty

Event leading to diagnosis and pregnancy outcome after metroplasty for different septum sizes, n = 114.

	Septum size $\frac{1}{4}$	Septum size $\frac{1}{2}$	Septum size $> \frac{1}{2}$
Diagnostic event:	10 (8.8% of n)	18 (15.8% of n)	86 (75.4% of n)
Infertility workup	4 (40%)	7 (39%)	27 (31%)
First trimester miscarriage	4 (40%)	4 (22%)	18 (21%)
Premature delivery	—	2 (11%)	7 (8%)
Normal delivery	—	1 (6%)	1 (1%)
Three or more miscarriages	1 (10%)	3 (17%)	22 (26%)
C-section	1 (10%)	1 (6%)	11 (13%)
Pregnancy outcome after metroplasty:			
No pregnancy	7 (70% ^a)	6 (40% ^a)	11 (14.1% ^a)
Live birth	3 (30% ^a)	5 (33.3% ^a)	64 (82% ^a)
Miscarriage	—	4 (26.7% ^a)	3 (3.8% ^a)
Desired fertility	10 (100%)	15 (100%) (3 had no desire)	78 (100%) (8 had no desire)

^a The percentages are derived from the 100% value of desired fertility.

Istre. Results after hysteroscopic metroplasty. Fertl Steril 2010.

If the septum size is $>1/2$ of uterine cavity, patient may benefit from hysteroscopic metroplasty

Hysteroscopic metroplasty: reproductive outcome in relation to septum size

Recent studies demonstrate that hysteroscopic metroplasty in cases of partial uterine septum and infertility **significantly improves the reproductive performance:**

- Irrespectively of septum size,
- Reproductive outcome is independent from previous obstetrics history.

Hysteroscopic Resection of Uterine Septum and Reproductive Outcome in Women with Unexplained Infertility

Panagiotis Bakas Odyseas Gregoriou Dimitrios Hassiakos Angelos Liapis
Maria Creatsas Sokratis Konidaris

Second Department of Obstetrics and Gynecology, Aretaieio Hospital, University of Athens, LHTO Maternity Hospital, Athens, Greece

If such a patient is looking for a spontaneous pregnancy, this is more likely to occur **during the first 15 months following the procedure.**

Cervical Septum: Reproductive Outcomes

Reproductive outcome after surgery in the two groups of women who underwent hysteroscopic metroplasty.

Variable	Group A (n = 15)	Group B (n = 13)	P
Mean period of follow-up	13.13 ± 5.35	12 ± 4.56	.555
No. of women who became pregnant with in a period of 4–14 months	12 (80%)	10 (76.9%)	1.00
No. of patients who needed cerclage	4 (26.7%)	2 (15.4%)	.655
Single	15 (100%)	13 (100%)	—
First-trimester abortion	2 (13.3%)	0	.484
Late abortion	0	0	—
Preterm deliveries	4 (26.7%)	4 (30.8%)	1.000
No. of neonates that survived	13 (86.7%)	11 (84.6%)	1.000
Cesarean section	2 (13.3%)	7 (53.8%)	<.05

Parsanezhad. Management of complete uterine septum. Fertil Steril 2006.

Cervical septum resection is suggested for the patient with complete septum

Management and reproductive outcome of complete septate uterus with duplicated cervix and vaginal septum: review of 21 cases.

- ❑ Group 1 - 11 patient – uterine septum+
 - hysteroscopic metroplasty
 - vaginal septum cut
 - cervical septum preserved
- ❑ Group 2 – 10 patient – uterine septum+
 - 4 patient – vaginal septum cut
 - 2 patient – L/S adhesiolysis
 - 4 patient – No intervention

In group 1, the pregnancy rate is 81.8%, where it is 50% in group 2.

The uterine septum may not necessarily be transected for patients who have complete septate uterus with duplicated cervix and vaginal septum, and meanwhile have no a history of poor reproductive outcome.

