8.1.1.2 Correlation of Pain Severity with Thermography

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Thermography can detect the discogenic pain in lumbar disc herniation and change the subjective pain into objective color image. The sensitivity and specificity of thermography are very high as 89.5% , 79.1% and it showed high correlation with postoperative clinical result. So it has been used for diagnosis of disc herniation, detection of symptomatic level in multiple disc herniation and prediction of postoperative courses in lumbar disc herniations. The severity of pain in disc herniation is different according to duration of symptom, types of disc herniation, degree of protrusion and other numerous factors. Author analyzed the thermographic findings of lumbar disc herniation focused on the thermal difference and correlated the thermal difference with severity of pain in 147 patients of lumbar disc herniation. The patients has single level disc herniation with unilateral leg pain and were grouped into acute(78 cases) and chronic(69 cases) group according to duration of symptom. In acute disc herniation group, significant thermal difference is noted according to subjective pain severity ($P< 0.05$), degree of protrusion ($P<0.01$) and type of herniations ($P<0.05$). In chronic disc herniation group, thermal difference is not correlated with severity of pain and disc protrusion. In conclusion, thermal difference is well correlated with severity of pain in acute disc herniation. Thermography is useful for differention of acute and chronic disc herniation and it shows the severity of discogenic pain in lumbar disc herniations.

INTRODUCTION

Pain is a subjective symptom and it is wholly dependent on individual complaints for diagnosis. In lumbar disc herniations, there are many differences of complaints about pain in acute and chronic disc herniations though same severe disc protrusion. The differential diagnosis of pain severity is very important for planning of treatment modality and surgical options. Thermography can reveal the subjective symptom into objective visible images and can detect the painful condition such as disc herniations with high sensitivity and accuracy. Author used Digital Infrared Thermographic Imaging(D.I.T.I. DOREX Inc.) for evaluation of pain severity in lumbar disc herniation and evaluate the efficacy of thermography in discogenic pain.

MATERIAL AND METHODS

The thermographic imagings of 147 patients who complaint unilateral leg pain and has single level of lumbar disc herniation. Among them 78 cases showed acute discogenic symptom and 69 cases showed chronic discogenic symptom and signs. So the patients were grouped into two groups as acute and chronic herniation groups. The thermal differences between symptomatic and asymptomatic leg are measured with D.I.T.I. system(DOREX Inc.) and the values are averaged. The severity of pain was measured by Visual Analog Scale(VAS) and Graphic Rating Scale(GRS). The thermal difference is compared with pain severity in Visual Analog Scale and Graphic Rating Scale and duration of symptom, degree of disc protrusion in acute and chronic disc herniation groups.

RESULTS