UTEROTUBAL IMPLANTATION

by

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Uterotubal implantation is one of the more successful methods of tuboplasty since the distal segment of the tube including the fimbria are normal. This experience has been observed in many series reported by Shirodkar (1960), Stallworthy (1963), Siegler (1975), Williams (1973) and Kistner and Pattan (1975). In an attempt at further improving the results newer technics have been evolved and successfully practised. Recently, Peterson *et al* (1977) described a posterior transverse uterine incision at the level of the ovarian ligaments into which both tubes were inserted. Soderstrom and Maytum (1977), adapting the technic of implanting a ureter into the bladder, made an incision approximately 2 cm long in the anterior fundal wall and pushed a curved clamp through the myometrium in the area of the detached tube. The clamp was opened to dilate the hole and the tubal flaps were pulled into the uterine cavity. One tube was sutured to the anterior wall and the other to the posterior wall. Microsurgical tubocornual anastomosis have been developed by Winston (1977) and Gomel (1977) which avoids the disadvantages of impaired tubal vascularity and damage to uterotubal junction.

This report is designed to discuss our experience with uterotubal implantation attempted through posterior transverse uterine incision at the level of ovarian ligaments, and report on the pregnancy rate and obstetrics outcome in the successful group.

Material and Methods

Between May, 1978 and July, 1981, a total of 13 patients have undergone uterotubal implantation for proximal tubal block by the technic to be described, and among them 11 could be followed for a minimum period of 9 months. Age of the patients ranged from 24 to 35 years, and their infertility duration ranged from 2 years to 18 years. Of this group, 5 patients had history of induced abortion in the first trimester, and 1 patient had a premature still birth followed by a mid-trimester natural abortion. Tubal block was detected in 1 patient when she was evaluated for repeated unsuccessful attempts at donor artificial insemination. This grup, however, does not include patients reporting for recanalisation following tubal sterilisation.

Preoperative evaluation consisted of a complete and thorough investigation of

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the infertile couples. Ovulation was documented by a premenstrual endometrial biopsy. Hysterosalpingography (HSG) was the preliminary investigative procedure employed to diagnose tubal disorder.

HSG was performed as an out-door procedure after administration of Baralgan intravenously. Water soluble medium, Verographin, was employed for the study, and a constant flow-low pressure technic was employed during injection. Patient response was considered a good indication for the rate of introduction of the medium. A 1 to 2 minutes rest period was practised when the patient complained of significant pain or when possible cornual obstruction was noted. Even after the few minutes' waiting if great resistance was experienced for injection and the tubes could not be demarkated (with the patient complaining of severe pain) a diagnosis of cornual tubal block was made. Dye leaking into the vagina was carefully excluded.

After the HSG diagnosis of proximal tubal block, in the last 5 patients a further confirmation was sort by a carefully performed hydrotubation. After tightly blocking the cervical canal by the Leech-Wilkinson type of cannula, sterile saline solution was injected into the uterine cavity through the cannula. If the tubes were actually blocked, after the injection of 3 or 4 ml of saline, there was severe resistance with back flow into the syringe accompanied by severe pain complained by the patient. A period of waiting did not ease the resistance thus proving that the block is organic and not due to spasm.

Laparoscopic confirmation was obtained in 5 patients. More than confirmation of block laparoscopy enabled evaluation of the state of distal segment of the tube, nature of fimbria and the presence of pelvic adhesions. All the 5 subjects subjected to endoscopic inspection of the pelvis had proved tubal block though at different levels by HSG. Bilateral cornual block was confirmed in 3 patients, with the rest of the tubal segment remaining normal. One patient had unilateral cornual block with gross tubal adhesions on the contralateral side. Another patient had normal patent tube on the opposite side.

Technic

Adequate exposure was obtained through a Pfannenstiel incision. Pelvic structures were carefully inspected, especially for the nature of the tubes, ovaries, uterus and presence of adhesions. Transfundal chromotubation was performed with methylene blue after blocking the cervix. Bilateral proximal block was confirmed all patients except in 3 subjects. Among them, 2 had normal patent tube on the opposite side and the third patient had gross tubal adhesions on the opposite side, with all the 3 having one sided cornual block and normal distal segment. All the patients with bilateral cornual block (19 patients) had normal distal segments of the tube including normal fimbria and had no pelvic adhesions.

A blunt probe was passed through the fimbria and the normal patency of the distal portion of the tube was confirmed. The same was confirmed also by retrograde instillation of saline through the fimbrial end. Keeping the probe in the entire normal segment of the tube, the tube was opened at the medial end of the ampullary region just beyond the site of block. Now the probe was passed through the proximal opening. Approximately 2 cm of the mesosalpinx was cut to provide adequate mobilisation of the tube. When the tube had been adequately mobilised, an anterior and posterior flaps were created by incising and splitting the proximal

end of the tube for 0.5 cm. A 000 chromic catgut was placed in each flflap to provide for eversion of the tube and mucosa in the uterine cavity. The same procedure was repeated on the opposite side.

