KEY WORDS

- ✓ Epidural fibrosis
- ✓ Biomaterial
- ✓ Cerebrospinal fluid
- ✓ Hyaluronic acid
- ✓ Rat

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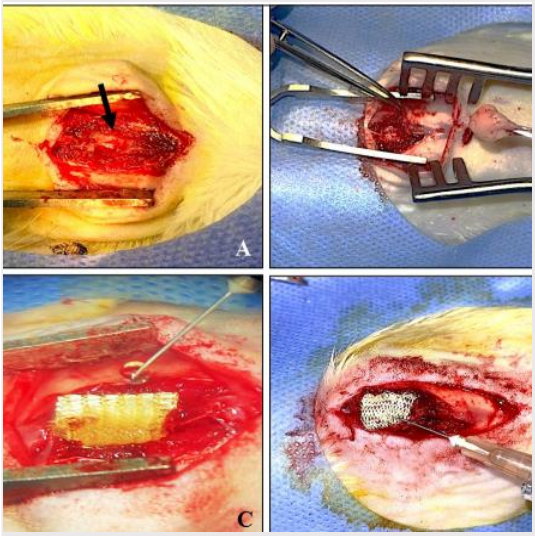

Comparison of Neurological, Radiological and Histopathological Findings of Locally Applied Biomaterials in Preventing Epidural Fibrosis After Laminectomy

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THESIS ABSTRACT

The aim of this study was to compare the histopathological findings of biomaterials applied locally to prevent epidural fibrosis after laminectomy. Twenty-five adult wistar albino rats were used in the study. Group ı (control group, grı, n=5) received local physiological serum after l3-4 dorsal laminectomy, group ıı (grıı) (n=5) received autologous fat tissue after l3-4 dorsal laminectomy, group ıı (grıı) (n=5) received local autologous cerebrospinal fluid (csf) after l3-4 dorsal laminectomy, and group ıv (grıv) (n=5) received hyaluronic acid after l3-4 dorsal laminectomy. 5 rats were used for csf. All rats underwent tarlov scoring on preoperative and postoperative 1st, 7th, 15th, 30th, and 45th days; and radiographic imaging was performed on preoperative, postoperative 1st, and 45th days. The rats were sacrificed on the 45th day, and the vertebral segments were examined histopathologically. Statistical analysis was performed on tarlov's scoring and histopathological data.
At the end of the study, similar motor functions were observed in all groups. No significant difference was found in the intra- and inter group evaluations of all groups in terms of measurement times (p>0.05). In the histopathological evaluation, in the inter-group comparison, fibroblast density, epidural fibrosis, arachnoid fibrosis and inflammatory cell infiltration were most intense as grı>grıı>grıv>grıı. The difference between grı and grıı in terms of fibroblast density (p=0.0026), epidural fibrosis (p=0.0022), arachnoid fibrosis (p=0.0015) and inflammatory cell density (p=0.0036) was statistically significant. There was no statistically significant difference between grı, grıı and grıv (p>0.05).

APPLICATION AREAS OF THE THESIS RESULTS

Although numerous techniques are being considered for the prevention of EF, research continues to determine which method provides the best results without complications. It is hoped that the findings from this study will contribute to other clinical and experimental studies aimed at preventing epidural fibrosis.

ACADEMIC ACTIVITIES

B.B. Balci, M.Ö. Taskapilioglu, Ö. Özmen & H. Salci. 2025. Comparison of Histopathological Analysis of Autologous Fat Tissue, Cerebrospinal Fluid and Sodium Hyaluronate for Preventing Epidural Fibrosis. Acta Scientiae Veterinariae. 53: 1986
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