VERY EARLY PUERPERAL LAPAROSCOPIC STERILIZATION: A NEW TECHNIQUE

By

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SUMMARY

One hundred cases of laparoscopic sterilization performed within first 24 hours of delivery are presented. A new method was employed to avoid injury to the uterine fundus and to make the tubes more accessible. The procedure could not be completed in 3% cases. Fundal abrasion occurred in 4% cases, cervical lacerations in 3% cases, minor breakdown of perineal tear repair in 3% cases and tubal transection in 1% cases. No failures and delayed complications were noted over a period of upto 5 years.

Introduction

The uterus remains large and easily palpable for upto ten days after delivery. The fundal height is 15 cm above the pubic symphysis after delivery. A small subumbilical incision is sufficient for sterilization, but takes more time and involves greater handling of tissues including intraperitoneal structures. Operative laparoscope offers a cosmetic scar, rapidity of procedure and minimal handling of tissues. It also eliminates the risk of incisional hernia. However it is difficult to be performed in early puerperuim, especially during the first 24 hours. The very large size of the uterus makes it susceptible for injury by Verres' needle and/or trocar and cannula. The fallopian tubes course backwards flush with the uterus and are not easily accessible. They may be so edematous that silastic bands cannot be applied to them. The lower segment is atonic, collapsed and folded so that it is difficult to achieve any leverage by means of intrauterine manipulation.

With a simple modification of the usual technique, all these problems can be eliminated. This modification forms the basis of the present report.

Material and Methods

One hundred women were subjected to laparoscopic sterilization under controlled general anesthesia within 24 hours of delivery, between March 1981 to February 1987. Prior to insertion of the Verres' needle for induction of pneumoperitoneum, the anterior and posterior lips of the cervix were held with sponge holding forceps. One sponge holding forceps was introduced into the uterine cavity for uterine manipulation. The uterus was pulled down towards the introitus by

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giving traction on the sponge holding forceps applied to the cervix, which reduced the fundal height by 4-5 cm. For introduction of the Verres' needle, the abdominal wall was elevated straight forwards, instead of downwards and forwards as is the usual practice for laparoscopy. The Verres' needle was passed almost horizontally in front of the uterus, rather than towards the pelvis, which would cause injury to the uterine fundus. A pneumoperitoneum of about 3 litres was created. Then the trocar and cannula were passed in the same direction as the Verres' needle, in front of the utetrus. Storz 11 mm operative laparoscope was passed through the cannula. The uterine position was manipulated with the sponge holding forceps in the uterine cavity, held open such that its tips lay in the two cornua. Downward traction was maintained on the cervix throughout the procedure. Silastic bands were applied, one to each tube in the isthmic area. The patients were given tetanus toxoid and antibiotic prophylaxis with ampicillin postoperatively.

The patients were reseen 15 days after the operation and then 6 monthly for upto 5 years. They were carefully examined for development of early and/or late complications and failures of sterilization.

Results

The mean age of the patients was 23.8 years and the mean parity was 3.81 (there being 47 fourth paras, 36 third paras and 17 fifth paras). The average time required for the procedure from the time of induction of the anesthesia was 6 minutes, the range being 4 to 10 minutes. The procedure could not be successfully done in 3 cases, because the fallopian tubes were very edematous. In these 3 cases, the laparoscope was removed and sterilization was carried out by the Pomeroy procedure through the same infraumbilical incision used for the insertion of the laparoscope without any increase in morbidity.

The complications encountered are shown in Table I. The fundal abrasions by Verres' needle were minor and did not bleed. The cervix was lacerated by slipping of the sponge holding forceps in 3 cases and hemostatic sutures had to be passed in one case to control bleeding from the lacerated cervix. During traction on the cervix and uterine manipulations, the perineal sutures (passed to repair perineal tears that occurred during childbirth) gave way in 3 out of 24 (12.5%) cases and had to be passed again. These perineal tears healed without any

TABLE I
Complications

	No. of cases	Percentage
Early complications		
Fundal abrasions	4	4
Cervical lacerations	3	3
Breakdown of perineal tear repair	3	12.5
Tubal transection	1	1
Pelvic thrombophlebitis	—	—
Abdominal wound infection	4	4
Late complications		
Uterine prolapse	—	—
Incisional hernia	—	—

problem. The fallopian tube was transected in one case, which was successfully managed by application of silastic bands to both the cut ends of the tube. There were no failures and no late complications like incisional hernia, menorrhagia and uterine prolapse.

Discussion

There have been various reports on puerperal laparoscopic sterilization (Hansar 1978, Keith 1972, Mudler 1976, Neely 1972, Tamaskar 1978). However the number of cases performed within the first 24 hours have been small in all the reports, and to the best of our knowledge, this is the largest series reported so far.

Different methods have been adopted to lower the fundal height e.g. administration of oxytocin or ergot or keeping a self retaining catheter in the bladder. Neely *et al* introduced the trocar and cannula tangential to the uterine fundus, and taking advantage of the lax abdominal wall, moved the laparoscope sideways to visualize the fallopian tubes. Mueller *et al* used a second puncture at a higher level and a third puncture whenever required, to displace the uterus medially with a blunt probe. However such manoeuvres are not without risk.

In the technique employed, the uterine fundus could be lowered by about 5 cm easily and safely, thereby reducing the risk of fundal injury. Traction on the cervix for such short duration was unlikely to cause uterine prolapse in future, as was confirmed by follow-up examinations. Use of a sponge holding forceps for uterine manipulation was much more effective than Hulka's manipulator because the later cannot be opened widely enough to let the tips reach the cornua of recently delivery uterus. The hospital stay was in no way prolonged. Infectious morbidity was less than after sterilization by a minilaparotomy, and there were no complications that occurred due to handling of intraperitoneal structures. The scar was cosmetic and incisional hernias did not occur. The three cases that had to be subjected to minilaparotomy could have been completed laparoscopically had spring loaded clips been available for tubal occlusion. The operation time was shortened as compared to a minilaparotomy.

The procedure is difficult as the fallopian tubes run a backward course in close contact with the uterus, during early puerperium. In inexpert hands, the incidence of complications should be high. We did not perform the procedure within the first 24 hours of delivery by choice, but because the operation day happened to be within first 24 hours of delivery and to postpone the operation would imply added hospital stay of one week for the patient. Another factor was the strong motivation of the patient on the first day of delivery, which tends to diminish as time passes. Very early sterilization should thus help promote the family planning programme.

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