

INDICATIONS FOR "LEVEL" OPERATIONS IN THE TREATMENT OF ASEPTIC NECROSES OF CARPAL BONES

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During a five-year period (1992-1996) a total of 21 patients with aseptic necroses of os lunatum (morbus Kienböck) and os scaphoideum (morbus Praisser) were treated. Five male patients with morbus Kienböck and ulna negative variance, at a mean age of 29 years, underwent surgical treatment with shortening of the radius. The author argued in favour of radial shortening rather than of ulnar lengthening. Oblique osteotomy with radial shortening with volar access was considered the most appropriate surgical method. It demonstrated several advantages related with bone union and proximal carpal row decompression and we had excellent postoperative results.

Key-words: Kienböck's disease, lunatomalattia, "level" operations, radial shortening, oblique osteotomy, ulnar lengthening

Since 1910, when Robert Kienböck described the avascular necrosis of os lunatum, up to nowadays no unified concept about the etiology and definite treatment of this disease has been suggested. Kienböck detected ulna negative variance in 23% of the cases. A. Zapico revealed the relationship between the shape of os lunatum and the ulnar length. He argued that os lunatum type I has weaker trabecules due to the ulna negative variance.

In 1928, Hulten described in detail the clinical course of

Kienböck's disease presented mainly with local pain and reduced hand grip strength. He emphasized the presence of a shorter ulna as a cardinal predisposing factor. He introduced the terms of ulna positive, ulna negative, and neutral ulna variance. That is why most authors prefer the so-called "level" operations, consisting in radial shortening or ulnar lengthening for the treatment of Kienböck's disease.

The aim of this paper is to share author's experience with the application of the "level" operations for the treatment of patients with aseptic necroses of the carpal bones.

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MATERIAL AND METHODS

During the period 1992-1996 a total of 21 patients with aseptic necroses of carpal bones (5 patients with morbus Kienböck and 16 patients with morbus Praisser) were hospitalized and treated in the Department of Orthopaedics and Traumatology, Medical University of Varna. Five male patients with morbus Kienböck and ulna negative variance, at a mean age of 29 years, underwent surgical treatment with shortening of the radius. The last procedure was carried out in October, 1996. According to the classification of Decoulx, two patients were in stage II and three ones - in stage III. We used compression-plate following oblique osteotomy in four patients. The plate had an excentric device in two cases while it was self-compressive in the other two ones. After radial shortening an osteosynthesis with two crossed K-wires was performed in the last case. Patients were immobilized in long arm cast for 8 weeks.

RESULTS AND DISCUSSION

Four patients were totally free of pain after the operation. The last patient is still followed-up. Two patients complained of slightly expressed pain when performing a strenuous physical work. In three

patients dorsal wrist flexion was restricted by 15 degrees while volar wrist flexion was limited by 10 degrees.

Kienböck's disease is unique not only because its etiology still remains incompletely revealed but also because there are too many suggestions for its treatment (1-3,6,9,12).

The "level" operations possess an essential advantage consisting in the avoiding the wrist arthrotomy. According to many authors (2,10) and in our own experience as well (7,8), the radial shortening is technically more easy to perform than the ulnar lengthening. The percentage of non-union is much higher in the ulnar lengthening. Besides, the ulnar lengthening leads to reduction of the wrist ulnar deviation. In one of our patients from a previous series, who underwent an ulnar lengthening, an ulna positive variance occurred, i. e. the radial shortening has lower extent of postoperative hypercorrection.

Scandinavian authors first applied the "level" operations in clinical practice. In 1950, Persson (11) reported good operative results in patients treated with ulnar lengthening. Radial shortening provided, however, good results even in patients with neutral or positive ulnar variance. The optimal radial shortening was of 2-3 mm but no more than 4 mm.

In 1986, Beckenbaugh (2,10) published a survey of the results obtained in the Mayo Clinic where various surgical and non-surgical methods of treatment were performed, including replacement arthroplasty, excision of os lunatum and wrist arthrodesis.

Out of the large number of operative techniques offered for the treatment of Kienböck's disease, we prefer the levelling procedures because of the elegant technical performance and already well-known good operative results (7,8).

The reduced danger of non-union represents the principal feature of the Desmanet's double pinning (3,4). Desmanet's grounds against the osteosynthesis with a plate consist in the performance of osteotomy in the metaphyseal part of the radius where the contraction of the antebrachial

muscles exerts a compression on the fragments.

Despite the experience of the French authors (3-5) we consider the plate-osteosynthesis after radial shortening a more reliable method of treatment as it provides stability.

CONCLUSIONS

The present data demonstrates that there exists a great variety of methods used for the treatment of Kienböck's disease. Most methods ensure good postoperative results. However, only the "level" operations are supported by laboratory investigations. The radial shortening is technically more easy to perform and provides less complications. That is why it is the method of choice preferred in our orthopaedic practice.

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Индикации за приложение на "ниво" операции при лечението на асептичните некрози на карпалните кости

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Резюме: През един петгодишен период (1992-1996 г.) са лекувани 21 болни с асептични некрози на *os lunatum* (morbus Kienböck) и *os scaphoideum* (morbus Praisser). Пет мъже с улна (-) вариант на morbus Kienböck на средна възраст 29 години са подложени на хирургическо лечение със скъсяване на радиуса. Предпочитанията си авторът дава на скъсяването на радиуса пред удължаването на улната. Използването на коса остеотомия със скъсяване на радиуса след воларен достъп е най-подходящата хирургическа методика. Тя има редица предимства по отношение на срастването, както и на декомпресацията на проксималния ред карпални кости, като са получени отлични следоперативни резултати.