Sterilization – the Vaginal Route Revisited

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SUMMARY

With the use of strict selection criteria it was found that 86 of 161 women who required interval sterilization could be sterilized vaginally. The superiority of vaginal sterilization was demonstrated by the reduction in postoperative hospital stay (from an average of 5.5 days for abdominal sterilization to 1.8 days for vaginal sterilization). Febrile responses to sterilization were reduced from 53.5% to 18.6%, and major complications fell from 17.3% to 1.2%.


Interval sterilization by the vaginal route was first advocated by Von Graff in 1930.1 Except for a single report in 1949 by Boyson and McRae,2 and despite the trend towards hysterectomy via the vagina, it was not until the 1970s that occasional favourable reports endorsing the value of vaginal sterilization began to appear in the American and Indian literatures.

As these reports seemed to be retrospective, a prospective trial in which an attempt was made to compare interval sterilization by the vaginal and by the abdominal routes was initiated.

PATIENTS AND METHODS

From 15 January 1975 to 15 April 1977, 161 interval sterilizations were performed at Eben Donges Hospital on patients from the four major South African racial groups, i.e. Whites, Blacks, Cape Coloureds and Asians. During the same period 633 puerperal sterilizations were performed.

Patients were selected for vaginal or abdominal sterilization during their visits to the outpatient department, after a complete history had been taken and a physical examination had been performed. They were considered suitable for vaginal sterilization if they satisfied the following strict criteria: a mobile uterus of relatively normal size; a free pouch of Douglas; absence of adnexal pathology; good descent of the cervix on traction; and absence of a narrow subpubic arch. The last two criteria are not mentioned by other authors, but are of great importance when considering sterilization, especially in the Black and Asiatic races.

Relative contraindications to vaginal sterilization were: a recent pregnancy; a history of pelvic inflammatory disease; and previous pelvic or lower abdominal surgery.

Patients were admitted to hospital the evening before operation and were assessed by an anaesthetist. A povidone-iodine douche was administered the evening before operation to patients scheduled for vaginal sterilization, and once early on the day of the operation. All patients were sterilized under general anaesthesia; the abdominal operations were performed in the dorsolongitudinal position and the abdominal procedures with 10° tilt in the Trendelenburg position, via a small transverse suprapubic incision. Thiopentone sodium, nitrous oxide and oxygen, augmented by halothane, were sufficient for the vaginal procedure, while endotracheal intubation was necessary for the abdominal procedure.

Vaginal sterilization was done essentially as described by McMaster and Ansari.3 Minor differences in procedure were:

1. The vagina was cleaned with chlorhexidine gluconate water and povidone-iodine.
2. Pelvic examination was repeated under anaesthesia to confirm the feasibility of the procedure.
3. The bladder was not emptied.
4. The vaginal vault was exposed with a weighted vaginal speculum (Auvard).
5. The posterior lip of the cervix was grasped with a tenaculum forceps and was lifted to place the posterior vaginal fornix under tension.
6. The cul-de-sac was entered in the midline, 1 cm below the insertion of the uterosacral ligaments.
7. The incision was extended laterally to obtain maximum exposure, and the Auvard speculum was inserted into the cul-de-sac after any small vessels encountered had been identified and ligated.
8. If bowel was still present in the operative field, the degree of Trendelenburg tilt was increased to improve exposure.
9. If necessary, a Deaver retractor was placed in the incision, with lateral and upward traction, to increase exposure.
10. A Babcock clamp was advanced up the posterior wall of the uterus until the ovarian ligament, the ovary, and, finally, the tube itself were exposed. This was found preferable to the use of a sponge stick to sweep tube and ovary downward, as described by other authors.3-4 Occasionally, where peritubal adhesions existed or where the uterus was in severe anteversion, digital location of the tube via the pouch of Douglas by direct palpation was necessary to bring the tube into the field of vision.
11. Sterilization was done by modified Pomeroy ligation.
12. The uterus was then pushed to the opposite side and the process was repeated.
13. Douglas’ pouch was closed in two layers with a continuous atraumatic stitch, applied first to peritoneum and then to vaginal mucosa.
14. No drains, packs, or catheters were used, and patients were encouraged to get out of bed as soon as they awoke, and usually within 4 hours of operation.

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Patients were usually discharged on the 1st or 2nd postoperative day. Intercourse was prohibited for 3 weeks, and patients were seen at follow-up clinics 6 weeks after discharge to assess the outcome of the procedure. Patients who underwent abdominal sterilization were treated postoperatively on merit; occasionally discharge was feasible before the sutures had been removed, but a febrile response, delayed bowel action or more serious complication delayed discharge.

