A multicentric study comparing success rates between endoscopic-assisted transcervical and surgical artificial insemination in the female dog in Australia

Hyatt JS[1], Joone C[2], Mason SJ[3], Metcalfe S[4], Ramachandra DC[5], Smith L[6], Stevenson M[5], Krekeler N[5]
[1]Veterinary Reproduction Consultancy, Orange, NSW, Australia
[2]James Cook University, Townsville, QLD, Australia
[3]Doncaster Veterinary Hospital, Doncaster East, VIC, Australia
[4]Applecross Veterinary Hospital, Perth, WA, Australia
[5]Melbourne Veterinary School, The University of Melbourne, Werribee, VIC, Australia
[6]Vineyard Veterinary Hospital, Sydney, NSW, Australia.
jasmin@vetrepro.com.au

Surgical artificial insemination (SAI) in dogs has recently been banned in several countries due to concerns regarding invasiveness, perioperative risks and animal welfare. Previous studies have shown that endoscopic-assisted transcervical insemination (TCI) has comparable [1] or superior [2] results, thereby challenging the ongoing justification for the use of surgical techniques in routine canine breeding practice. The aim of this study was to compare pregnancy outcomes following intrauterine artificial insemination in the bitch between TCI and SAI techniques using frozen-thawed sperm. Insemination and pregnancy outcome data from 1147 healthy bitches over a 15-year period from four specialist reproduction practices across Australia were collated. Timing of each insemination was optimised using progesterone analysis, vaginal cytology and/or vaginoscopy. Of the 1146 inseminations, 926 were performed by TCI, 220 by SAI. For both insemination techniques pregnancy rates were 71% (95% CI 68% to 73%). There was no statistically significant difference in pregnancy rates for the two insemination techniques, with 71% (95% CI 68% to 74%) and 70% (95% CI 63% to 76%) for TCI and SAI, respectively ($p = 0.75$). Litter size also did not vary between TCI and SAI, with a mean of 5.2 (median 5, range 1 to 15) and 5.3 (median 5, range 1 to 14) pups per litter, respectively. Utilised sperm numbers are currently being analysed. This is the first multicentric study providing additional justification for replacing SAI with TCI in canine frozen-thawed inseminations, offering equivalent pregnancy rate and litter sizes while avoiding the need for abdominal surgery. These findings corroborate previous studies and collectively provide support for continuing to update breeding and clinical guidelines to prioritise minimally invasive TCI techniques as the standard of care in canine breeding practice.

[1] Mason SJ, Rous NR. Comparison of endoscopic-assisted transcervical and laparotomy insemination with frozen-thawed dog semen: a retrospective clinical study. Theriogenology 2014;82:844-50.
[2] Hollinshead FK, Hanlon DW. Factors affecting the reproductive performance of bitches: A prospective cohort study involving 1203 inseminations with fresh and frozen semen. Theriogenology 2017;101:62-72.