Transversal of Cervical Barrier and Nonsurgical Delivery of Sterilant in Female Dog

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In the past, transcervical sterilization in dogs has been considered impossible due to the two right angles and mucus plug in the dog cervix. The present study tested a novel device which successfully delivered sterilant past this obstacle.

The liquid polymer sterilant used a modified form of diluted styrene maleic anhydride complexed with DMSO (RISUG-TM), in Phase III trials as a human male contraceptive and already toxicologically tested. The novel rod-shaped applicator is inserted in the dog vagina. A vacuum suction ring on its side grips and seals around the cervical os; inflated cuffs placed on both sides of the vacuum zone improve the stability of the seal. Liquid polymer RISUGTM sterilant is then pumped through the os using a principle from engineering: pulsed alternating pressure.

Whereas previous efforts with devices (e.g., IUDs) or fluid have not succeeded in reaching the uterine body or horns, our pulsed alternate pressure approach successfully forced the sterilant through the cervical canal. Pulsed pressure, an approach borrowed from engine greasing, permits delivery of thicker fluids than continuous pressure. Alternating pulsed pressure with pulsed suction from the vacuum seal managed to dislodge the mucus plug, a vital step in transcervical sterilization which to our knowledge has never before been achieved. Deposition of radiopaque sterilant in uterus was confirmed by X-ray imaging. Light Ketamine tranquilization was required for the procedure, but recovery time was minimal and complications nil due to low dose and nonsurgical nature.

We conclude that with the cervical barrier surmounted in dogs and a permanently-retained spermicidal and antimicrobial polymer available, transcervical delivery of sterilant can now be pursued. *[Patent application pending]*