

Principles of microsurgery

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Microsurgery

- ◎ Definition:
 - > surgery requiring an operating microscope.
 - > to operate on very small structures, often requires miniaturized instruments
 - > Gentle tissue handling
- ◎ Application:
 - > Tubal surgery



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Tubal pathology

1. Tubal sterilization
2. Adhesions
3. Proximal tubal obstruction
Fibrosis, salpingitis isthmica nodosa,
Endometriosis, chronic tubal inflammation
4. Distal tubal obstruction



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1. Tubal anastomosis

- ◎ 3-8% of women who undergo sterilization come to express regret
- ◎ Results of tubal reversal dramatically improved with the introduction of microsurgical techniques
- ◎ Reported pregnancy 57 – 84%
- ◎ Risk for ectopic pregnancy of 2-7%.



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Microsurgical techniques

- After opening of the abdomen by a mini-laparotomy the uterus and adnexa were exteriorised
- Magnification using the operating microscope allowed precise dissection
- Drying of the peritoneal surface was avoided by a continuous irrigation with Hartman solution



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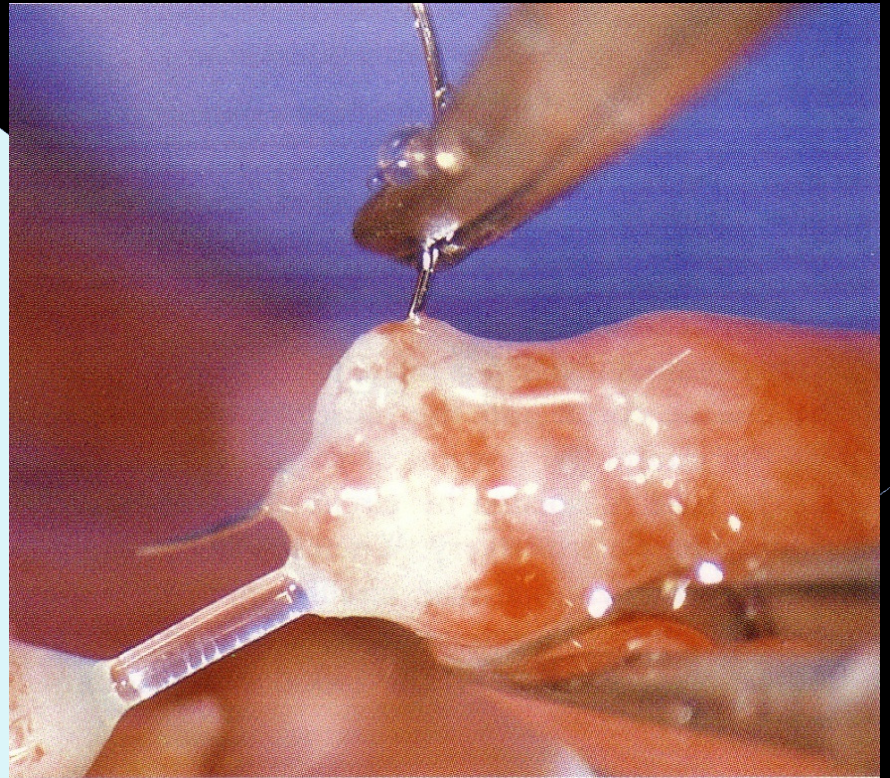
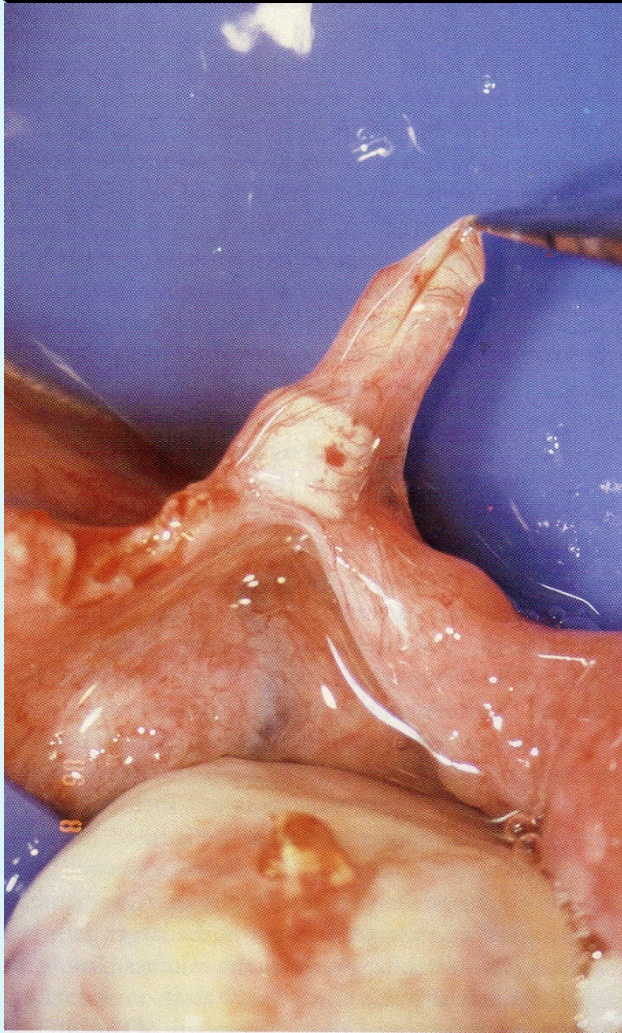
Microsurgical techniques

