

MICROSURGERY IN GYNAECOLOGY—PRELIMINARY EXPERIENCES

by

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Introduction

In 1967, Kurt Swolin, introduced microsurgery in gynaecology and is thus rightly the "Father of Gynaecological Microsurgery". For the next 10 years, pioneers like Gomel (1980), Winston and Margara (1980) and Boeckx, et al (1980) developed microsurgical techniques in gynaecology. In the last 5 years, hundreds of gynaecologists have undergone training and are practising microsurgery.

Microsurgery which was initially confined to tubal reconstructive surgery has now extended its applications to ovarian surgery, metroplasty, resection of endometriosis, pelvic adhesiolysis, and groin node dissection.

Basic Principles of Microsurgery

The basic principles of microsurgery are:

1. Magnification.
 - (i) Loupe
 - (ii) Operating microscope.
2. Atraumatic technique, with micro instruments, fine suture material (8/0 nylon) and continuous irrigation.
3. Meticulous hemostasis, with micro-point monopolar or bipolar cautery.
4. Precise approximation of tissue planes and reperitonealisation.

Material

This is a preliminary report of 15 cases

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of gynaecological microsurgery done from 1st January 1982 to 31st December 1982 in the author's private hospital. There were 13 (86.7%) cases of tubal microsurgery and 2 cases (13.3%) of ovarian microsurgery (Table I).

TABLE I
Analysis of 15 Microsurgery Cases

- I. *Tubal Microsurgery*:—13 cases (86.7%)
 - A. *Reversal of Sterilization*: 4 cases (30.77%)
Type of anastomosis:—
 - (1) Ampullo-ampullary (Pomeroy's)—3 cases (75%)
 - (2) Isthmo-isthmic (Silastic Ring)—1 case (25%)
 - B. *Infertility Tubal Block*: 9 cases (69.23%)
Type of anastomosis:—
 1. Isthmo-isthmic—1 case (11.1%)
 2. Ampullo-intramural—3 cases (33.3%)
 3. Ampullo-isthmic—1 case (11.1%)
 4. Ampullo-ampullary—2 cases (22.2%)
 5. Fimbrioplasty—2 cases (22.2%)
- II. *Ovarian microsurgery*: 2 cases (13.3%)
Wedgeresection of ovary for chocolate cyst (1) and Stein Leventhal (1)
Pregnancies: 5 cases (33.33%)
Intrauterine pregnancies: 4 (75%)
Tubal pregnancy—1 (25%)
Pelvic Adhesiolysis: 8 cases (53.33%)

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In 3 (20%) cases fairly extensive pelvic adhesiolysis was necessary. In 5 cases (33.33%) salpingoovariolysis of varying degree was required. This adhesiolysis was carried out using an ocular loupe (2X) and electromicrosurgery with monopolar electrodes and teflon rods under continuous irrigation, with ringer

lactate solution containing dexamethasone and heparin.

Tubal Microsurgery: 13 cases (86.7%)

Reversal of sterilization 4 cases (30.77%)

Of the 13 cases, 4 (30.77%) were cases of reversal of sterilization. There were 3 cases (75%) of previous Pomeroy's requiring ampullo-ampullary anastomosis and 1 case (25%) of Silastic Ring requiring isthmo-isthmic anastomosis.

Infertility Tubal Block Cases: 9 cases (69.23%)

Nine cases (69.23%) were of infertility with tubal block at different levels needing anastomoses such as: isthmo-isthmic—1 case—(11.1%); ampullo-intramural—3 cases—(33.3%); ampullo-isthmic—1 case—(11.1%); ampullo-ampullary—2 cases—(22.2%); fimbrioplasty—2 cases (22.2%).

