

TRANSCERVICAL INSEMINATION

William E. Schultz, D.V.M.
2770 Bennett Road
Okemos, MI 48864
(517) 337-4800
joedrumr@aol.com

The ability to visually deposit semen directly into the uterus using rigid endoscopic equipment has become a useful adjunct to the reproductive practice in the last few years. Two scopes are utilized in our practice allowing insemination of very small dogs to very large dogs: 4 pounds to giant breeds. The smaller scope is a rhinoscope (Storz 30 degree 2.5mm x 19cm telescope) allowing the use of a 5 french polypropylene catheter. The larger scope (Storz Hopkins 30 degree 3.5mm x 36.5cm telescope) is used with a 5, 8 or 10 french polypropylene catheter. Both telescopes are surrounded with a sheath for added rigidity and visibility. The use of a video camera is highly recommended because it allows for much more radical movement of the scope during insemination. The camera will also allow visualization of the procedure by the owner or handler.

The fresh semen sample is centrifuged with a separating solution (Synbiotics) and the supernatant is removed with a pipette. The remaining pellet is extended to 1 cc for smaller breeds and 1.5 to 2 cc for larger breeds. If a chilled sample arrives with greater than a 2 cc volume it may also be centrifuged prior to insemination. The low volume of inseminant will decrease the retrograde flow of semen after the insemination. Most commercial extenders have antibiotics added to the extender, and anecdotally, this appears to lessen the chance of uterine infection after the intromission of the polypropylene catheter through the cervix and into the uterus. Examination of the vaginal tract and cervix is accomplished during the procedure. Examination of the uterus is not possible as in the case of a surgical insemination.

With proper timing the bitch is almost always receptive to the TCI breeding. Medetomidine (Pfizer) at half dose I/V or I/M may be used for sedation although tranquilization has only been necessary in 5 bitches out of over one thousand inseminations (author).

The bitch may be positioned on a treatment table with a positive footing for comfort and security. Hydraulic tables are also useful for ease of positioning. The bitch is held at the head and neck area with another assistant holding the tail laterally during intromission of the scope.

The scope is assembled with the appropriate catheter in the channel. The syringe containing the semen is not attached at this time. A small amount of K-Y Jelly (Johnson and Johnson) is applied to the sheath with care taken to keep the K-Y Jelly from the obscuring the telescope. The scope is inverted for intromission through the vulva with caudal-dorsal pressure applied to prevent the scope from contact with the clitoral fold. The inverted position of the scope decreases the likelihood of obscuration of the lens during initial intromission. When the tip of the scope is in contact with the dorsal vestibular area, the scope is rotated into the normal upright

position for passage over the pelvis and into the vagina. The dorsal position of the scope will prevent insertion into the pelvic urethra and urinary bladder. If the urinary bladder is catheterized the scope is removed and the polypropylene catheter exchanged for a clean catheter.

Vaginal passage of the scope is accomplished with gentle continuous pressure until the dorsal medial fold is recognized. A single prominent dorsal fold that extends cranially from the vagina to the cervix identifies the dorsal medial fold. Occasionally, some bitches will have an extremely narrow passage ventral to the dorsal medial fold giving the appearance of a false cervix. Passage through the area may be facilitated by using the catheter as a probe to guide the scope or by rotating the scope 180 degrees to 360 degrees allowing the blunt end of the scope to facilitate progress through the area.

The cervix has several landmarks that make identification possible; a single fissure will be apparent at the proximal aspect of the dorsal medial fold, the surface of the cervix is distinctly different in that it is fully covered with papillae and the cervical os will be visible as a depression in the ventral aspect of the cervix. Slight pressure with the catheter or scope will frequently result in a small flow of serosanguineous fluid from the cervical os.

The cervix is in a dorsal-ventral position with the os ventrally. This angle varies and may cause problems with insemination. Inserting the scope cranially to the fornix ventral to the cervix and then slowly moving the scope retrograde will allow visualization of the cervical os in most cases. Stool in the colon or a full bladder may cause difficulty in catheterization of the cervical os. With a full colon or bladder the cervix may be found with the cervical os to the right making positioning of the cervix extremely difficult. Removal of the scope and airing of the bitch will decrease the pressure on the cervix allowing for catheterization.

When the cervical os is positioned in front of the scope the catheter is advanced into the cervix. Because of the dorsal-ventral position of the cervix, rotation of the catheter with gentle pressure may be needed for intromission of the catheter. The catheter is inserted until the second opening is just visible at the cervical os. The syringe with the semen is attached and the column of semen is advanced to the level of the cervix. Keeping the second opening visible prevents the column of air from being injected into the uterus. It is important that the syringe have 1 cc to 2 cc of air to allow all semen to be flushed from the catheter during the insemination. When the semen column is at the level of the cervix the catheter is inserted into the uterus 2 cm to 5 cm and gentle pressure is applied to the syringe while watching for any backflow of semen. The semen is injected at a slow rate to gently expand the uterus. If backflow is noted, the catheter is inserted more cranially into the uterus and the insemination is continued. The catheter is removed when the air column is noted at the cervical os.

Although it may not be necessary, we recommend the bitch be crated for 1 to 2 hours after insemination and that she not be allowed to urinate directly after the procedure. Elevation of the hindquarters after the procedure is not necessary.

Difficulties during insemination may result from the inability to position the cervix with the scope. Abdominal palpation of the cervix to assist in positioning may be necessary with the use of an assistant for insertion of the catheter. With the larger scope it is possible to use a 10 french

catheter with either a 5 french or an 8 french catheter inside the larger catheter. The end of the 10 french catheter is partially removed allowing the smaller catheter to exit at an acute angle at the tip of the 10 french catheter. With the 10 french catheter placed at the cervical os, the smaller catheter is advanced at an acute angle frequently allowing catheterization of the cervix.

Transcervical insemination is a very rapid procedure with excellent results. Many breeders will readily accept TCI over surgical insemination because of the lack of anesthesia and the short duration of the procedure. Most inseminations average 2 to 5 minutes for the entire procedure. Increased success with a time saving technique makes TCI an excellent modality for the busy reproductive practitioner.