Immediate Sterility after Vasectomy

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Summary
A 2-5 ml injection of 1/1,000 solution of euflavin given down each vas during vasectomy for sterilization will destroy all sperms within the semen and eliminate the necessity for examining two consecutive specimens of semen for azospermia after the operation. No local inflammatory response has been observed in the seminal vesicles or prostate of 81 consecutive patients in whom the method has been used.

Introduction
A disadvantage of vasectomy as a sterilizing procedure is the delay in the semen becoming azospermic after the operation. A period of two to three months is usual, during which contraceptive precautions must be continued. By destroying the residual sperms with a non-irritant spermicidal agent at the time of division of the vasa it should be possible to overcome this disadvantage and render the semen sterile immediately.

von Friesen (1971) described a method in which a 1/1,000 solution of ethacridine was used, which he claimed would dissolve the sperms in the vas deferens and seminal vesicles.

Method
Primary vasectomy for the purpose of contraception was carried out on 81 patients on an outpatient basis using local analgesia. Each vas was exteriorized through a separate scrotal incision 1 cm long and divided. The distal end of each vas was cannulated with a blunt-ended, 2-5 cm, 20 G needle attached to a 5 ml plastic syringe containing a sterile solution of 1/1,000 euflavin; 2-5 ml of the solution was injected slowly down each vas. Both proximal and distal ends of each vas were ligated separately by folding each end back on itself and tying each with 00 plain catgut. Plain catgut creates a greater fibrous reaction than the chronicized catgut, and it was felt that this reaction combined with the smooth and rounded contour presented by doubling each vas back on itself would reduce the risk of regeneration to a minimum. The skin was closed with one suture of 00 plain catgut and a plastic spray dressing applied. Each patient was reviewed at two days and again three months after the procedure.

Examination of the semen was carried out two to 158 days after the operation and as frequently in each patient as he was prepared to allow. Specimens were collected by masturbation and examined immediately in the laboratory or, if preferred, during coitus and brought to the laboratory as quickly as possible thereafter. The interval between ejaculation and examination was one to 110 minutes. Altogether 88% of the specimens were examined within 30 minutes of ejaculation.

Semen examination was performed by the same technician in all cases. After centrifugation at 2,000 r.p.m. for five minutes a drop of the deposit was examined by light microscopy at x40. Ten fields were inspected and the number of sperms and the presence or absence of motility noted. Numbers of sperms were recorded as "many" (greater than 20,000,000/mm³), "moderate" (5,000,000-20,000,000/mm³), and "few" (under 5,000,000/mm³).

Results
In all 110 specimens of semen examined the sperms were non-motile. Of these specimens 14 contained many sperms, 8 a moderate number of sperms, and 82 few sperms. Fifty-five of the specimens were collected within 10 days of the vasectomy, 40 between 11 and 50 days, and 10 between 51 and 158 days.

The interval between ejaculation and examination was 1-10 minutes for 54 specimens, 11-20 minutes for 24 specimens, 21-30 minutes for 15 specimens, and 31-110 minutes for the remaining 12 specimens.

Discussion
Persistence of viable sperms in the semen after vasectomy is well known and most surgeons insist on collecting two consecutive azospermic specimens of semen some two to three months after the operation before accepting the subject as sterile. Many patients find this onerous, some distasteful, and a few ignore the advice. Sperms will retain their motility in ejaculated semen at room temperature for about 24 hours, but most laboratories will attach unnecessary importance to the percentage of motile sperms recorded in specimens examined within four hours of emission. All specimens in this series were examined within two hours of emission.

The acridine derivatives proflavine, acriflavine, aminacrine, ethacridine, and euflavin are slow-acting disinfectants. They...
are bacteriostatic against many Gram-positive bacteria, they inactivate or inhibit some viruses, and their activity is not reduced by tissue fluids or pus. They are used for the treatment of contaminated or suppurative wounds, and have been used in strengths ranging from 0.1–0.3% for the treatment of local infections of the ear, mouth, and throat. Euflavine, which has properties similar to the other acidine derivatives, used in a solution of 1/1,000 is non-irritant and an effective spermicidal. During injection of the solution down each vas most patients experience a sensation in the posterior urethra which many describe as a feeling of wanting to void. A few found this uncomfortable but most made no comment unless asked. The sensation could be reduced and virtually abolished by slow injection of the solution. On voiding after operation the urine is yellow on the first two or three occasions, and the semen is similarly discoloured.

One patient developed haematuria five days after operation. A heavy growth of Escherichia coli was cultured in his urine and it was assumed that the haematuria was a result of this infection.

The infection responded to a course of chemotherapy and there was no recurrence of the bleeding.

Craft and McQueen (1972), in describing the effect of irri-
gation of the vas on postvasectomy semen counts, suggested that irrigation with a spermicidal preparation might result in a local inflammatory reaction in the seminal vesicles or prostate. This has not been the experience in this series, and the evidence suggests that euflavine used in a 1/1,000 solution has a complete spermicidal action without any irritant side effects. In the light of this experience the method is now used routinely in all vasectomy operations carried out for primary sterilization and it is not considered necessary to examine semen specimens after the procedure to confirm either non-motility of the sperm or azoosperma.