

Journal of Andrology, Vol. 24, No. 3, May/June 2003
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Rapid Disappearance of Spermatozoa After Vasal Occlusion in the Dog

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The reproductive system of the male dog is unusual in that the seminal vesicles and bulbourethral glands are absent. Therefore, we chose the dog as a model to evaluate the effect of seminal vesicles on clearance of spermatozoa from the male reproductive tract after vasal occlusion. Thirty adult male beagle dogs with ejaculates containing at least 500×10^6 sperm with greater than 90% motility were used for this study. The dogs' vasa were occluded percutaneously using a Vasocclude clip-applying device through a small scrotal puncture site. Dogs were ejaculated and semen analysis was performed before and after vas occlusion. The first 24 dogs were completely azoospermic 1 week following vas occlusion. In order to explain these unanticipated results, an additional 6 dogs were evaluated to determine the specific time course of sperm disappearance from the ejaculate at 1, 3, 5, and 7 days after vas occlusion. The results revealed that spermatozoa were almost completely absent within 1 day after vas occlusion (99.9% reduction, $X = 1.0 + 1.1 \times 10^6$ sperm per milliliter at 1 day, $P < .0005$ vs prevas occlusion). The rapid elimination of spermatozoa after vas occlusion indicates that sperm transit rapidly through the vas deferens in dogs. Therefore, the delayed clearance of spermatozoa from the ejaculate in humans may be due to sperm storage in the seminal vesicles.

Key words: Vasectomy, sperm clearance, canine

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