

MICRO-SURGICAL TUBOPLASTY FOLLOWING TUBECTOMY

(A Study in Dogs)

by

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SUMMARY

A controlled experimental study has been carried out to compare conventional with microsurgical tubal reanastomosis. Our results establish superiority of microsurgical techniques. Patency rates are higher and reunion more physiological.

Introduction

Recent years have witnessed a spurt in number of female sterilisations, particularly amongst young women. Most of them are content and happy. Still, there are cases where reversal is requested for various reasons. With time, the number of such patients demanding reversal is constantly increasing. On the other side, if reversibility can be assured it would favour acceptance of tubectomy as a method of family planning.

Results of conventional tuboplastic procedures are not very encouraging. Recent introduction of stereoptical magnifying aids have raised new expectations.

Peritubal adhesions, abnormalities of fallopian tubes and mucosal abnormalities are the main causes of failure following tuboplastic procedures. Desired results can only be achieved by use of meticulous tech-

nique and fine sutures together with atraumatic tissue handling.

This study is an endeavour at evaluating microsurgical tuboplasty vis a vis naked eye conventional tuboplasty following tubectomy. We have also attempted to make this study a controlled one by anastomosing one tube microsurgically and the other by the conventional technique.

Method

The experiments were carried out on 15 adult female dogs. Using pentobarbitone (Nembutol) anaesthesia and with all aseptic precautions the abdomen was opened by a lower midline incision. Fallopian tubes were sought and delivered out of the wound. Ampullary portion of the tube was divided by a sharp blade and a one cm. segment excised. Immediate end to end anastomosis was done. The left tube was anastomosed by the unaided eye. 5 to 6 sutures of 5/0 monofilament nylon were placed equidistant along the circumferences taking care not to include the mucosa

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in the stitches. On the right side microsurgical (using OPMI Carl Zeiss Operating microscope magnification x 25) was done.

8 to 10 seromuscular stitches of 8/0 monofilament nylon were put to coept the edges, again taking care not to pierce the mucoea. Splints were considered unnecesary and were not used. Abdomen was closed monoblock after securing complete haemostasis.

Results

Results were assessed 6 weeks later by hysterosalpingography and serial histology

es, mucosal abnormalities, and raction to suture material.

Peritubal adhesions were noted and graded as none/mild, moderate and severe (Ninth World Congress of Fertility and Sterility 1977). In the conventional group adhesions were non/mild in 6 cases (40%), moderate in 5 cases (33%) and severe in 4 cases (27%). Similar figures for the microsurgical group were 8(53%), 5 (33%) and 2 (14%) respectively. Findings of hysterosalpingography and histological studies are given in Tables I and II.

TABLE I
Radiological Findings

	Patent	Blocked
Conventional (Left side)	6 (40%)	9 (60%)
Microsurgical (Right side)	12 (80%)	3 (20%)

TABLE II
Histological Findings

	Conventional	Microsurgical
Patent	6 (40%)	13 (87%)
Blocked	7 (47%)	1 (7%)
Stricture	2 (13%)	1 (7%)
Mucosal abnormalities	8 (53%)	3 (20%)
Suture granuloma	2 (14%)	—

of the anastomosed segment. Hysterosalpingography was done by slitting open the vagina anteriorly in the midline (after re-opening the abdomen) through which a cannula was introduced into the uterus via the cervical canal. A suture was tied over the intravaginal portion of the cervix to prevent leakage of dye into the vagina. 4-5 ml. of Meglumine iodide (Conray 280) were injected and skiagrams taken.

The anastomosed segment of the fallopain tube was then taken out for serial histology. Slides were stained by haematoxylin and eosin stain and studied under a light microscope for patency, inflamatory chang-

Discussion

Patency rates following conventional tubal reconstructive procedures vary from 30-65% (Castallo and Wainer 1953; Khoo and Mackey 1972; Mackey 1972 and Year 1979). Using an operating Microscope Paterson and Wood (1974), Owen and Pickett Heaps (1977), Diamond (1979) and Gomel (1980) have actieved 80-90% patency rates. However, undeterred by results and initial success Umezaki *et al* (1974) maintain that microsurgical procedures represent a delicacy inconsistent with the grossness of disease process.

In our controlled study where the left tube was anastomosed by conventional method and the right by microsurgery we obtained better results with the use of an operating microscope. Following conventional re-anastomosis the patency rate was 40%, while it was 80% with microsurgery. Stereoptical magnifying aids enable the surgeon to place the sutures accurately. Other workers (Seigler and Kontopoulos 1979 and Gemel 1980) have reported a corresponding increase in conception rates using an operating microscope.

Histological abnormalities are also less frequent when microsurgical technique is adopted. (Table II). Corroborative evidence has been provided by Archer *et al* (1979) who observed near normal conduction of electrical impulses across the anastomosis following microsurgical tuboplasty. Halbert and Patton (1979) have demonstrated in animal studies that the transport of ova in the reconstructed tube is nearly normal though a delay of few minutes occurs in crossing the anastomosis. Scanning electron microscope studies also reveal near normal restoration of luminal morphology following microsurgical tubal reanastomosis.

The fallopian tube is fairly mobile in the peritoneal cavity. Any binding due to adhesions, kinking, etc. are liable to result in abnormal ovum transportation and fertilisation. Indeed, peritubal adhesions are less frequent and less dense with microsurgery. We concur with the observations of Eddy *et al* (1980) and feel that post-operative

adhesions can be minimised by use of fine instruments, careful reperitonisation and avoiding haemorrhage.

This study has been confined to evaluate anatomical patency following immediate end to end tubal anastomosis. Functional assessment of results are a subject of further study in this fascinating field.

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