In all these cases of tubal microsurgery, the blocked segment was divided in discs of a few mms under OPMI-1 operating microscope till the patent healthy tube was reached. The patency of the proximal segment was checked by free flow of methylene blue injected through an intra-uterine pediatric Foley's catheter No. 8 or 9 as recommended by Gomel (1980). Recently, in the last 2 cases, Rubin's cannula with tenaculum (Shirodkar pattern) was used more successfully. The patency of the distal segment was checked by injecting methylene blue using a rubber bulb and glass pipette through the fimbrial end. The patent ends were checked under high magnification (16X) to see that the muscularis and the mucosa were healthy. The tubes were handled with fingers only and kept moist by continuous irrigation.

In cases of cornual block, bleeding was very much reduced by injecting vaso-

pressin and syntocinon around the cornu, as recommended by McComb and Gomel (1980). In these cases, it was necessary to follow the blocked tube into the cornu by sharp dissection till a patent intramural end was exposed. Accurate hemostasis with bipolar microforceps was obtained in all cases, by coagulating all bleeding points made visible by the heparin drip under the operating microscope.

The blocked segment of the tube was excised carefully avoiding the blood vessel running just below it. Only tissues to be excised are held by toothed microforceps.

The two patent ends were approximated by a suture of 8/0 nylon in the mesosalpinx. The muscularis of the two ends was approximated by 4 sutures of 8/0 nylon taking care to avoid the mucosa under 10X magnification by the atraumatic counterpressure technique recommended by Winston and Margara (1980) and Cognat (1980). Gomel (1980) recommends the use of 8/0 Vicryl. Diamond (1981) prefers to include tubal mucosa using 10/0 nylon. The patency of the tube is tested and the serosa approximated by 6 to 8 sutures of 8/0 nylon. The gap in the mesosalpinx is closed by sutures of 6/0 nylon.

In 2 cases of hydrosalpinx a fimbrioplasty was performed using electromicrosurgery as per technique described by Swolin (1977). After opening up the fimbrial end, the fimbria were loosely stitched back by 2 to 3 sutures of 8/0 nylon.

Ovarian Microsurgery: 2 Cases (13.3%)
Ovarian wedge resection was done in 1 case of polycystic ovaries and in 1 case of chocolate cysts. In both these cases after accurate hemostasis with electrocoagulation, the ovaries were sutured in 2 layers as described by Boeckx *et al*

(1980). The deeper parts of the ovary were brought together with interrupted sutures of 5/0 Vicryl and the edges of ovary were approximated by interrupted sutures of 8/0 nylon. These cases were performed under the operating microscope (6X).

After definitive microsurgery, raw areas were approximated with 6/0 nylon. In 1 case, a peritoneal graft was used. A thorough pelvic lavage with Ringer lactate was carried out. About 100 ml. of Ringer lactate with 80 mgm dexamethasone is instilled into the pelvis just before the peritoneum is closed, for hydroflotation of the intestines. Gomel and Swolin (1980) recommend 2000 mgms. of hydrocortisone acetate. Recently, Dizerega and Hodgen (1980) have demonstrated the superiority of 32% Dextran 70 and Taylor (1982) recommends it routinely.

Hysterotubal Hydrotubation: This was done on the 5th day only in cases of fimbrioplasty, using dexamethasone 4 mgm, chloramphenicol ½ gm. and chymotrypsin in 25 ml. normal saline.

Second look Laparoscopy

This was carried out in all the cases 4 to 6 weeks after surgery. In all the cases

the tubes were patent. In 3 cases (20%) there were adhesions between the sigmoid and the left adnexa which could be separated at laparoscopy in 2 cases.

Pregnancy: 5 out of 15 cases—33.33%

Upto date 5 patients have become pregnant—4 are intrauterine and 1 was tubal. The tubal pregnancy occurred in a case of ampullo-ampullary anastomosis. Of the 4 cases, of intrauterine pregnancies, none has yet delivered. One is 2 months', 2 are 3½ months' and 1 is 5 months' pregnant. However, the follow up is very short, so further pregnancies may be expected. Two pregnancies have occurred in 4 cases of reversal of sterilisation (50%). Two pregnancies have occurred in 9 cases of infertility (22%) after isthmo-isthmic anastomosis in 1 case, and ampullo-isthmic anastomosis in 1 case.

