Acta orthop. scand. 44, 278–282, 1973

Surgical Department L, Vejle Hospital, DK-7100 Vejle, Denmark.

FORTY-EIGHT CASES OF CAPUT ULNAE SYNDROME TREATED BY SYNOVECTOMY AND RESECTION OF THE DISTAL END OF THE ULNA

MOGENS MØLLER

Accepted 12.i.1973

Resection of the distal end of the ulna was introduced in 1912 by Darrach as treatment of pain and reduced movement in the wrist caused by traumatic dislocation of the caput ulnae. Resection of the caput ulnae was used by Smith-Petersen in 1940, the time at which surgery was beginning to be employed in the treatment of rheumatoid arthritis (rh. a.). Smith-Petersen used it as part of arthrodesis and in later years the procedure has been used by Flatt (1963), Kessler & Vainio (1966), Straub & Ranawat (1969) together with Kessler & Hecht (1970) to make synovectomy of the wrist total.

Rh. a. often attacks the wrist. This consists of a radioulnar joint and a radiocarpal joint, which are clearly separated by a septum. The affection usually starts in the ulnar part with proliferative synovitis, which causes laxity of the ligaments and a thinning of the capsule. In addition a destruction of the triangular disc and of the styloid process is seen and gradually of the whole distal end of the caput ulnae, with widening of the joint and dislocation of the caput ulnae.

Rupture may occur as a result of involvement in depth or when the disease is primarily located to the ulnar extensor tendons. This is presumably further enhanced by the attrition of the dislocated caput ulnae on the tendons during rotational movement.

A characteristic picture, based on the changes mentioned above, occurs. This has been thoroughly described by Bäckdahl in 1963 under the name "caput ulnae syndrome". The main clinical characteristics are: (1) rotational pain, weakness and limitation of movement in the wrist, (2) the caput ulnae is dislocated and forms a dorsal prominence on the wrist, (3) in a dorso-ulnar position there is a tender soft fluctuating swelling, (4) possibly extensor tendon rupture.

Resection of the caput ulnae was carried out by Rasmussen & Snep-

pen in 1967; the indication was tenderness on rotation and limitation of movement. It was also employed by Cracchiolo & Marmor in 1969 for the caput ulnae syndrome. The object of the present work is to report the results of the procedure, when the caput ulnae syndrome is used as the indication, and thereby supplement the scanty literature available.

MATERIAL AND METHODS

Forty patients with rh. a. (according to the American Rheumatism Associations criteria), representing 48 cases of caput ulnae syndrome, were subjected to resection of the caput ulnae together with synovectomy. 37 patients representing 45 operated wrists were examined at follow-up; the remaining 3 patients were dead at that time.

Twenty-six of the patients examined at follow-up were women. The average age was 57 years (range 24–77 years). The average duration of the rh. a. was 9 years (range 1-33 years) with an average of 7 years for the wrist affection (range 0–23 years). The main complaints were pain on rotation, a limitation of rotational movement and a tender swelling to an extent that the function of the wrist was reduced in all the cases. One patient had rupture of the tendon to the extensor pollicis longus preoperatively, and 2 had extremely thin indicis proprius tendons. None of the patients had rupture of the extensor carpi ulnaris, but the tendon in a number of patients was very thin. Preoperative radiographic changes were seen only in the distal radioulnar joint of 15 wrists; in the remainder there were also changes in the radiocarpal joint. Among the first-mentioned 15 wrists the caput ulnae resection was supplemented in 4 cases by synovectomy in the radiocarpal joint. This also applied to 18 cases in the remaining 30 wrists. All the patients had been carefully observed and treated medically in a department of physical medicine preoperatively.

The procedure was carried out under general anesthesia. A longitudinal S-shaped incision was made above the distal end of the caput ulnae under tourniquet control. The lower 3–4 cm of the ulna together with the triangular disc were removed, and at the same time as much as possible of the proliferating synovial tissue. The extensor tendons were inspected and cleansed of synovival tissue and placed in the anatomically correct position, if they had slipped. A compression dressing was used for the first 24 hours and the day after operation intensive exercises were commenced.

