

Clinical and Kinematic Analysis in Patients with Cervical Disc Herniation at the C3-4 Single Level

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This study was designed to analyze the clinical presentations and kinematic features in patients with cervical disc herniation at the C3-4 single level. We selected 21 patients with cervical disc herniation at the C3-4 single level who underwent anterior cervical interbody fusion. All the patients had radiographic analysis to evaluate the morphologic characteristics and range of motion at the C3-4 level and the sagittal in order to compare cervical sagittal balance. Clinical symptoms developed in an insidious fashion and included posterior neck pain, occipital pain, shoulder pain, arm pain, and arm numbness. Sixteen patients had myelopathy (72.7%). The mean spinal canal diameter ranged from 9.26 mm to 12.87 mm (mean, 10.85 mm). In comparison with other levels, the spinal canal diameter at C3-C4 was

INTRODUCTION

Cervical spondylosis and disc herniation are usually found in the third decade of life. With age, the incidence of cervical disc herniation increases. The C5-6 and C6-7 levels are the most common because of their relatively extensive range of motion. In elderly patients, the site of involvement in cervical spondylosis change happens at a much higher level as compared to middle aged patients, even though both groups commonly show radiological spondylosis changes at C5-6 and C6-7¹⁾. The primary site of spondylosis lesions shifts from lower to upper levels in elderly patient with an average age 65 years^{2,3)}. It is believed that with advancing age the primary site of the lesions shifts from lower cord segments to the upper. Even if the patient is young, specific dynamic features could affect the development of spondylosis lesions at C3-4 level. Cervical disc herniation at the C3-4 level is not only rare, but also is difficult to identify on clinical examination; symptoms and signs of cervical disc

herniation at C3-4 are poorly described in the literature, and patients usually have no specific motor weakness and reflex abnormality^{4,5)}. We have encountered 19 patients under the age of 65 with cervical disc herniation at C3-4, and have analyzed their clinical presentations and kinematic features of C3-4 level.

MATERIALS AND METHODS

1. Patients selection

This study was performed on 21 patients with cervical disc herniations at the C3-4 single level, who underwent anterior cervical interbody fusion. These patients were selected from 56 total patients who had degenerative disc disease of the cervical spine and had undergone anterior cervical interbody fusion at multiple levels, including the C3-4 level, from May 1999 to November 2005. Age, gender, and the severity of symptoms were analyzed based on the patient's medical records. Patients who had concurrent symptomatic cervical spondylosis or cervical disc herniation in other