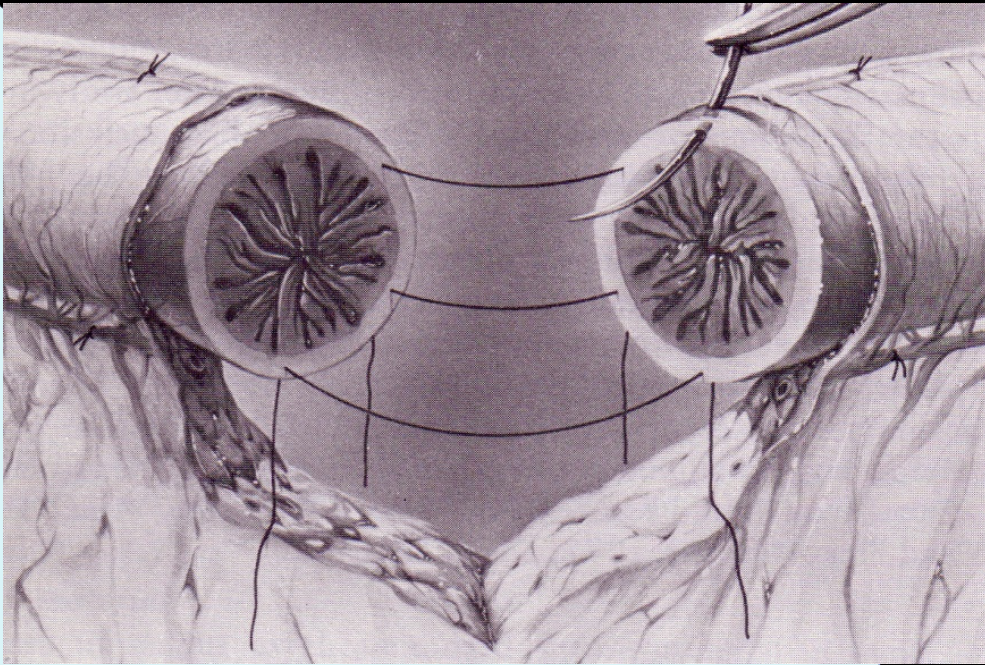
- The microsurgical technique comprised two main phases
 - > careful preparation of the healthy tubal segments by removal of the blocked tubal fragments
 - A tubal splint was sporadically used
 - > anastomosis using a two-layer technique with 8-0 ethilon