RESULTS

It was possible to sterilize just over half (50.3%) of the 161 patients vaginally (Table I). The mean age and parity of women sterilized vaginally were very similar to those of women sterilized abdominally (Table I). Contrary to the findings of American workers, there was little reduction in the operative time when the vaginal route was utilized. However, the vaginal route showed distinct advantages in terms of duration of postoperative stay, which was reduced from an average of 5.5 to 1.8 days. The incidence of febrile response was reduced from 53.5% to 18.6%, and that of major complications from 17.3% to 1.2%, when the vaginal route was employed. Minor abnormalities, detected at follow-up examination 6 weeks after discharge, were much the same in both groups (Table II).

Five of the patients selected for vaginal sterilization and in whom the vaginal route had to be abandoned in favour of the abdominal approach, after closure of the pouch of Douglas, had uni- or bilateral tubal or peritubal disease. This made mobilization through the posterior fornix impossible or dangerous. None came to grief; all were sterilized successfully under the same anaesthetic. Our failure rate of 5.8% was, however, higher than that in the American series, but probably reflected the higher incidence of unrecognized, resolved pelvic inflammatory disease among our patients, who were selected mainly from the lower socio-economic sector (3 were Cape Coloureds and the other 2 were Blacks — both groups have a higher than average incidence of pelvic inflammatory disease).

Another factor weighing heavily in favour of the vaginal route was the greatly reduced need for postoperative analgesia and the early ambulation. While several injections of hypnotics were required as a rule in those patients sterilized abdominally, the vaginal group rarely required more than a few mild oral analgesic tablets and were thus able to be up and about within hours of the operation.

DISCUSSION

As far back as 1940 it was reported that there were 26 ways of performing sterilization. By now there are considerably more, and the current trend is towards the use of laparoscopy for interval sterilization. However, laparoscopic sterilization is not without hazards, complications, and failures. Furthermore, it requires sophisticated instrumentation and operative skill and therefore remains outside the domain of most practising gynaecologists, especially those in Third World countries, where mini-laparotomy is finding favour.

Sterilization via the pouch of Douglas is not a new technique, but has never found widespread acceptance, despite the fact that it has been shown to be a safe and technically easy procedure by workers from as far afield as rural India and urban America. These workers have performed vaginal sterilization, after first-trimester abortion, with and without the culdoscope or laparoscope, and under local as well as under general anaesthesia.

While, in our unit, postpartum sterilization through a mini peri-umbilical incision has been found to be the method of choice, there remains the need to find a technique for coping with those women who elect to be sterilized after the puerperium.

Previous series of vaginal sterilizations were retrospective and often lacked detailed follow-up studies, features which we have attempted to correct in this prospective analysis. Vaginal sterilization has been shown to be superior to the abdominal alternative, when performed in the judiciously selected patient. Operative time was not reduced, but duration of hospitalization,
amount of postoperative discomfort, and incidence of minor morbidity and major complications were reduced significantly.

REFERENCES

Left Innominate Vein (Brachiocephalic) Monitoring of Central Venous Pressure after Cardiac Operations

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SUMMARY
Pre-operative insertion of a central venous pressure monitoring line may be difficult when superficial veins are lacking. Groin cannulations predispose to bacterial endocarditis, and are difficult to keep from becoming obstructed by hip flexion. Internal jugular lines are precarious and tend to be unreliable.

Innominate vein cannulation before cardiac surgery is safe, easy to perform, reliable and comfortable for the patient. Complications have not been encountered.


The placement of a central venous pressure (CVP) monitoring line just before a cardiac operation is sometimes difficult because of previous operations, catheterizations and cut-down procedures which have destroyed superficial veins. In children the problem may be due to the small size of the veins.

Because postoperative bacterial endocarditis, particularly that due to fungal infections, decreased noticeably when we discontinued all groin punctures, we are reluctant to use groin cannulations in our unit.

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Furthermore, nursing of patients with a cannula in the groin is very difficult, especially when they begin to move and flex the hip, which results in kinking of the cannula and produces unreliable CVP readings and fluid delivery. There is also a danger of plastic fatigue, with breakage of the cannula and its embolization in such a patient.

The internal jugular vein is another common site for placement of CVP-monitoring cannulae. This site is particularly uncomfortable because the patient cannot move his head freely with the cannula secured by intricate strapping to the side of the neck and face. Also, CVP readings, which are often dependent on the position of the head, are unreliable when taken from the neck.

A simple method which obviates most of these problems is presented. It is easy and safe to perform and it produces highly reliable pressure data. The cannulae are stable in position, are comfortable for the patient and can be left in place for several days for monitoring and infusion.

METHOD

The anterior surface of the left innominate (brachiocephalic) vein is exposed beneath the thymus gland (Fig. 1). It is unnecessary to dissect the vessel out fully or to go deeper into its surface than the adventitial layer, since the bulge of the vein is quite obvious.

A small 4-0 Ti-Cron (Davis & Geck, American Cyanamid Company, Pearl River, New York, USA) purse-string suture is inserted onto the surface of the vein. A 61-cm 16-gauge Teflon catheter-over-needle stylet cannula (E-Z