

Osteotomy for trapeziometacarpal arthrosis

4 (1-6) year follow-up of 12 cases

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An abduction-opposition wedge osteotomy of the first metacarpal was performed in 10 patients (12 joints) with arthrosis in the trapeziometacarpal joint.

Satisfactory results were obtained in 10 joints at reexamination 4 years postoperatively.

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As has been reported by many authors, most patients with arthrosis of the trapeziometacarpal joint of the thumb respond well to splinting and steroid injections (Gunther 1988, Oka 1988). In patients who do not respond to such treatment, several surgical options have been suggested depending on the severity of clinical symptoms and/or the radiographic appearance (Muller 1949, Murley 1960, Swanson 1972, Burton 1973, Carroll and Hill 1973, Eaton and Littler 1973, Ashworth et al. 1977, Eaton et al. 1985, Burton and Pellegrini 1986, Pellegrini and Burton 1986, Minami et al. 1988).

We report our results of wedge osteotomy of the first metacarpal bone.

The patient's subjective opinion was also rated as satisfactory or unsatisfactory. The radiographic examination was performed according to Robert (1936).

Results (Table 1)

Satisfactory objective and subjective results were found in 8 patients (10 joints). No further development of arthrotic changes at the radiographic examination was noted. Widening of the first carpometacarpal joint space at the radiographic examination was observed in 8 patients (10 joints) whose results were satisfactory (Figures 2 and 3).

Patients and methods

Our series comprised 10 patients with a mean age of 58 (51-68) years (Table 1). All of them suffered from arthrosis in the first carpometacarpal joint. The mean duration of symptoms before the operation was 7 (3-10) years. Preoperative and postoperative radiographs were evaluated according to Burton's (1973) grading system.

The surgical procedure consisted of a 30° abduction-opposition wedge osteotomy at the basal portion of the first metacarpal bone (Figure 1). After the osteotomy, two Kirschner wires were introduced percutaneously for 6 weeks fixation.

A follow-up examination was performed 4 (1.5-6) years postoperatively. Objective results were rated as satisfactory if the patient had increased pinching power with little or no pain, had returned to former occupation and vocational activities, and had showed an increased arc of abduction-opposition of the thumb.

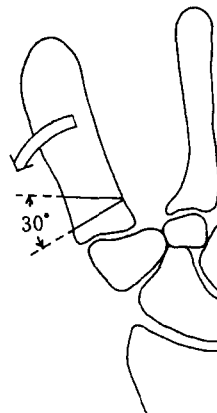


Figure 1. The operation. A 30° abduction-opposition wedge osteotomy is performed at the basal portion of the first metacarpal bone. Two Kirschner wires are used for fixation.

Table 1. Abduction-opposition wedge osteotomy in 10 patients

Case	Age	Sex	Side	Radiographic stage		Palmar abduction		Radial abduction		Grip (lbs)		Follow-up (yr)	Results	
				I	II	I	II	I	II	I	II		A	B
1	54	F	R	2	2	45	55	45	75	4	8	6	S	S
2			L	2	2	45	55	55	70	7	10	5	S	S
3	60	F	R	2	2	50	70	45	90	6	9	3	S	S
4	56	F	R	3	3	70	90	45	55	5	8	3	S	S
5	65	M	R	3	3	40	40	45	40	10	13	5	U	U
6			L	2	2	50	65	50	50	6	9	7	S	S
7	68	F	R	3	3	55	45	35	45	5	9	5	U	U
8	59	F	R	2	2	80	90	60	70	8	10	4	S	S
9	58	F	R	2	2	70	90	60	80	6	9	5	S	S
10	51	M	R	2	2	70	70	60	90	7	9	2	S	S
11	55	M	R	2	2	50	70	55	80	10	14	1.5	S	S
12	58	M	R	2	2	60	80	60	90	8	12	1.5	S	S

I preoperative, II postoperative, A objective results, B patient's subjective opinion, S satisfactory, U unsatisfactory.

Discussion

The main surgical procedures for treatment of arthrosis in the first carpometacarpal joint are arthrodesis or arthroplasty (Muller 1949, Carroll and Hill 1973, Minami et al. 1988). Arthrodesis, although probably the most reliable operation, is technically difficult, and can gradually promote arthrotic changes in adjacent joints (Wilson 1973). Excision of the trapezium with or without tendon interposition arthroplasty (Muller 1949, Murley 1960, Menon et al. 1981) tends to produce an unacceptable adduction deformity of the thumb and muscle weakness (Wilson 1973). Foreign-

body synovitis and/or loosening of the implant may develop after prosthetic replacement arthroplasty (Pellegrini and Burton 1986, Minami et al. 1988). Osteotomy as a surgical option for these patients was first attempted by Wilson (1973). His surgical technique includes a 30° abduction osteotomy at the basal portion of the first metacarpal for the purpose of correcting the thumb-adduction contracture. Our method is a modification of Wilson's procedure, and has as its aim not only to correct the adduction contracture, but also to improve the thumb opposition function by abduction-opposition osteotomy. Satisfactory results were obtained in all the patients with

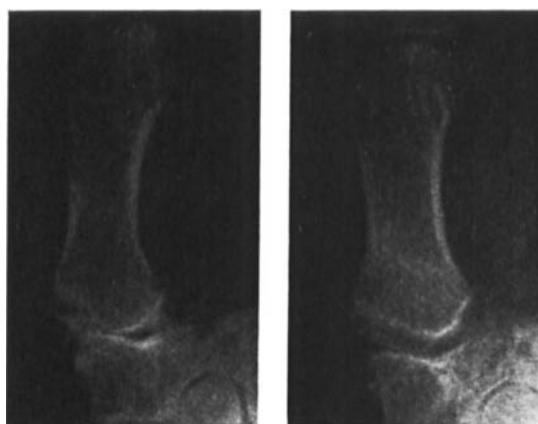


Figure 2. Case 1. Joint space narrowing before the operation (left). One and half years after the operation, widening of the joint space was observed (right). The clinical result was satisfactory, with an improvement of thumb motion.



Figure 3. Case 3. Joint space narrowing before the operation (left). Three years after the operation, widening of the joint space was observed (right).

arthrosis Stage 2. Therefore, we believe that our method is a reliable and advisable surgical option in the treatment of the early stage of arthrosis in the trapeziometacarpal joint of the thumb. We also feel that a key advantage of our method is its simplicity and the minimal surgical intervention that is required.

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