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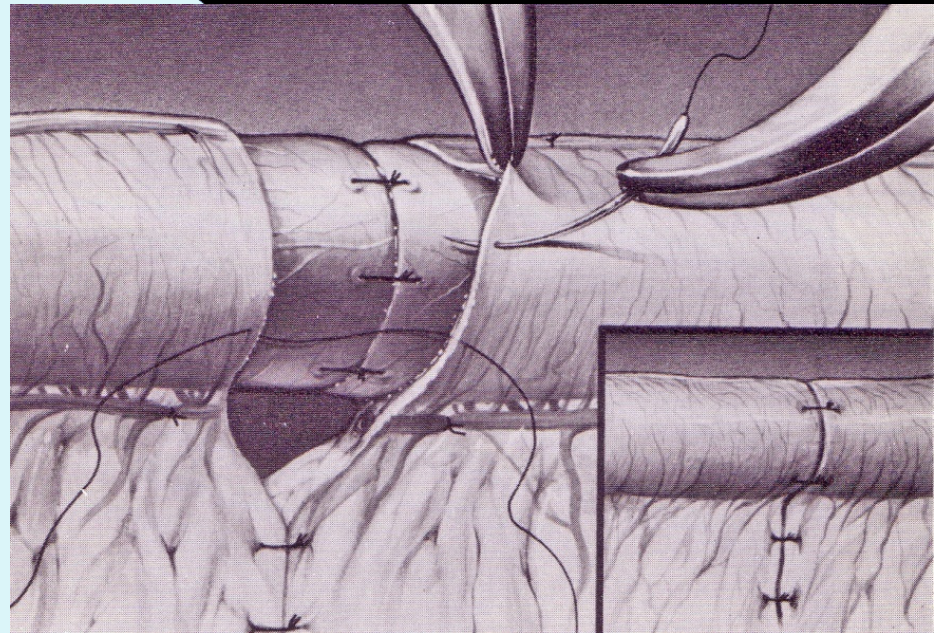
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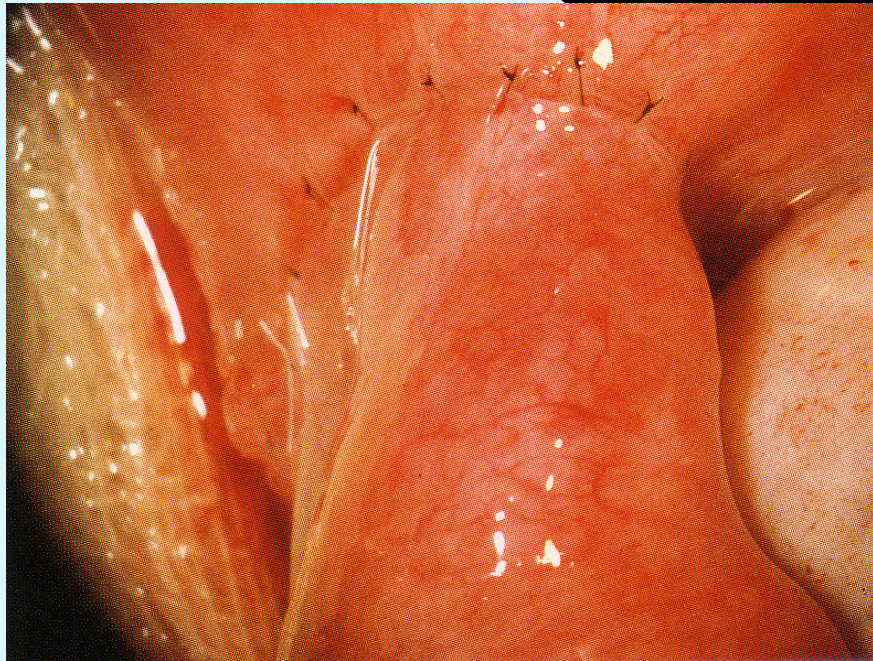
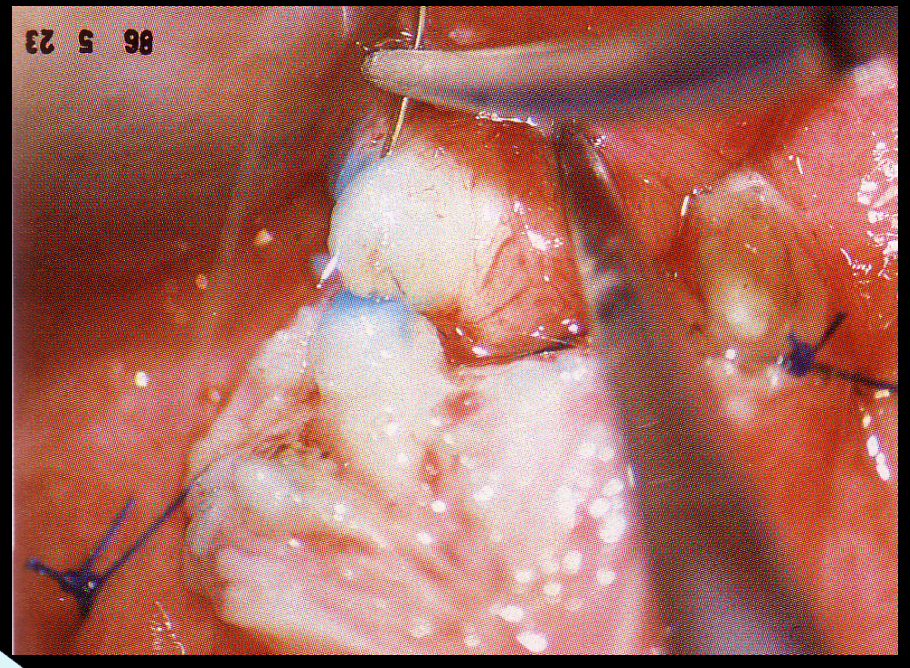
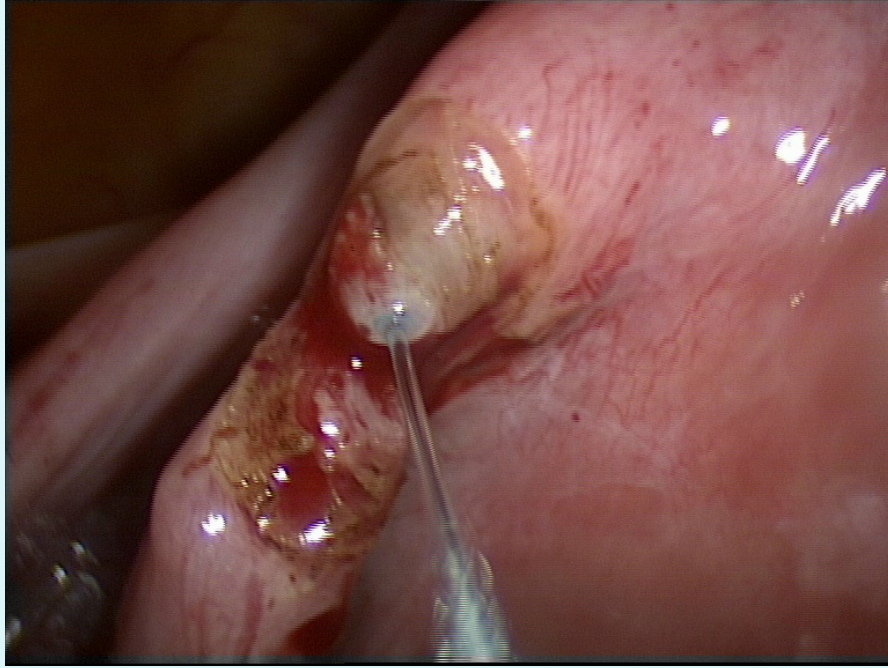




