CASE REPORT

KIENBOCK DISEASE IN CEREBRAL PALSY

L. DE SMET[1]

A 48-year-old woman with cerebral palsy (CP) and lunatomalacia in her paralytic arm is reported. We performed a proximal row carpectomy with good pain resolution. One should be aware of this association in a CP patient complaining of wrist pain.

Key words : lunate bone ; lunatomalacia ; cerebral palsy.
Mots-clés : semi-lunaire ; malacie du semi-lunaire ; hémiplégie spastique.

INTRODUCTION

Several causes for the development of avascular necrosis of the lunate have been reported. In cerebral palsy two epidemiological studies reported an incidence of 2.7% and 10% (3, 6) with respectively six and five wrists involved. Besides two other case reports (1, 3) we did not find any other reports on this association.

CASE REPORT

A 48-year-old woman with right spastic hemiplegia consulted the outpatient hand clinic for progressive pain in the right wrist. The pain was localized on the dorsal side. There was slight swelling of the radiocarpal joint. The flexion deformity of the wrist was mild (Zancolli grade I). Passive extension of the wrist was easily achievable. There was a marked thumb-in-palm deformity with flexion of the carpometacarpal and metacarpophalangeal joints of the thumb and swan neck deformity of the fingers (fig. 1). The hand had only a supportive function. Xrays (fig. 2a,b) demonstrated a dense and fragmented lunate (Stage III). The ulnar variance was zero.

Fig. 1. — Clinical aspect of the hand and wrist position.

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Fig. 2a. — AP view of the wrist.
Fig. 2b. — Lateral view of the wrist, with obvious fracture of the lunate.

A proximal row carpectomy was performed combined with a transfer of the flexor carpi ulnaris into the extensor carpi radialis brevis (Green and Banks procedure) (5). In the same procedure the extensor pollicis longus was rerouted, the adductor pollicis and the first dorsal interosseous were released and the extensor pollicis brevis shortened to correct the thumb-in-palm deformity. A palmar translocation of a lateral slip of the extensor tendon of the long fingers according to the technique of Zancolli was performed to correct the swanneck deformity.

Histological examination of the lunate confirmed the bone necrosis.

DISCUSSION

This patient demonstrates another case of Kienbock disease in cerebral palsy, but it is quite different from the other published cases : it occurred in an older woman with an ulna zero variance. The mean age of the cumulative group is 23 years (range 11 to 36) ; the majority are males (2/1) and nine of the 13 involved wrists present an ulna minus variance : all these features correspond well with the findings in usual "idiopathic" Kienbock, in contrast with the patient (1, 3, 4, 6).

Several aspects of the spastic hand and wrist can be held responsible for the increased incidence of Kienbock disease : permanent flexed position of the wrist, increased muscular tone, and involuntary movements. They all have a tendency to "crush" the lunate against the radius and increase the intraosseous pressure with disturbance of the intraosseous vascularity. Spasticity aggravates the compression of the artery responsible for the blood supply of the lunate.

In cerebral palsy patients the occurrence of ill-defined wrist pain or an increase of spasticity is a warning to perform a (new) radiographic or scintigraphic examination, as Kienbock disease is probably more frequent in this population than previously thought (3).

The aim of the treatment in this case was first to resolve the wrist pain. Several techniques have been proposed. Since the ulnar variance was neutral, a leveling operation made no sense. Intracarpal partial fusions were a valuable option, but in a patient with cerebral palsy we preferred an operation that could help with both conditions. A proximal row carpectomy has an indication in advanced Kienbock (2), as in cerebral palsy (5, 6). The tendons transfers were added to rebalance the hand, the fingers and the thumb.

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SAMENVATTING

L. DE SMET. Ziekte van Kienbock bij een cerebral palsy patiënt.

Een 48-jarige vrouw met spastische hemiplegie op basis van perinatale hypoxie en lunatomalacie wordt beschreven. Een proximale rijresektie met goed eindresultaat werd bekomen. Men moet bedacht zijn op deze associatie bij een C.P. patient met polspijn.

RÉSUMÉ

L. DE SMET. Maladie de Kienbock chez une hémiplégique spastique.

L'auteur rapporte le cas d'une patiente de 48 ans hémiplégique spastique, qui a présenté une maladie de Kienbock du semi-lunaire du côté paralysé. Une résection de la première rangée du carpe a supprimé les douleurs. En présence d'un poignet douloureux chez un hémiplégique spastique, il faut penser entre autres à la possibilité d'une maladie de Kienbock du semi-lunaire.