

Providing An Automated Method For Detection Of Unstable Burst Fractures Of The Lumbar Spine Based On A New Method Of Thermography

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Introduction

Burst fractures of vertebral are about 15% spine injuries that the most common site is the lumbar dorsal . Now detection of type of fracture and associated injuries usually done by the plain radiography, CT scan and MRI, But these methods have many limitations such as high cost and the risk of radiation . In this study, we tried to provide a new method for the detection of fractures in thermography images.

Methods

The present study was performed on a series of thermal images were obtained from a Clinical Center in California, and diagnosis of Unstable burst fractures of the lumbar spine was done based on thermal model and using Fuzzy C- Means (FCM) clustering algorithm and Recursive connected components algorithm.

Results

In this study, with the survey performed by orthopedic surgeon, that previously was done from the patients , the accuracy of this work is confirmed . Techniques and tips that are practical and based on scientific principles obtained in this study could to help to doctors to diagnose unstable burst fractures of the lumbar spine Based on analysis of thermal images.

Conclusion

The method presented in this article can be considered as a non-invasive and cost-effective method for the detection of unstable burst fractures of the lumbar spine .