Interrupted sutures in myosalpinx

Interrupted sutures in tubal serosa and mesosalpinx





Microsurgical techniques

- Before closing the abdomen was extensively rinsed, leaving up to 200 ml Hartman intra abdominally
- No prophylaxis with antibiotics was given
- Hospital stay of 2-3 days



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Retrospective study

- 261 interventions - lost of follow-up 34% - 172 ptn evaluated
- Mean age was 33,8 years (SD +/-4,8).
- Tubal sterilization had been carried out using various methods:
 - > Pomeroy technique in 2%,
 - > Falope-ring in 54%,
 - > Clips in 23%
 - > Electro coagulation in 13%.
- After tubal reversal 8 patients did not attempt to conceive.



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Retrospective study

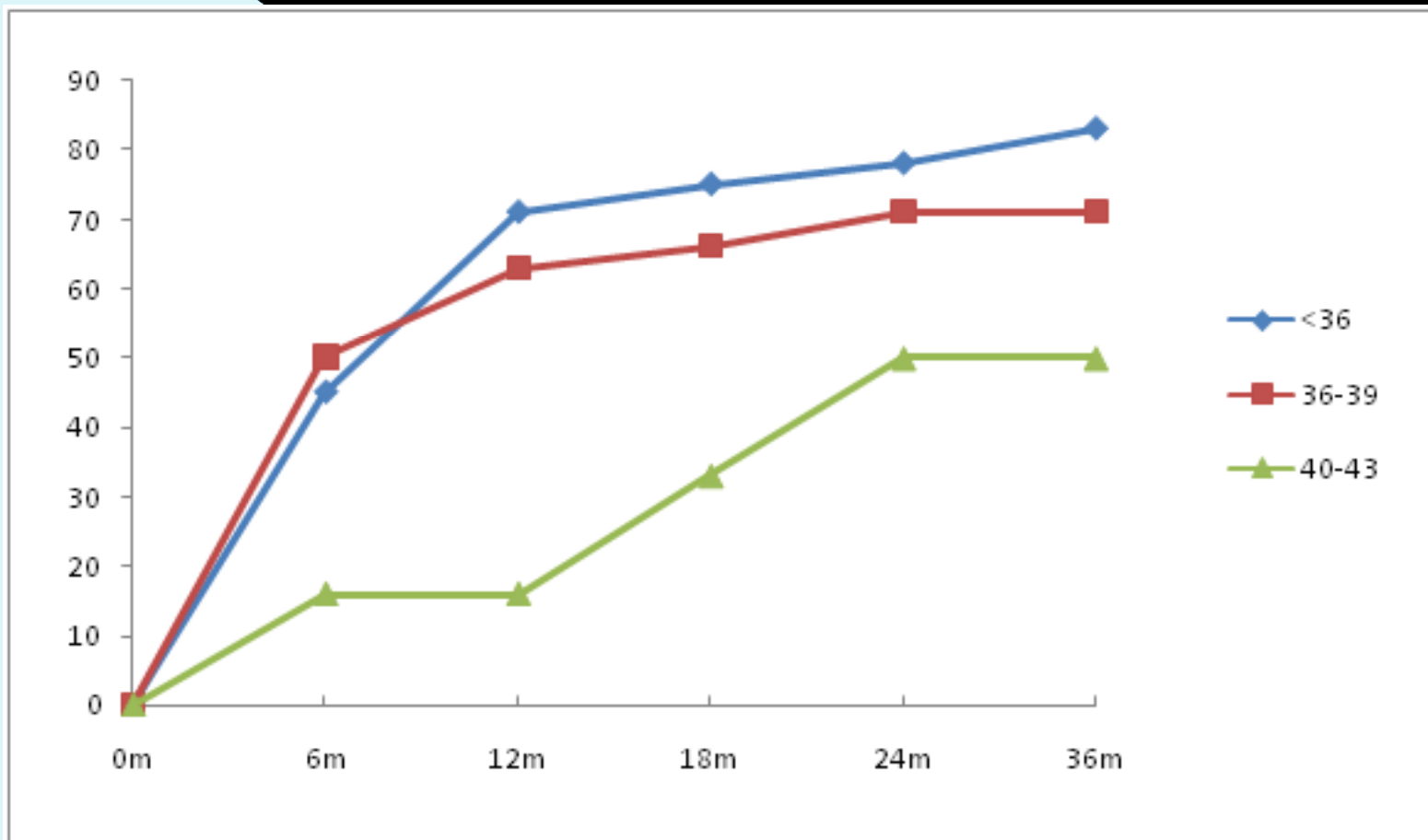
- 129 pregnancies.
 - > IUP rate was 72,5%
 - > live birth rate of 60%.
 - > Spontaneous abortion occurred in 18%
 - > EUP in 7,7 %
 - in first 6m: 1 EUP – after 6 m:17% EUP
- Mean time between intervention and conception was 8,4 months.



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Cumulative pregnancy rate and age



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Technique of sterilization according to characteristics

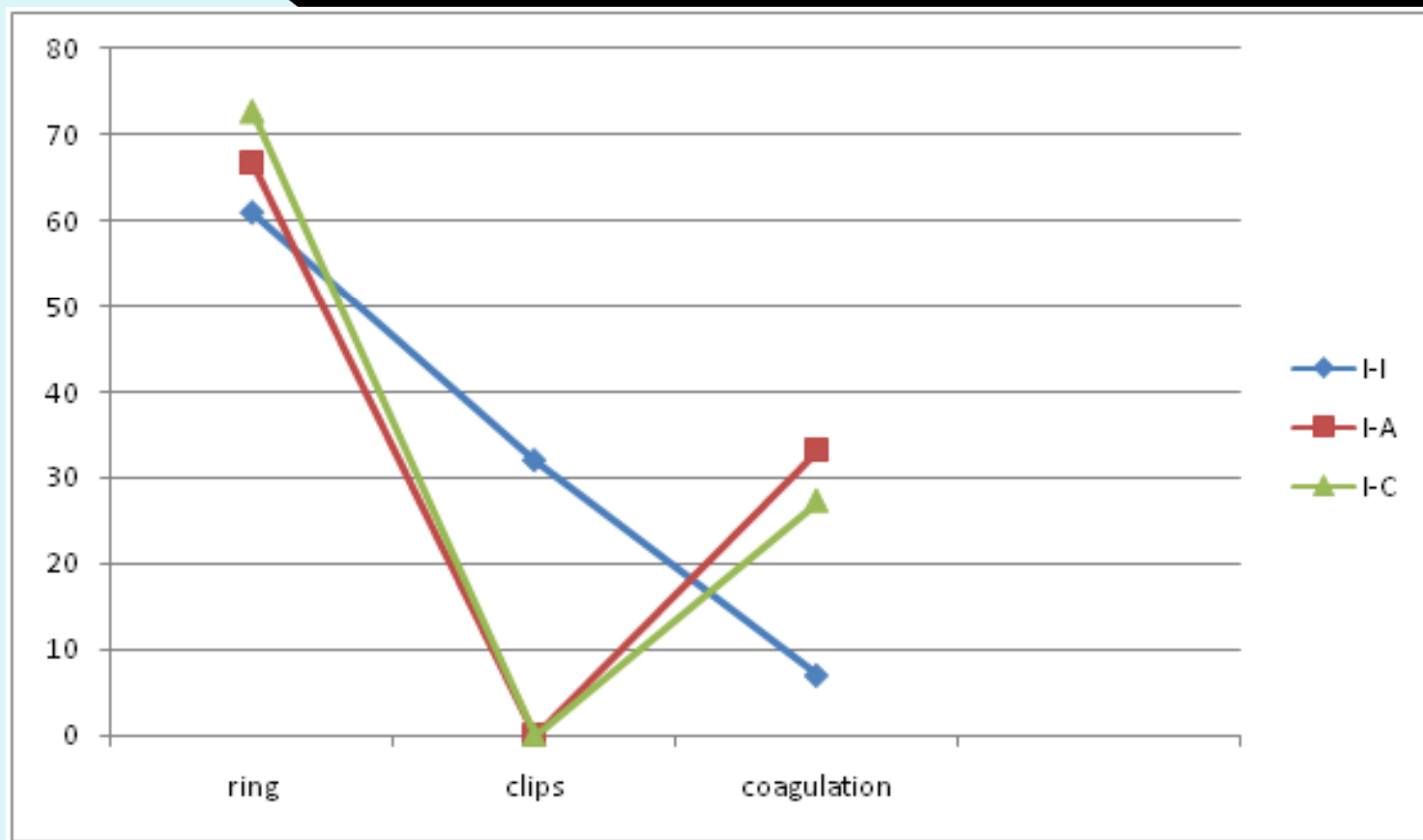
	ring	clips	coagulation	
nb	94	39	24	
age	33,8	33,9	33,7	NS
bilateral	92	38	23	NS
unilateral	2	1	1	
I-I	54	27	6	p<0,05
I-A	6	0	3	NS
<5cm	13	2	9	p<0,05
IUP%	73	79	68	NS



