Management of Scapholunate Instabilities Resorting to Blatt's Capsulodesis

L. Van Overstraeten

1 Introduction

Blatt's capsulodesis, which uses a dorsal capsular flap with a proximal hinge, was described in 1987 to treat rotative dissociations of the scaphoid and to stabilize a distal ulna following the excision of its head [1]. Capsulodesis is like a mechanical brake to avoid the volar flexion of the scaphoid.

At that time, this capsulodesis was an alternative to Taleisnik's treatment of the scapholunate ligament.

For about 10 years, surgeons resorted to it as an isolated treatment or, more often, together with a suture of the interosseous ligament [2, 3].

Nowadays, this technique is still widely used. In 2004, a Canadian study questioned North American hand surgeons and reported that, among the 468 surgeons who answered the questionnaire, most of them preferably resorted to a repair of the scapholunate ligament together with capsulodesis when the injury was acute. In their opinion, the best means of treating chronic instabilities is Blatt's capsulodesis, capsulodesis combined with scapholunate repair or scaphotrapeziotrapezoid (STT) arthrodesis [4].

2 Surgical Technique

The incision is dorsoradial and longitudinal and goes to the ulnar side of the long flexor of the thumb, between the third and fourth compartments of the extensors. It goes from Lister's tubercle to the scaphotrapezial joint. The thumb

L. Van Overstraeten
Hand and Foot Surgery Unit,
Rue Pierre Caille N° 9, B-7500 Tournai, Belgium
e-mail: l.v.o@skynet.be

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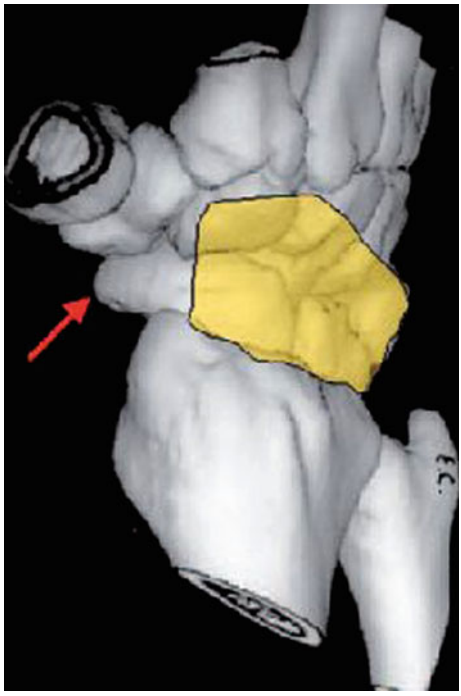

Fig. 1 The dorsal capsule. The *arrow* shows the scaphoid: it is flexed before the capsulodesis

long extensor and the radial long extensor of the carpus are lowered to the radial side; the radial short extensor of the carpus is lowered either in ulnar or in radial. A 1 cm wide dorsal capsular flap with a proximal hinge is cut from the distal extremity of the radius to the distal side of the scaphoid (Figs. 1 and 2). The scaphoid may be reduced by volar pressure as the wrist rests in ulnar deviation. Reduction is maintained by scaphocapitate or scapholunate Kirchner wire. The dorsal bridge of the scaphoid, which separates the radiocarpal and midcarpal articular surfaces, is exposed. The capsular flap is reintroduced under tension in a fissure which is ploughed on the dorsal side of the distal scaphoid (this bridge is used as a reference point), as distally as possible. Fixing is either made by a clamp or by one or two mini anchors [2, 5], with a Ticron 2/0 suture. The repair tension is adjusted so as to reach the minimum flexion or, at least, the neutral position.

The capsular repair and then the skin are fastened. The column of the thumb is maintained by a plaster cast during 6½ weeks. At that stage, the plaster cast and the wires are removed and the patient starts physiotherapy.

It would seem that American surgeons prefer to resort to a scapholunate and scaphocapitate pinning [4].