T-shaped Uterus: Outcomes

Uterine malformation	Patients, n	Pregnancies, n
Group 1		
T-shaped uterus	17	21
Group 2		
Septum	2	3
Septum partial	70	86
Group 3		
Arcuate with fibrosis	50	67
Arcuate	31	41

Stratification	Before surgery, %	After surgery, %	After surgery ¹ , %
Previous abortions			
2	5.67	69.7	68.2
3-4	6.26	56.5	56.9
>4	1.52	26.3	17.6
Uterine malformations			
Group 1	0	66.7	- ²
Group 2	6.2	62.8	72.7
Group 3	6	55.6	66.6





Figures represent percentages.

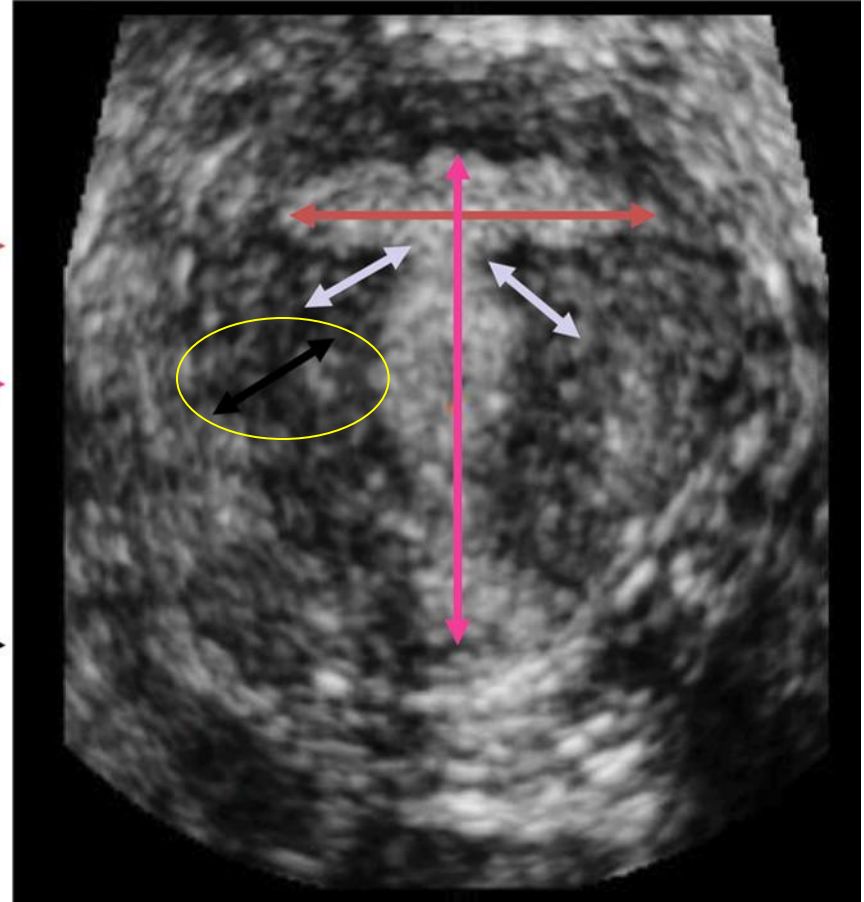
¹ Only on cases that never had a term pregnancy.

² No cases had a previous term pregnancy.

1. The term delivery rate was about 10-fold higher after surgery.
2. T-shaped uterus surgery yielded the best term delivery rate.

Essential preoperative measurements of T-shaped uterus.

- Distance between ostia 
- Length of the uterine cavity 
- Possible section in the width 
- Safety margin 



Fernandez H et al. Hum. Reprod. 2011;26:1730-1734

Reproductive Outcomes: T-shaped uterus.