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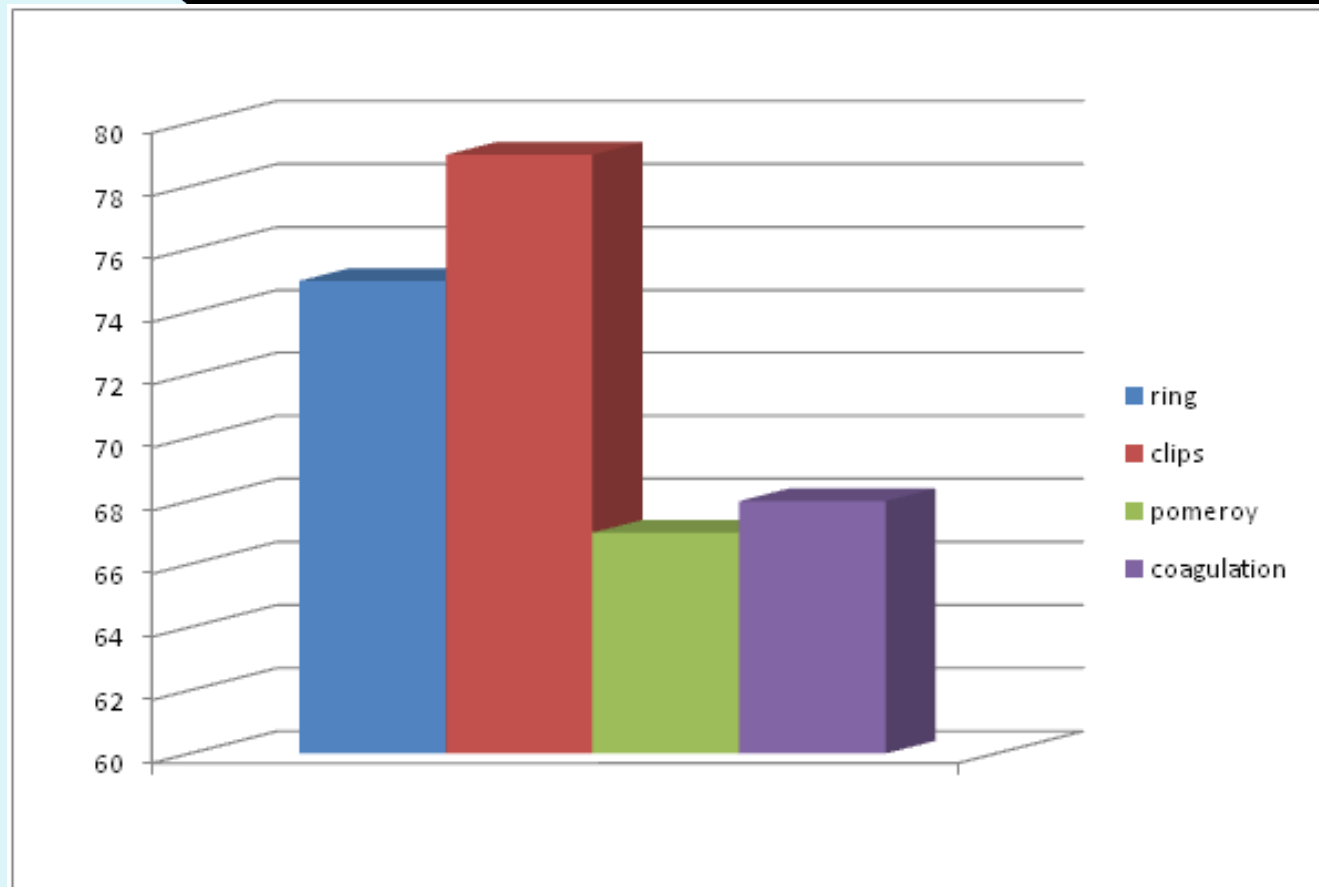
Distribution of type of anastomosis according to type of sterilization



