STUDIES ON THE UTILITY OF COMMONLY AVAILABLE SYNTHETIC MATERIALS IN HERNIOPLASTY IN BOVINES

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CERTIFICATE

I certify that this dissertation has been prepared under my supervision by Thiru Dhruva Madhva Tadkod, a candidate for the Master of Veterinary Science Degree (Surgery - Main) 1971, and that it incorporates the results of his study.

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ABSTRACT

Hernioplasty, employing various synthetic and biological materials, is recommended by many workers. Their application in bovines has not been extensively studied. Various workers tried inert metals in the form of plates or mesh and synthetic materials like plastic, mersilene, marlex, nylon, polyester, fortisan, and perlon. The non-availability and exorbitant cost of these ready made implants prohibit their use in bovines.

The present study is to find a suitable, cheap, readily available material for hernioplasty. The study was carried out in 4 groups.

Group I:- Tissue response to cotton, silk, terylene cloth, polyethylene mesh and nylon net were studied in 15 experiments by implanting them in the abdominal wall, in experimental calves.

Cotton and silk elicited severe inflammatory reaction and was followed by infection or extensive fibrosis. The other materials produced lesser reaction but were tolerated.

Group II:- Hernia was induced experimentally in calves. 20 experiments were performed at different sites on the abdomen. The size and shape of the ring varied depending on the method adopted. The calves were kept for 14 days, before repair was attempted.

Group III:- Reduction and repair of the induced hernia was performed, using the prosthetic materials found suitable in group I.

(1) In 6 experiments where terylene cloth was used abscessation and other complications occurred.

(2) Nylom mesh was used in 7 experiments. In 3 of them successful closure of the ring with first intention healing occurred. In the other 4 experiments, recurrence in one and collection of fluid followed by infection, in the rest, was noticed.

(3) Polyethylene was used in 7 experiments. First intention healing with satisfactory repair was observed in 4 experiments. Collection of fluid with delayed healing was noted in 2 experiments. Infection developed in the last experiment, necessitating the removal of the implant but recurrence of hernia was not observed. Polyethylene was found to be the best material for implantation.

Group IV:- Repair of hernia using polyethylene mesh was adopted in 6 selected clinical cases. Uneventful recovery was observed in 5 cases. Infection necessitated, the removal of the prosthesis in one case. The case was a long standing one, with infection of the fundus. However the retention of the prosthesis for a short period helped in closure of the ring.

Three methods of implantation as inlay, onlay and reinforcement technique were followed in the experimental and clinical cases. Among them, reinforcement and onlay graft techniques were preferable to the inlay graft.

Polyethylene mesh, used in this study, was ideal as a prosthetic material in the repair of hernia, in bovines. Next in order was nylon. The cost of the material is negligible compared to the prohibitive cost of the ready made implants.