

ALKALI-CELLULOSE MEMBRANE AND FREE FAT GRAFT IN

POSTLAMINECTOMY MEMBRANE PREVENTION: QUANTITATIVE EVALUATION

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The natural and inevitable consequence of a laminectomy is the formation of an epidural scar referred as postlaminectomy membrane. This fibrous tissue may extend into dura mater and nerve roots, causing spinal cord compression and perineural fibrosis in dogs and humans. In an attempt to prevent this epidural fibrosis various substances have been used, however the ideal material has not been found yet. In this experiment, it was used the alkali-cellulose membrane (BioFill Produtos Biotecnológicos – Curitiba, PR, Brasil) and the autogenous free fat graft with the aim of limit the postlaminectomy membrane formation. Eighteen adult dogs were used in three groups with six dogs each: control, alkali-cellulose and free fat graft. Two dogs of each group were euthanatized at days 15, 30 and 60. The anesthesia was carried out with acepromazine, sodium thiopental and halotane, and postoperative analgesia was made with epidural morphine. It was used sodium oxacilin for antimicrobial prophylaxis at the begin of the anesthesia. Modified dorsal laminectomy at T₁₃ and L₁ were performed. Neurologic examinations were carried out daily. Lumbar mielography utilizing iopamidol was performed in the last postoperative day, and after that, euthanasia was made. After necropsy, the vertebral column was removed intact from T₁₀ to L₄, and kept in formalin. Transverse sections were made in operated region (disk space T₁₃-L₁, center of T₁₃ and L₁) and in the cranial and caudal areas (disk space T₁₂-T₁₃ and L₁-L₂, and center of T₁₂ and L₂). The mean roundness index of the spinal cord was evaluated by measuring the vertical and horizontal diameters from the photographs of the transverse sections. Comparisons were made to identify decreases in dorsoventral diameter of the spinal cord. The results of neurological examinations showed that the free fat group presented more neurologic deficits, with significant difference (P<0.05) in comparison to other groups. The mielographic findings did not present significant difference (P<0.05) between the three groups. The mean roundness index evaluation showed that no implant and alkali-cellulose resulted in less compression of the spinal cord with significant difference (P<0.05) in comparison with free fat graft. These results suggest that the alkali-cellulose membrane appears to provide better protection to postlaminectomy membrane development, with less neurological complication, in comparison with free fat graft.