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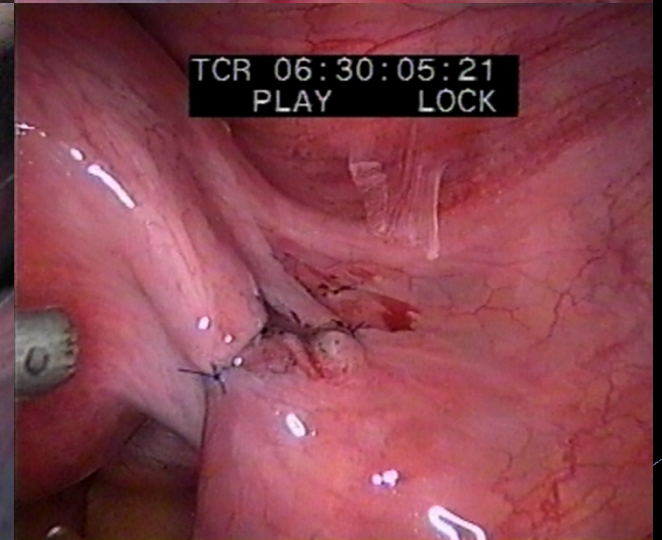
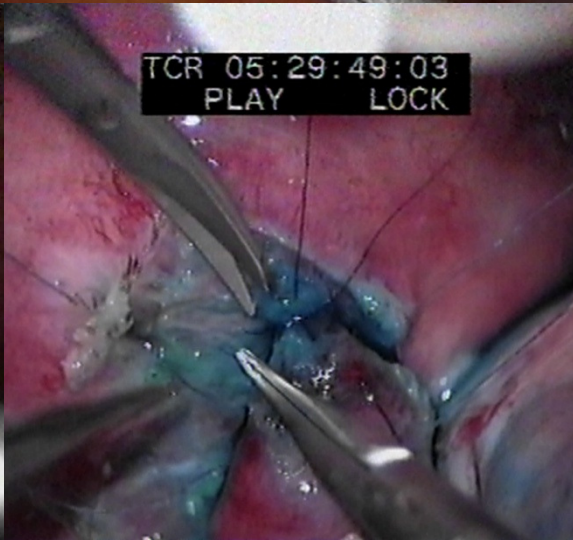
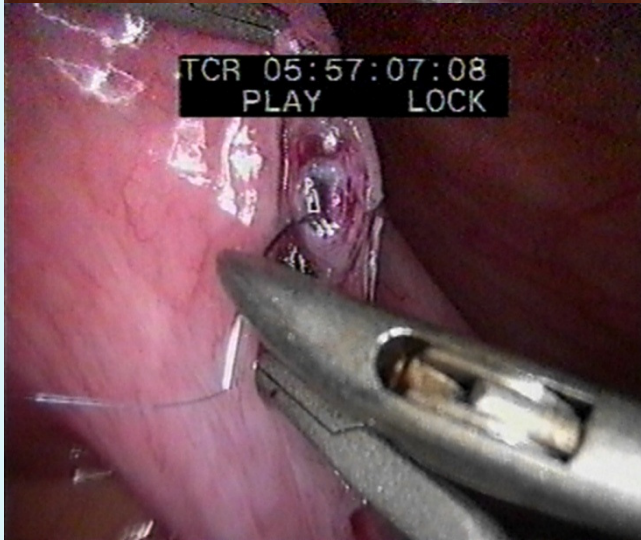
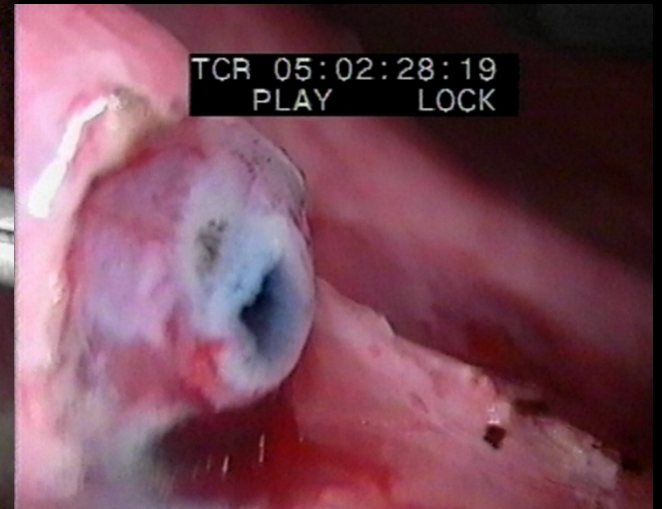
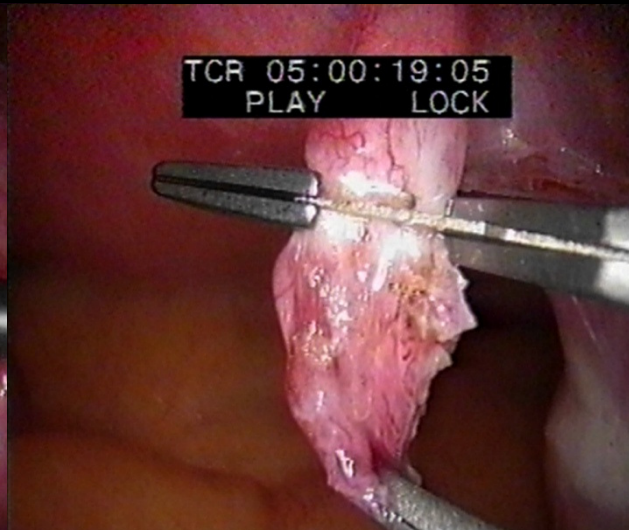
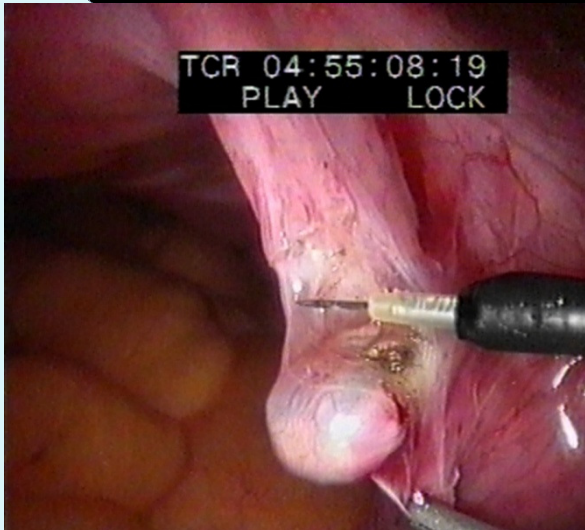
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Intra-uterine pregnancy rate according to type of sterilization



