

## NON INVASIVE PROCEDURES OF CHEMICAL STERILIZATION IN THE DOG: THE INTRATESTICULAR VS INTRAEPIDIDYMAL INJECTION OF CALCIUM CHLORIDE IN ALCOHOL. LONG-TERM EFFECTS ON FERTILITY AND ANATOMO-FUNCTIONAL ALTERATIONS

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Nonsurgical methods of sterilization could yield positive impacts on canine overpopulation [1]. Previous researches have shown intratesticular injection of calcium chloride dihydrate at 20% in 95% ethanol (CaCl<sub>2</sub>) to be a promising alternative to surgery [2].

The aim of this study was to compare epididymis vs intratesticular injection of CaCl<sub>2</sub>, to assess their feasibility, side effects, long term effect on fertility and anatomic-functional alterations.

40 dogs were divided into 4 equal groups and lightly sedated. Based on the scrotal width, a dose of CaCl<sub>2</sub> was administered via intratesticular injection (group A) or in the epididymis (group B). The experimentally treated animals were compared to a control group receiving saline injection only, via intratesticular injection (group C) or in the epididymis (group D). Injections in the epididymis were eco-guided. The treated animals were examined at 0, 3, 6, and 9 months for sperm production, blood levels of testosterone, and side effects.

After administration of CaCl<sub>2</sub> in the testicle (group A) or epididymis (group B) aspermia and azoospermia respectively were achieved for at least 9 months. Dogs of control groups C and D were still normospermic. Testosterone levels significantly decreased (still at the low end of physiological range) following treatment with CaCl<sub>2</sub> in group A, sexual activity disappeared. Testosterone kept at baseline level for the groups B, C and D. No adverse effects were noted.

Performing this procedure was not easy when injecting in the testicle; it needed a little practice to be performed. The injection in the epididymis was very challenging due to the small anatomical dimension, flexibility of structures and better if echographically guided. It is very important to avoid the CaCl<sub>2</sub> seepage not to have side effect such as testicular and scrotum necrosis [3]. This is more likely to occur injecting the epididymis.

We confirm literature data that a single, bilateral intratesticular injection CaCl<sub>2</sub> is a reliable method for induction of sterilization in the dogs [2]. This approach showed long-term efficacy and reduced sexual behavior with a durable reduction of testosterone, as compared to baseline levels, and reduced aggressive and sexual behavior. Sterility was also achieved if injected in the epididymis but no drop in the serum testosterone level occurred. Moreover, performing the intraepididymal injection is time consuming as orchietomy; this makes it a not recommended technique.

The chemical sterilization by an intratesticular injection of CaCl<sub>2</sub> alone might provide an effective, efficient alternative to surgical castration.

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