Early Functional and Radiological Outcomes Between Plaster Cast and Fiberglass Cast in Stable Thoracolumbar Burst Fracture

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Abstract
Introduction: Burst fracture results from compression failure of both the anterior and middle columns under substantial axial loads. Conservative treatment was a method of treatment for fractures without neurological deficit. This cross sectional study was designed to evaluate the functional and radiological outcome of patient with thoracolumbar burst fracture treated conservatively. Methods: 40 cases were recruited from January 2013 till December 2015. They were followed-up with minimum period of 1 year and evaluated for the functional (Oswestry Disability Index) and radiological outcomes (kyphotic angle deformity and anterior body compression). Results: 20 patients were treated with body cast made form plaster of Paris and remaining 20 patients with fiberglass cast. In plaster of Paris group, mean kyphotic angle deformity at last follow up was 16.60° +/- 2.95 with a mean improvement 4.45 degree and anterior body compression at last follow up was 30.35% +/- 10.2 with mean improvement of 3.38%. In fiberglass group, mean kyphotic angle deformity at last follow up was 15.55° +/- 3.38 with a mean improvement 7.25 degree and anterior body compression at last follow up was 25.90% +/- 7.81 with mean improvement of 3.45%. The functional outcome showed Oswestry Disability Index (ODI) score in plaster of Paris group was 23.70 (SD = 7.42) and in fiberglass group was 18.50 (SD = 5.34). Conclusions: Application of body cast using a fiberglass material give better radiological outcome hence less pain, more functional and higher patient’s satisfaction as compared to plaster of Paris.

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Cited References: 11
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1. **A comparison of the mechanical properties of fiberglass cast materials and their clinical relevance**
   By: Berman, A.T., Parks, G.P.
   J. Orthop. Trauma. Volume: 4 Pages: 5-92 Published: 1990

2. **THE 3 COLUMN SPINE AND ITS SIGNIFICANCE IN THE CLASSIFICATION OF ACUTE THORACOLUMBAR SPINAL-INJURIES**
   By: DENIS, F
   SPINE Volume: 8 Issue: 8 Pages: 817-831 Published: 1983

3. **SCOLIOSIS-RESEARCH-SOCIETY - MULTICENTER SPINE FRACTURE STUDY**
   By: GERTZBEIN, SD
   SPINE Volume: 17 Issue: 5 Pages: S28-S40 Published: MAY 1992

4. **Operative compared nonoperative treatment of a thoracolumbar burst fracture without neurological deficit.**
   By: Kirkham, BW; Buttermann, G; Rishabh, P; et al.
   Journal Bone and Joint Surgery (America) Volume: 97 Pages: 3-9 Published: 2015

5. **Evaluation of fiberglass versus plaster of Paris for immobilization of fractures of the arm and leg**
   By: Kawalski, KL; Pitcher, JD; Bickley, B
   MILITARY MEDICINE. Volume: 167 Issue: 8 Pages: 657-661 Published: AUG 2002

6. **Mechanical properties and material characteristics of orthopaedic casting material.**
   By: Mihalko, MM; Beaudoin, AJ; Krause, WR.
   Journal of Orthopaedic Trauma Volume: 3 Pages: 57-63 Published: 1998

7. **THORACOLUMBAR BURST FRACTURES - THE CLINICAL EFFICACY AND OUTCOME OF NONOPERATIVE MANAGEMENT**
   By: MUMFORD, J; WEINSTEIN, JN; SPRATT, KF; et al.
   SPINE Volume: 18 Issue: 8 Pages: 955-970 Published: JUN 15 1993

8. **Thoracolumbar burst fractures without neurological deficit: the role for conservative treatment**
   By: Rajasekaran, S
   EUROPEAN SPINE JOURNAL. Volume: 19 Supplement: 1 Pages: 40-47 Published: MAR 2010

9. **Conservative management of thoracolumbar and lumbar spine compression and burst fractures: functional and radiographic outcomes in 136 cases treated by closed reduction and casting**
   By: Weninge, Patrick; Schultz, Arthur; Hertz, Harald
   ARCHIVES OF ORTHOPAEDIC AND TRAUMA SURGERY. Volume: 129 Issue: 2 Pages: 207-219 Published: FEB 2009

10. **Title: [not available]**
    By: White, AA; Panjabi, MM.
    Clinical biomechanic of the spine Published: 1978
    Publisher: Philadelphia, Lippincort

11. **Operative compared with nonoperative treatment of a thoracolumbar burst fracture without neurological deficit - A prospective, randomised study**
    By: Wood, K; Buttermann, G; Mehbod, A; et al.
    JOURNAL OF BONE AND JOINT SURGERY-AMERICAN. Volume: 85A Issue: 5 Pages: 773-781 Published: MAY 2003

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