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Laparotomy

	Pregnancy rate
Winston	69%
Gomel	80%
Boeckx	90%
Dubuisson	70%

Laparoscopy

	Technique	Pregnancy rate
Yoon	2 layer	87%
Koh	2 layer	71%
Dubuisson	Single suture	53%
Wiegerinck	Suture less	45%
Degueldre	Robot	71%



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2. Adhesions

- Extend adhesions
- Filmy <> Dense adhesions

	filmy	dense
Hulka (1982)	39%	21%
Oelsner (1994)	68%	34%



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3. Proximal tubal obstruction

Hysteroscopic tubal canulation

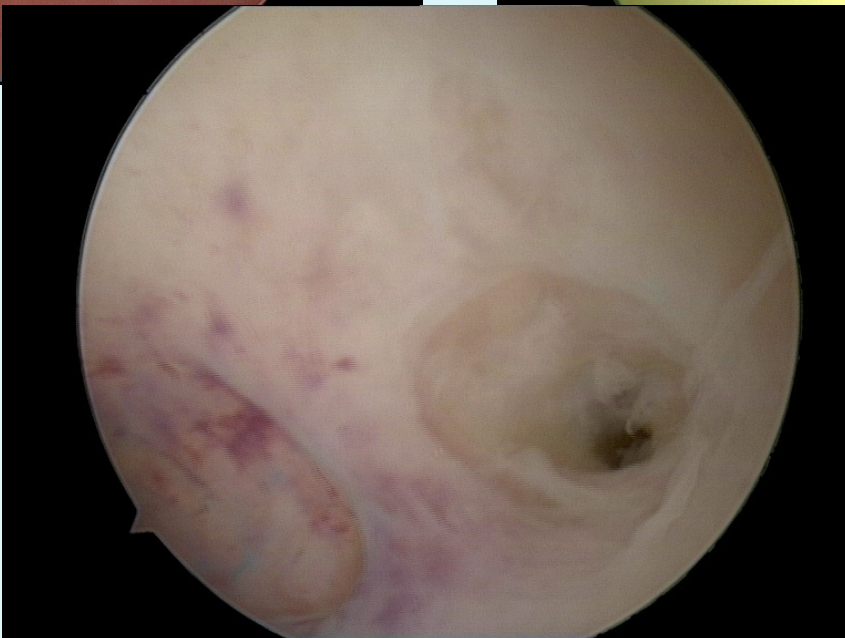
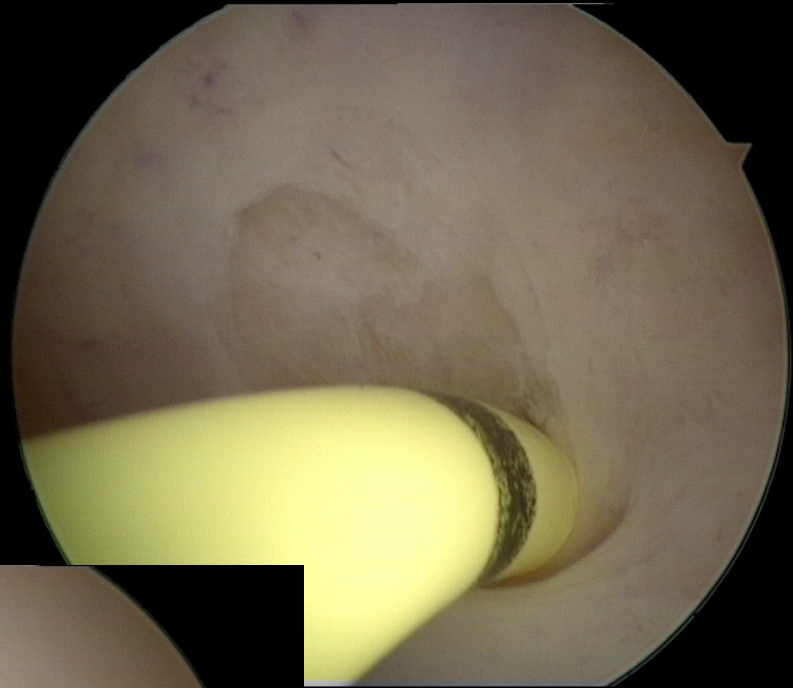
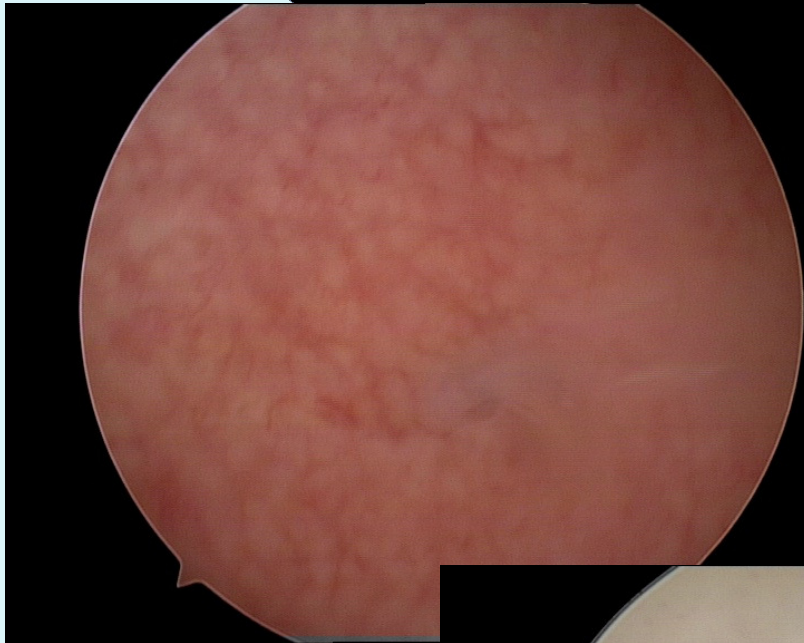
study	Pregnancy rate
Sakumoto	43%
Ransom	47%
Das	57%