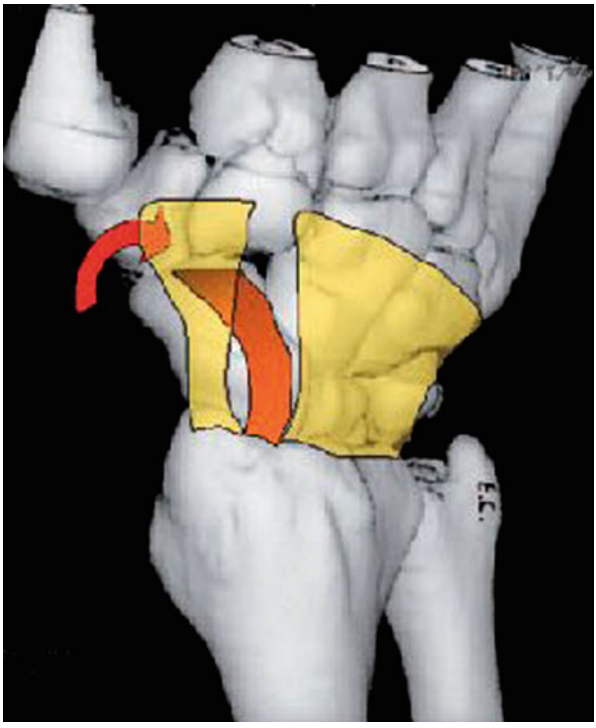

Fig. 2 Blatt's capsulodesis. This procedure allows a verticalization of this scaphoid (*arrows*)

3 Results

Results depend on how long patients have been followed up. Short-term results (1–2 years) are usually favourable [6]. However, they deteriorate at midterm (5 years), especially when important daily constraints are applied to the wrists [6].

In Blatt's original survey, which concerned twelve indications, most scapholunate instabilities are static and chronic. Long-term results were very satisfactory as extension was completely recovered and flexion loss was only 20°. Average grip strength was recovered to 80 %. Most patients returned to their pre-operatory level of daily activities [1].

The series studied are short. Some of them mostly deal with indications of pre-radiologic or dynamic instability [2, 7], others with indications of chronic static instability [1, 8]. The most important series contains 44 patients [9]. Pain, normally studied by subjective analogical scale, often improves (except in Pommerance's scale on which it is estimated at 3/10 before and after capsulodesis [1, 10]). However, it seldom disappears [11].

Clinical improvement is constant, with a decrease of the pain in all cases, at the expense of a loss of mobility. The deficiency of post-operatory flexion reaches

11–32° depending on the series [2, 7, 9]. The deficiency of extension reaches 11–22° [2, 9]. Grip strength is not improved by the operation [11] and reaches 66 % of the contralateral strength [9].

Radiologic parameters do not modify [9] or deteriorate [6, 11] with surgery. Scapholunate diastasis is about 1 mm wider after capsulodesis, the scapholunate angle increases by 5°. In a biomechanical study in a cadaver model, Slater made a comparison between dorsal intercarpal ligament capsulodesis and Blatt's capsulodesis. He came to the conclusion that the first method reduces the scapholunate diastasis and the improvement of the scapholunate angle is better than Blatt's [10].

Sixty-six to seventy-five percent of the patients can return to the same job and/or to heavy manual activities [7, 9].

According to Lavernia, there is no significant difference between the results of an isolated capsulodesis and a capsulodesis combined with the repair of the interosseous scapholunate ligament. There is no difference either when the repair of the scapholunate ligament is made alone [8].

4 Conclusion

Authors agree with the fact that Blatt's dorsal capsulodesis remains a useful and efficient technique to manage acute instabilities (together with a repair of the scapholunate ligament), or chronic instabilities, whether they are pre-radiologic, dynamic or static.

Blatt's capsulodesis is used in Garcia-Elias' stages 1, 2 and 3.

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