CASE REPORT

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Tetraparesis associated with ossification of the posterior longitudinal ligament of the cervical spine

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Abstract This is a case report of tetraparesis associated with extraordinarily severe ossification of the posterior longitudinal ligament (OPLL) of the cervical spine. There was no history of trauma. The object of this paper is to show that OPLL can progress relentlessly to a nearly complete quadriplegia even without trauma, but that adequate decompression can produce almost complete recovery.

Résumé Il s'agit d'un cas de tétraplégie pour une OPLL (Ossification du Ligamentum Flavum) extrêmement sévère du rachis cervical, sans traumatisme. L'objectif de cette étude est de montrer qu'un cas de OPLL peut évoluer de façon critique vers une quadriplégie même sans traumatisme, mais avec une décompression adéquate le patient peut recouvrir pratiquement toutes ses fonctions.

Introduction

Ossification of the posterior longitudinal ligament (OPLL) is a condition caused by new bone developing in the posterior longitudinal ligament within the spinal canal. This can compress the spinal cord or nerve roots. Many cases have been reported in Japan, and usually the symptoms are not serious. Motion problems of the upper and lower extremities and voiding difficulties have been reported [4]. We report a patient with OPLL in the cervical spine who developed an almost complete tetraplegia.

Case report

A 58-year-old male gradually developed quadriplegia during a period of 6 months. Four months after the debut of his symptoms he was admitted to hospital and treated conservatively for 2 months.

On admission, all muscles of the upper and lower extremities were grade 0 except for the extensors of the right wrist which acted to Grade 1 power. The patient complained of a tingling sensation over the entire body below his neck. His bladder did not function and the deep tendon reflexes of both lower extremities were increased. The Babinski sign was positive.

Radiographs revealed a contiguous mass of ossification at the posterior aspect of the 2nd to the 7th cervical vertebral body. A computed tomogram (CT) showed a mass compressing the spinal cord in the same region. The ratio of spinal stenosis on the measured section of the 6th cervical vertebra was about 90% (Fig. 1). There were no signs of diffuse idiopathic skeletal hyperostosis or of ankylosing spondylitis.

Laminoplasty by the Hirabayashi technique was performed and a fat graft was applied to the exposed dura in conjunction with an arthrodesis. Recovery of muscle power began 5 days after operation, the first sign of improvement being in the extensor muscles of the ankle joint. After 18 months the patient was able to walk

Fig. 1 Pre-operative computerized tomography scan demonstrating the ossified ligament at C6. The amount of obstruction was 90%

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without walking aids and recorded a JOA score of 13 and a recovery rate of 76%. After 3 years all functions had returned to normal, recording 17 on the JOA score and a 100% recovery rate.

Discussion

The clinical symptoms of OPLL appear mostly after 40 years of age. Patients complain of pain in the neck and the occipital area, and this is followed by paresthesia and weakness in the upper and lower extremities. Paresthesia is a very common symptom and is found in 70% of patients. Most OPLL patients can enjoy their daily life without serious problems from the disease [4]. However, Eric and John reported a case which showed an incomplete tetraplegia following trauma in a patient with ankylosing spondylitis and OPLL [1].

Conservative treatment is indicated for patients with mild paresthesia and no evidence of muscle weakness. Surgical treatment is generally indicated when symptoms progress in spite of conservative treatment or when there is obvious compression of the spinal cord. Laminectomy is considered the best method for treating OPLL involving more than 3 segments. Nevertheless, it may be followed by post-operative scar formation in the extra-dural space, post-operative spinal instability and an abnormal post-operative curvature. In some reports, traction of a cervical nerve root by a backward shift of the compressed cord followed by injuries to the radicular artery have been noted after operation. In such cases, the condition then deteriorates [5], and as a consequence, posteri-

or decompression and cervical canal laminoplasty is becoming increasingly popular.

OPLL patients over 65 years of age with serious clinical symptoms for more than 2 years are generally known to have a bad post-operative prognosis. This is especially true for cases with spinal stenosis [3]. The excellent result in our case was partly due to the short duration of symptoms and to the fact that the tetraparesis developed without trauma. However, it is possible that extensive decompression may have been beneficial.

As an increase of OPLL has been observed in 89% of cases after laminectomy, and in 34% after cervical canal laminoplasty [2], our patient needs careful regular assessment.

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