Tubocornual anastomosis <> Tubouterine implantation

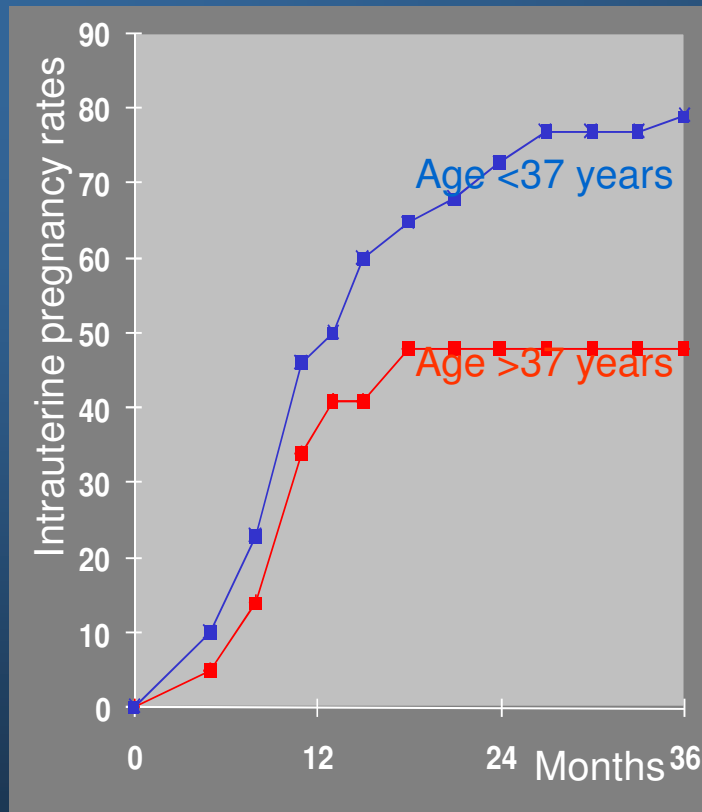
Tubocornual	Pregnancy rate
Gomel	63%
Frantzen	43%
Dubuisson	74%

Tubouterine	Pregnancy rate
Rock	25%
Singhal	22%

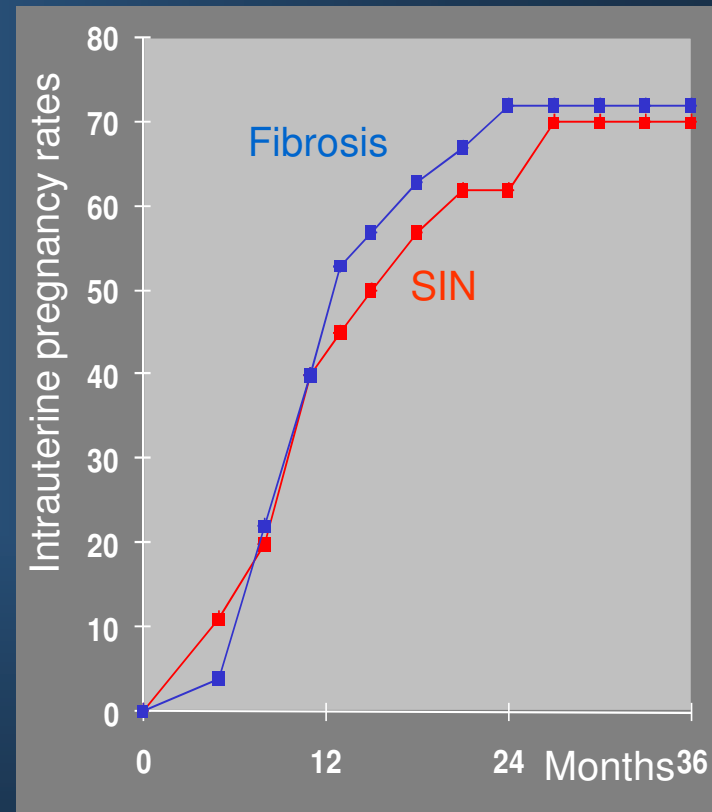
Hysteroscopic tubal cannulation



3. Proximal tubal occlusion



Cumulative intrauterine pregnancy rates according to age



Cumulative intrauterine pregnancy rates according to histology: fibrosis versus Salpingitis Isthmica Nodosa



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Dubuisson, 1997 Hum. Reprod.

4. Distal tubal lesion

Salpingostomy	Fimbrioplasty
= Opening of the tube	= The Fallopian tube is opened, and the fimbriae are restored
22 – 42%	30 – 69%

- Pregnancy rate is related to
 - > Adhesions (extend , dense)
 - > Thick tubal wall
 - > Mucosal appearance



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Salpingoscopy

Classification

Grade	Description
I	Normal folds
II	Major folds are separated, flattened but otherwise normal
III	Focal adhesions between folds (<50 % of folds involved)
IV	Extensive adhesions between folds
V	Fibrosis and loss of fold pattern



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Salpingoscopy

Diagnostic value

Grade	Intrauterine pregnancy rate	Ectopic pregnancy rate
I	59%	5%
II		
III	20%	10%
IV	<5%	50%

Brosens, Reprod. med. Rev. 1996



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Fimbrioplasty technique

- Flowering: Laser, Bipolar coagulation
- Suturing

	optimal eversion	phimosi	occlusion
suturing	66.7	22.2	11.1
flowering	38	33.4	28.6

Korell et al. 1991



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Conclusion

IVF and tubal surgery must be considered complementary

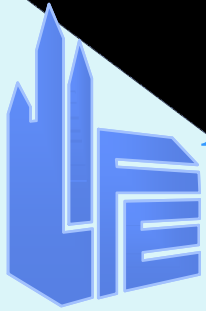
Tubal anastomosis the possibility of a spontaneous conception without the IVF related risks

Microsurgery	IVF
younger patients up to 36	ovarian or andrologic factors
Sterilization reversal up to 42 years depending	older patients above age 36 years (exception: sterilization reversals)
Filmy adhesions	extensive tubal damage
	repeated extrauterine pregnancy



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