Discussion

Several authors have convincingly demonstrated that results of microsurgery for tuboplasty are far superior to those of conventional macrosurgery (which included the use of ocular loupes).

I. Pathologically Occluded Tubes: (Table II)

TABLE II
Results of Tuboplasty for Pathologically Occluded Tubes

Author	Microsurgery		Macrosurgery	
	I.U.P.%	Tubal%	I.U.P.%	Tubal%
Siegler (1979)	12.5%	17.5%	26.5%	11.25%
Cognat (1979)	21.88%	8.87%	49.22%	7.53%
Gomel (1980)	28.41%	(Diff. authors)	45.51%	
Winston (1979)			31.88%	7.24%
Total (Pooled)	20.93%		38.28%	

I.U.P. = Intrauterine pregnancy.

Siegler and Kontopoulos (1979) have analysed results of 80 macrosurgical and 80 microsurgical techniques for tuboplasty with intrauterine pregnancy rates of 12.5% with macrosurgery and 26.5% with microsurgery and tubal pregnancy rates of 17.5% with macrosurgery and 11.25% with microsurgery. Cognat (1980) also reports intrauterine pregnancies in 21.88% with macrosurgery and 49.22% with microsurgery and tubal pregnancy rates with macrosurgery of 8.87% and with microsurgery of 7.53% after different types of tuboplasty operations. Gomel (1980) also compares the results of tuboplasty with macrosurgery by different authors and with microsurgery by himself and reports that the intrauterine pregnancy rates after macrosurgery are 28.41% and after microsurgery are 45.51%. Winston and Margara (1980) also report intrauterine pregnancy rates of 31.68% and tubal pregnancy rates of 7.2% after microsurgery for tuboplasty. Thus the pooled results of microsurgery viz. 38.28% are almost double that of macrosurgery viz. 20.93%.

II. Reversal of Sterilization:

—Tubo-tubal Anastomosis (Table III)

TABLE III
Results of Tubo-Tubal Anastomosis for Reversal of Sterilization

Author	Macro-surgery I.U.P.%	Microsurgery I.U.P.%
Siegler-Perez (1975)	37%	
Diamond (1977)	25%	62.5%
Winston (1977)		60%
Gomel (1980)		(4.34% Tubal) 80.8%
Total (Pooled)	33.5%	65%

These cases are discussed separately as these are cases of surgical occlusion without any additional pathology and the results are bound to be superior to those of pathologically occluded tubes, discussed previously.

The results of tubo-tubal anastomosis for reversal of sterilization with microsurgery viz. 57% (Henry *et al.*, as reported by Taylor 1982); 62.5% (Diamond 1977); 60% (Winston and Margara, 1980) and 80.8% (Gomel, 1980) are far superior to those with macrosurgery viz. 37% (Siegler Perez, 1975), 43% (Palmar quoted by Cognat, 1980) 29% (Henry *et al.*, as reported by Taylor 1982), and 25% (Diamond, 1977).

Thus the pooled results of microsurgery viz. 65% are double that of macrosurgery viz. 33.5%. Also the results of microsurgery for reversal of sterilization viz. 65% are far superior to those of microsurgery for pathologically occluded tubes viz. 38.28%.

Conclusion

Gynaecological microsurgery is still a young speciality. However, it has been conclusively established by several workers that the pregnancy rates are much better with microsurgery than with macrosurgery. Microsurgery which demands training, practise, expertise and expense is therefore more than justifiable.

Summary

An analysis of 15 cases of gynaecological microsurgery is presented. There are 4 cases of reversal of sterilization, 9 cases of occluded tubes causing infertility and 2 cases of ovarian microsurgery. All these cases were done using an OPMI-1 operating microscope and microsurgical technique which is described.

In the short follow up of 1 month to 1 year there have been 5 pregnancies

(33.3%)—4 intrauterine (75%) and 1 tubal (25%). The review of the literature shows that the pregnancy rates after microsurgery (52%) are double that after macrosurgery (27%).

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