RESULTS

The follow-up examination was carried out from 4 to 100 months after the operation (mean 46 months). The pain on rotation was changed as shown in Table 1. Of the 5 wrists giving pain one was unchanged, 3 were free from pain for periods, while in the 5th case arthrodesis was carried out 2½ years after the operation owing to persisting pain on rotation and synovitis. The wrist was then free from pain. A swelling could not be seen in any of the radioulnar joints, but 2 patients stated that it was present periodically. The range of movement was changed

as shown in Tables 2 and 3. The improvement was evident in rotation, particularly in supination. In 21 cases the patient considered the grip strength to be reduced after the operation, whereas the strength in the other cases remained unchanged. Measurements using a Geigy-balloon were, in the main, in agreement with these evaluations. In no case was the loss of strength confined to the operated wrist. During supination and pronation movement 16 patients were initially inconvenienced by a snapping sensation, corresponding to the resected end of the ulna. This sensation disappeared in all the cases within the course of the first year. 33 patients found that the operation had resulted in the wrist being more useful and none found the function of the wrist reduced or the wrist unstable. There was no postoperative rupture of a tendon.

Table 1. Pain during rotation.

Number of wrists	Pain	
	present	absent
Preoperative	45	0
Postoperative	5	40

Table 2. Supination (sup) and pronation (pro).

Degrees	Number of wrists			
	preoperative		postoperative	
	sup.	pro.	sup.	pro.
90	17	17	34	32
89–45	10	16	8	10
44– 0	18	12	3	3
Total	45	45	45	45

Table 3. Volar (vol) and dorsal flexion (dor).

Degrees	Number of wrists			
	preoperative		postoperative	
	vol.	dor.	vol.	dor.
45	6	13	7	12
44–20	18	15	21	17
19– 0	21	17	17	16
Total	45	45	45	45

Of the 15 wrists with preoperative x-ray changes isolated to the distal radioulnar joint, 2 were seen postoperatively to have affection of the radiocarpal joint: both cases occurred in patients on whom radial synovectomy had not been performed. In the remaining 30 joints, further progressing in the radiocarpal joint was seen in 16 cases; of these 5 occurred in the 18 wrists which had been subjected to radial synovectomy.

DISCUSSION

The most characteristic finding is elimination of the rotational pain and an increase in rotational movement, in other words, an obviously favourable effect on the main symptoms of the patient. Rasmussen & Sneppen (1967) and Cracchiolo & Marmor (1969) found corresponding results in their materials, which were of a similar size to that presented here. The 5 patients with persisting rotational pain did not differ from the others in sex, age or duration of disease. One of these patients had slight radiological changes preoperatively; the other 4 patients had severe destructive processes both in the radioulnar and the radiocarpal joints. At the follow-up examination all 5 patients showed progress as evaluated by x-ray examination.

It appears that the procedure arrests the proliferation of the synovial tissue in the distal radioulnar joint, which is again in agreement with the results of Cracchiolo & Marmor (1969). These authors found an increase in the strength in approximately 60 per cent of the patients. No explanation of this discrepancy between the two materials can be given. The stability of the wrist was good after the operation in all of the cases, which is in keeping with the fact that the distal end of the ulna does not give support to the bones of the carpus. Since a later arthrodesis is not excluded by the operation, even severe changes in the joint will not be a contraindication to resection of the distal end of the ulna.

It is reasonable to attempt the operation when caput ulnae syndrome occurs, providing intensive physical and medical treatment has been attempted without successful results. Since rotational pain and a reduction in rotational movement are the main factors inhibiting the use of the hand in such common everyday movements required for washing, dressing, turning the handle of a door, etc., a painful and badly functioning wrist will at the same time contribute to the inactivation of the adjacent joints.

SUMMARY

Forty-eight resections of the distal end of the ulna were carried out on 40 patients suffering from rheumatoid arthritis. The indication for the procedure was primarily reduced movement and rotational pain in the wrist in connection with dorso-ulnar swelling and dislocating of the caput ulnae. All the patients had been subjected to conservative treatment preoperatively without satisfactory results. 37 patients representing 45 operated wrists were examined at follow-up. The operation had had a favourable effect on the swelling, rotational pain and rotational movement, but no effect on the dorsal-volar flexion, and the strength was found to be unchanged or reduced. No operative or postoperative complications occurred.

ACKNOWLEDGEMENTS

The work has been carried out with financial support from the Medical Science Foundation for Vejle County.

I wish to thank Dr. Nic. Hornnes for his help in evaluating the x-ray pictures.

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Correspondence to:

Mogens Møller
Lervangen 21, Bredballe
DK-7100 Vejle, Denmark.