changes in length & width (Dorso-ventral diameter) of the testes in respective groups occured proportionately in relation to the concentration of the $CaCl_2$ solutions used which elicited local inflammatory reactions. This change was very less in 5%, moderate in 7.5% treated groups. In 10% or 12.5% treated groups it increased 0.3 ± 1cm within a week very gradually and thereafter reduced in size from 2 weeks onwards below baseline observation (3.5 cm. length X 2.5 cm. width) in 8 weeks. Reduction in size of the testes was a feature of atrophic changes and the extent of which was evaluated by histomorphological features. At 8 weeks, the size of the testes was 3.3 cm. X 2.5 cm. in 7.5% treated group, whereas in 10% or 12.5% treated group it was 2.8 cm. X 2.0 cm. Grossly, the consistency of the gland became more firm and hard in 10% &12.5% treated groups. In control group, no change in size & width or consistency were observed and it showed typical histological features with seminiferous tubules and numerous leydig cells. The vascularity was normal. Tunica propria was also normal in appearance. Different stages of spermatogenesis were evident.

In all other treated groups (Gr. I to IV), $CaCl_2$ solutions caused varying degree of necrosis of testicular parenchyma. At 4 weeks, 5% $CaCl_2$ showed moderate degree of regeneration of seminiferous tubules in areas where some degree of necrosis resulted. This feature was very scanty in 7.5% $CaCl_2$ solution treated dogs. A few necrosed tubules with deposition of fibrous strands in the intertubular space were observed. 10% or 12% $CaCl_2$ treated dogs showed no sign of regeneration of seminiferous tubules but sufficient indication of fibrocollagenous deposition were evident on the same day of observation. By 8th week, almost complete regeneration of seminiferous tubules was evident in 5% $CaCl_2$ treated dogs, whereas in 7.5% $CaCl_2$ solution, some degree of fibrosis and atrophy was evident. The feature of spermatogenesis was not observed. Regenerative activity of seminiferous tubules in 5% $CaCl_2$ solution indicated that the drug at such concentration did not cause necrotizing effect of testicular parenchyma & obviously failed to induce fibrosis of the gland but above this concentration it induced necrosis and subsequent fibrosis which were proportionate to the concentration of the $CaCl_2$ solution. 7.5% $CaCl_2$ solution caused fibrosis & atrophy of the testicular parenchyma to a considerable degree. In case of 10% and 12.5% $CaCl_2$ solution, the testicular tissues were completely replaced by fibro-collagenous bands indicating total necrotizing effect of $CaCl_2$ solution at such concentration. Fibrosis and atrophy of the testes resulted to considerable degree.

The results suggested that 10% $CaCl_2$ solution and above had powerful necrotizing effect on both seminiferous elements and interstitial tissue; so at such concentrations it impaired totally the reproductive activity of the testes and converted the adult male dogs completely sterile.

Previous works of chemosterilization of male dogs by various workers (Chatterjee & Kar, 1968; Naz & Talwar, 1981) with Cadmium chloride, BCG suspended in normal saline or Talsur resulted fever, painful swelling of the testes and other adverse effects and as such, were not acceptable for the purpose. On the contrary, the prescribed method of intra-testicular injections with 10% or 12.5% $CaCl_2$ solutions far outweighs any other methods including open surgery. The technique was very simple and economical, did not require any hospitalization in post-injection period and was free from any side effect. It was suitable for mass scale sterilization programme and large population of dogs could be covered very speedily all over the country. It gave total success (100%) if followed properly. The low-cost chemosterilization in male dogs would radically contribute to the Animal Birth Control Programme in male dogs and in canine rabies control programme.

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