	Preoperative	Post-operative	
		Primary infertility	Secondary infertility
<i>Number</i>	78	31	26
Miscarriage	61 (78.2%)	9 (29%)	7 (26.9%)
Ectopic pregnancy	14 (17.9%)	5 (16.1%)	0
Preterm delivery	3 (3.8%) (Neonatal death)	3 (9.7%)	5 (19.2%)
Term delivery	0	14 (45.2%)	14 (53.8%)
Live birth	0	17 (54.8%)	19 (73.1%)

Recommendations: 2014

Hysteroscopy should be carried out to exclude any intracavity uterine pathology; it has been shown to improve outcome (evidence level 1+).

- Submucosal fibroids have been shown to reduce IRs, PRs & LBRs; removal of submucosal fibroids improves implantation rate (evidence level 1+).
- Intramural fibroid with distorted cavity or > 5 cm should be removed (evidence level 3).
- Uterine septum increases miscarriage rate; its removal improves outcome (evidence level 2+).
- Intrauterine adhesions should be removed those recognized to cause of thin endometrium not responding to OS (evidence level 4).
- Endometrial scratch should be considered in the luteal phase of the cycle immediately preceding IVF treatment; it improves IR & outcome in women with unexplained RIF (evidence level 1-).

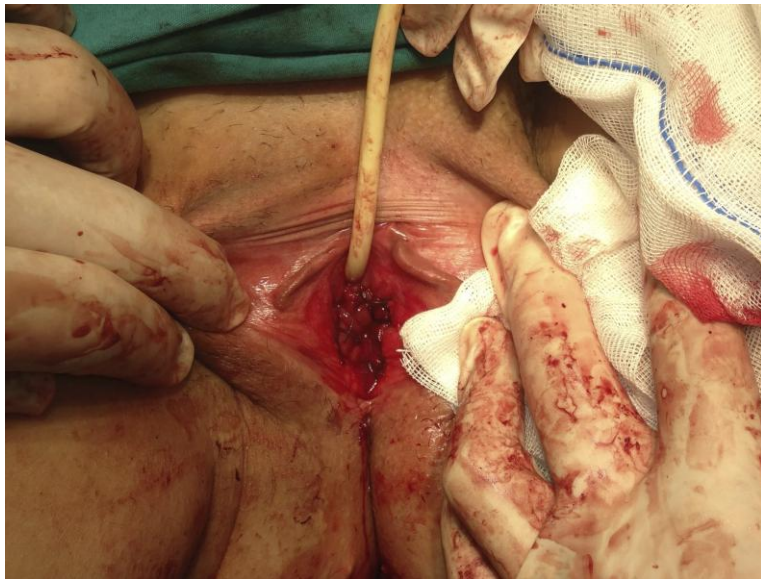
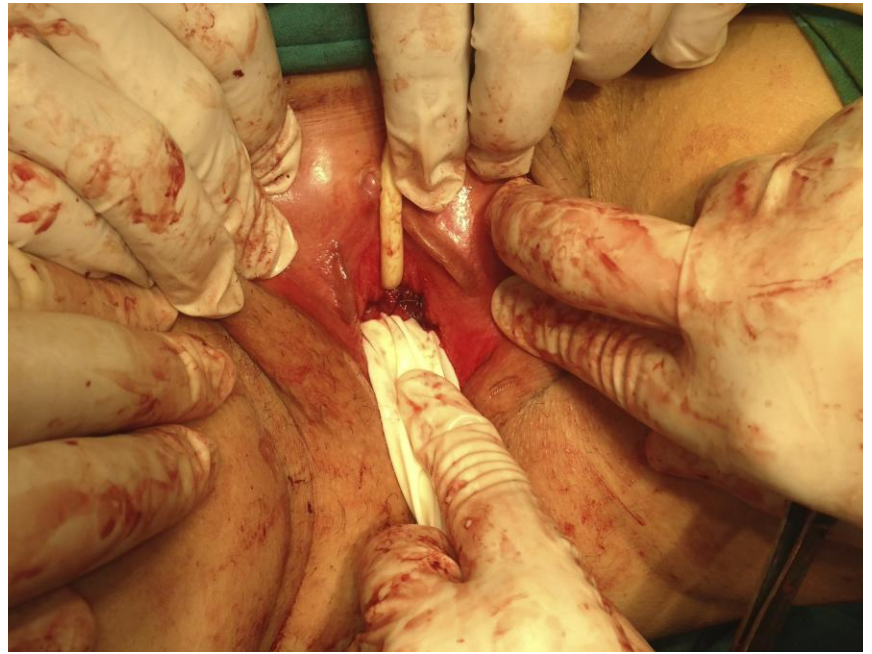
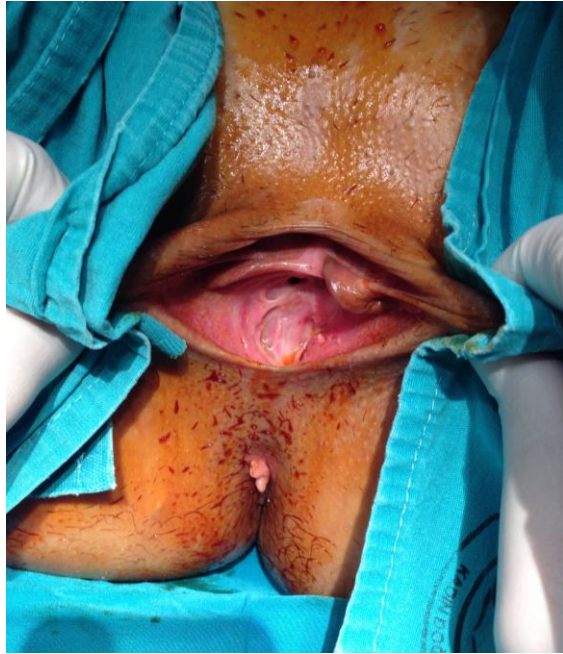
Vulva and Vagina