Dilute pitocin was injected into the myometrial portion posteriorly approximately at the level of the ovarian ligaments for haemostasis. A transverse incision was made into the myometrium at this level extending between the two ovarian ligaments, and the endometrial cavity was opened. The 000 chromic catgut sutures on the tubal flaps were then passed through the endometrial cavity to the uterine serosa both anteriorly and posteriorly with a large curved needle. The tubes were implanted into the uterine cavity, the sutures were tightened and the myometrium was closed with interrupted 1-0 chromic catgut sutures; care was taken not to occlude the tubal lumen. The serosa of the tubes were approximated to the uterine serosa which provided for proper anchoring of the tubes. The uterus was anteverted either by Baldy-Webster procedure or round ligment plication. No splints were used; intraperitoneal steroids were employed to minimise adhesions. Promethazine and steroids were administered in the post-operative period also. Hydrotubation was not performed in the post-operative period. After a reasonable period of waiting if conception did not occur, a review HSG was suggested to evaluate the outcome of implantation.

Results

Ten of the 13 patients had bilateral uterotubal implantation. Among the 3 patients with unilateral implantation, 1 patient had a grossly damaged adherent but patent tube on the other side subjected to salpingolysis; the other 2 patients had normal healthy patent tubes on the other side. No patients developed significant postoperative morbidity, and all were discharged on the 7th day. Of the 13 patients operated 11 had 9 months or more of follow-up.

Of the total 11 patients followed-up, there have been 6 successful pregnancies (54.55%). Three of these patients had normal vaginal deliveries at term, and all the infants were healthy. One is currently in the 30th week of gestation, another is now 12 weeks pregnant and she had signs of threatened abortion at early period of gestation; and the third patient could not be followed after the third month of pregnancy.

The interval between operation and pregnancy ranged from 2 to 9 months with a mean interval of 3.66 months. Of the successful group, 4 patients had undergone bilateral uterotubal implantation. The patient who had unilateral implantation and contralateral salpingolysis for a grossly damaged tube achieved a successful pregnancy. She was the patient who had repeated unsuccessful attempts at AID. After surgical correction, conception occurred by the first cycle of insemination. Since the contralateral tube was grossly damaged it has to be conceived that pregnancy occurred through the implanted tube. However, the 6th successful patient who also had unilateral implantation had normal tube on the opposite side; hence the results could not be attributed to implantation.

Among the unsuccessful group, 2 patients had follow-up hysterosalpingograms with 1 showing unilateral tubal patency and the other showing bilateral block. Therefore, of the 11 patients who had adequate follow-up, 6 had conceived and 1 had tubal patency, and this gives a tubal patency rate of 63.63%.

Since none of the patients were deliver-

ed by caesarean section we did not have an opportunity to inspect the posterior uterine scar or find out the extent of post-operative adhesions.

Discussion

Peterson and co-workers (1977) have described this new technic of uterotubal implantation as a method of recanalisation following Pomeroy sterilisation or laparoscopic tubal cauterisation. This technic described by them differs from other previously reported in several ways, and they have advanced certain distinct advantages for this technic: The uterine incision is made transversely in the posterior fundus at the level of the ovarian ligaments rather than transfundally in the cornual area. Hence less of mesosalpinx need be mobilised which allows for more blood supply to the tube to be preserved. Technically, this approach represents the shortest distance to the endometrial cavity. Although the utilisable, distal segment needed is a minimum of 4 cms for other methods of implantation, this technic needs only a minimum of 3 cms.

We present here our experience with this new technic in infertile women who were either primarily infertile or developed tubal block as a consequence of induced abortion. The results reported here of a 54.55% pregnancy rate and 63.63% tubal patency rate are comparable to most favourable reports published to date including that of Peterson's. Pregnancy outcome was quite satisfactory, and uncomplicated vaginal delivery was possible in all the 3 patients who had reached term. There were no abortions eventhough one patient showed symptoms suggestive of threatened abortion.

Conclusion

Thirteen infertile women with proximal tubal block, bilateral or unilateral, operated by a new technic of uterotubal implantation are detailed in this study. The technic involves implantation of normal distal segment of the tube through a posterior transverse uterine incision at the level of ovarian ligament. This tubal recostructive surgery has given a pregnancy rate of 54.55%, and tubal patency rate of 63.63%. The pregnancy outcome in the successful group was quite satisfactory, with the possibility of uncomplicated vaginal delivery at term, and no incidence of abortion or ectopic gestation. Eventhough this series is very small this technic deserves a wider trial.

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