

REVERSAL OF STERILIZATION BY MICROSURGICAL TECHNIQUE

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Summary: Tubal sterilization techniques that spare the fimbriae and cause the least amount of tubal destruction offer the best chance for reversal of sterilization. Patients seeking reversal of sterilization should be carefully selected. Surgical technique and equipment are important factors in reversal procedures; microsurgical techniques are shown to be more effective than macroscopic techniques.

Key words: sterilization, microsurgery, reversal of sterilization, tubal anastomosis.

INTRODUCTION

Voluntary sterilization constitutes a method of permanent contraception and it is today the most generally accepted choice of contraception throughout the world.

In Italy the wide-spread of these techniques has been and still is influenced by moral and religious factors, by the shortage of specific health services, by the lack of legislative rule.

Social, economic and medical reasons, however, influence women to undertake sterilization as a method of contraception. In some instances, however, the patients have requested reversal of their sterilization.

At this point in time, the attempts to reconstruct tubal patency after sterilization with traditional surgical techniques have rendered few successes.

The development of microsurgical techniques offers the possibility of operating on very small and delicate structures with extreme precision. The use of high power magnification as a surgical tool has contributed to the possibility of reconstruction of the fallopian tube in double layer extra-mucosa and sero-serosal.

These techniques have rendered possible total recovery of complete fertility.

There exist various techniques of sterilization:

1) per abdominal route

- Madelener
- Pomeroy
- Irving
- Uchida
- Aldridge

2) per laparoscopy

- cauterization of the tubal segment
- silicon ring blockade (Yoon)
- clips (Hulka)

The clip offers the best advantage of easy reversibility.

3) per vaginal route

- Quinacrina instillation
- cauterization per hysteroscopy

4) per culdotomy and culdoscopy.

METHOD

The use of microsurgical techniques allows the possibility of obtaining positive results in tubal anastomosis for reversal of sterilization.

In tubal anastomosis, one is dealing with very small structures (0.2 mm internal diameter of

the fallopian tube); use of high power magnification is critical for evaluating the quality of the tubal mucosa, in order to ensure preservation of the delicate mucosal fold pattern, which should not be damaged during surgery and for ensuring complete resection of the pathologic tissue.

Furthermore, high-power magnification facilitates an accurate placement of the stitches in the circular muscle layer of the fallopian tube avoiding the inclusion of the mucosa in the anastomosis. This reduces the risk of ectopic pregnancies due to an abnormal mucosal fold pattern at the juncture.

Dissection of the segment to be removed, with the use of an operating microscope (4-6 ×) is started with the electro-surgical needle and micro-scissors.

Tubal anastomosis can be divided into four types according to the segment involved: isthmo-isthmic, ampullo-isthmic, ampullo-ampullary, cornual.

For some women who have extensive tubal destruction, possibly an autotransplant to the opposite side using microvascular anastomosis may create one long tube in preference to two short ones, with a greater chance of pregnancy (S. J. Silber, 80).

The technique utilized for carrying out the anastomosis is the one described by W. Boeckx.

The patients seen by our surgical service had been all sterilized at the medial isthmic segment. Ideally, in this case, there was no luminal disparity and there was a relatively thick circular muscle coat. After the pathologic or fibrotic tissue had been removed, a series of 8/0 nylon stitches which include only the muscular coat was carried-out under microscopy (6=24 ×).

Usually six or seven stitches are sufficient to make a watertight anastomosis. A second layer of 8/0 nylon stitches was used to repair the gap in the mesentery and the serosa overlying the fallopian tube.

The complete closure of all serosal structures is considered the best guarantee against adhesion formation.

The patency of the anastomosis was inspected at 1 year from the date of the procedure by celiochromoscopy.

DISCUSSION

The good results obtained in the reversal of sterilization by microsurgical techniques are the result of the careful techniques of reconstruction using microscopy and the right instrumentation. In all case, however, it is extremely impor-

tant to consider the site of sterilization. In fact the percentage of pregnancies after ampullo-isthmic or ampullo-cornual or isthmo-cornual anastomosis are extremely different (R.M.L. Winston, 1978).

The isthmo-isthmic site is considered the most ideal site for microsurgical reversal for the reason that it is considered the easiest site for an anastomosis. Also it is necessary to consider the method of sterilization carried out for the result of the reconstruction of the fallopian tube. Studies undertaken by various Authors (J. C. Seiler, 1982) have proved that the method of tubal ligation is the least acceptable technique for sterilization reversal if compared with the results of electro-coagulation (cauterization) or mechanical interruption (Hulka-clips). In fact the electrocauterization technique provokes a notable shortening of the tubal length, the formation of adhesion that follows is minimal. The best results of reversal is obtained by mechanical occlusion using silicon rings (Yoon-rings), in which the surgical reversal was shown to result in a percentage of successful pregnancy in about 80% of cases.

According to Silber the prospect for a normal pregnancy, after reversal, is directly proportional to the length of the remaining tube which is the only critical factor, so long as there is at least 1 cm of ampulla. In fact, when more than 5 cm of tube were present on either side, normal pregnancy occurred in every case; when 3 or 4 cm of tube remained, only 50% achieved pregnancy, and when there were less than 3 cm of tube, no patients achieved pregnancy (table 1).

Also, the time interval that passes between sterilization and surgical reversal needs to be taken in consideration as an influencing factor in regard the successful results of the tubal reconstruction.

Comparing these various techniques of sterilization with their results in reversal there existed no statistical differences with

Table 1. — Relationship of total tubal length to pregnancy.

	Tubal length				
	0-2 cm	2-3 cm	3-4 cm	4-5 cm	5 cm
Total no. of patients	2	5	7	4	7
Pregnant	0	0	4	4	7
Not pregnant	2	5	3	0	0
Normal intrauterine pregnancy rate	0%	0%	43%	100%	100%

(Silber-Cohen, 1980)

regard to the time interval between the percentage of successful pregnancies and the percentage of failed pregnancies.

CONCLUSION

The technique of sterilization as a method of contraception is used with increasing popularity in the western world. Parallely requests for reversal for the resumption of fertility have also increased. The number of women that are unsatisfied after sterilization are in percentage low with respect to those satisfied with previous sterilization. For these patients the method of microsurgery, with the suitable instrumentation and precise technique, has permitted results that traditional surgical techniques had found impossible to reach.

The selection of suitable patients remains the primary condition without which it is impossible to obtain good results. There exist, however, determining contraindications with regard to the method of sterilization and the psycho-physical state of the patient.

In fact reversal of sterilization is contraindicated in the following types of patients:

- a) Women more than 40 years old
- b) Patients with clear evidence of pelvic tuberculosis
- c) Patients with active pelvic inflammatory disease
- d) Obese patients in whom it may be technically difficult to elevate the tubes to the level of the abdominal incision
- e) Patients whose physical or mental health would be jeopardized by pregnancy (psychological instability of certain patients should be evaluated by a psychiatrist before being considered for reversal)
- f) Patients with less than 3 cm of fallopian tube present.

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