1. Reproductive Surgeries
 - Vaginal septum resections
 - OHVIRA synd
2. Reconstructive Surgeries
 - Neovagen operations

Neovagen Methods

Satisfactory vaginal creation usually can be managed non-surgically with successive vaginal dilation. Patients should be thoroughly counseled and prepared psychologically before the initiation of any treatment. Evaluation for associated congenital renal anomalies or other anomalies is also important.

1. Frank's nonsurgical method
2. Abbe` - McIndoe operation
3. L/S modified Vecchietti's technique
4. L/S Davydov technique
5. Sigmoid interposition vaginoplasty
6. ADM Biological Graft



Neovagen Methods

	Method, N	Age	Dur.	FSFI				
				Desire	Arousal	Lubr.	Orgasm	Satisfaction
Communal PH, 2003	Sigmoid 16	18 (17– 22)	2 yrs	4.7 ± 0. 9	4.9 ± 0. 6	5.0 ± 0 .9	5.3 ± 0. 8	4.7 ± 1.6
Carrard C, 2011	Sigmoid 48	19	6 yrs	4.36 ± 0 .9	4.74 ± 0 .7	5.18 ± 0.9	4.44 ± 1 .1	5.35 ± 0.6
Zhu, 2013	Frank Method 11	23.6 (16– 29)	2yrs	4.65 ± 1 .3	5.10 ± 1 .0	5.10 ± 1.1	4.80 ± 0 .9	5.40 ± 1.2
	ADM 53			3.8 ± 0. 9	4.1 ± 1. 0	5.5 ± 0 .7	3.8 ± 1. 3	5.0 ± 1.0

ADM = acellular dermal matrix; FSFI = Female Sexual Function Index; MRKH = Mayer-Rokitansky-Küster-Hauser

ADM Biological Matrix Vaginoplasty

Time	Procedure	No. of patients	No. of effective responses
4-weeks	Assessment of wound healing and anatomic results	53	53 (100%)
12-weeks	Assessment of anatomic results	53	53 (100%)
1-year	Assessment of sexual outcomes		
	Body image perception	42	42 (100%)
	FSFI questionnaire	32	24 (75%)

FSFI = Female Sexual Function Index; MRKH = Mayer-Rokitansky-Küster-Hauser

Thanks

Be Wise, Be Simple