Comparison between immunocastration and surgical castration in dogs
Ajadi Temitope Ayisat; Oyeyemi Mathew Olugbenga
Department of Veterinary Public Health and Reproduction, Federal University of Agriculture, Abeokuta,
PMB 2240, Alabata Road, Abeokuta, Ogun State, Nigeria

Surgical castration is the traditional method of gonadectomy in male dogs and cats. However, welfare concerns have started growing regarding surgical castration. Administration of vaccines against gonaodotropin releasing hormone (GnRH) have been reported as an alternative to surgical castration in dogs and cats, although the side effects of this treatment are yet to be fully established. In this study we compared the effects of surgical castration and immunological sterilization, using criteria such as body mass, complications, testicular morphology, semen evaluation, complete blood counts (CBC), and plasma testosterone (T) and luteinizing hormone (LH) concentrations. Fifteen sexually active, intact male mongrel dogs were randomly divided into three groups of five dogs each. Group 1 (control) dogs were treated with an intramuscular injection of normal saline; dogs in group 2 (immuno-sterilized) were treated with a single injection of GnRH vaccine (Improvac, Pfizer Laboratories, South Africa) and dogs in group 3 were surgically castrated under ketamine-xylazine-diazepam anaesthesia. Semen was collected by manual stimulation, before the administration of the vaccine or surgical castration and thereafter weekly for eight weeks. Volume (SV), sperm concentration (SC), sperm motility (SM), live-dead ratio (LDR) and percentage of morphologically abnormal spermatozoa were determined for each ejaculate. Also, blood was obtained from the cephalic vein for the determination of CBC, T and LH. The dog’s body weights (BW) were recorded weekly. Eight weeks after treatment the control and immuno-sterilized dogs were surgically castrated and their testes fixed in Bouin’s fixative for histopathological examination. The BW, SV, SM, SC, T and LH were compared using analysis of variance (ANOVA) for repeated measures. The only adverse reaction noted in immuno-sterilized dogs was moderate swelling at the site of injection, while post-operative swelling and chewing at the incision site were observed in the surgically castrated dogs. While there was no significant (p> 0.05) difference in body weights between surgically or immuno-sterilized dogs, body weights of all treated dogs increased progressively until eight weeks after castration. There were no significant (p> 0.05) differences in PCV, WBC, T and LH between surgically castrated and immunized dogs. The mean values of SV, SC and SM (P< 0.05) decreased two weeks following treatment in immunized and surgically castrated dogs, and thereafter until dogs became azoospermic. The testes of control dogs were significantly longer than those of the immunized dogs (6.1 ± 0.7cm vs.4.4 ± 0.3cm; P< 0.05). Histologically, the testes of the immunized dogs showed clear disruption in the number and morphology of the interstitial (Leydig) cells. At this stage it is widely assumed that immuno-sterilization in male dogs is reversible, implying that dogs must be regularly re-immunized to maintain their sterility. It was therefore concluded that immuno-sterilization does not have any advantage over traditional surgical castration except in areas where surgery is impractical.

Keywords: Castration, immuno-sterilization, testis, dogs