Patellectomy for chondromalacia

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Fifteen patients with 17 patellectomies for chondromalacia were evaluated after an average of 5.5 years. The average age was 38 years. No knees were rated as excellent, whereas 5 were rated as good, 9 as fair, and 3 as poor. However, 10 patients, including both bilateral patellectomies, were satisfied with the results.

We report a retrospective follow-up of patellectomy for chondromalacia.

Patients and methods

At our department between 1976 and 1981, 18 patients underwent 21 patellectomies for chondromalacia. The indication for the operation was severe symptoms interfering with normal activities of daily living and severe lesions demonstrated at arthrotomy (1). Patients with patellofemoral arthritis, arthrosis, malalignment, and fracture were excluded. Before the index operations, 22 operations had been performed in 17 knees. Four knees had never been operated on before.

The average age of the patients at the time of operation was 38 (23–55) years. The average duration of symptoms was 6 (1–20) years. Postoperative plaster cast immobilization was 3 (0–6) weeks. Following removal of the cast, the patients underwent physiotherapy for 3 (0–11) months.

At follow-up, 1 patient was dead and 2 patients refused to participate. The result for 1 patient was classified as unacceptable because of arthrodesis after numerous reoperations complicated by infections (Case 15). One patient was only evaluated during interview (Case 1). Thus, 13 patients with 15 patellectomies were reexamined after an average of 6 (2–9) years.

The patients were interviewed with special reference to pain, ability to squat, subjective instability, activity level, occupational importance of the knee symptoms, and the patients' assessment of the end result. Both knees were examined for motion, stability, quadriceps atrophy, and extension strength. The latter was measured isometrically at 90° of flexion (2). The results were rated according to the score of Pinsky and Olson (3) (Table 1).

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Results

No knees were rated as excellent, 5 were rated as good, 9 as fair and 3 as poor. Ten patients with 12 patellectomies reported a positive effect of the operation. The results were rated acceptable by the patients (Table 2) in the 3 cases of primary patellectomy. The four results rated unacceptable by the patients followed after 1–2 previous operations.

During the follow-up period, knee symptoms were so distressing that 2 of the patients were declared disabled (Cases 1, 5), and 4 had to change their jobs (Cases 2, 6, 7, 9).

Discussion

Like most other studies, we found unacceptable function after patellectomy, i.e., decreased quadriceps strength and activity level (2, 4–6). All the patients still had subjective symptoms, but two thirds of the patients stated a positive effect; patellectomy seems to relieve the subjective symptoms at the expense of normal knee function.

Our study would seem to demonstrate two reasons for the varying results reported by different authors. First, a rating scale that includes extension strength, results in only one third acceptable, although two thirds of the patients stated a positive effect of the patellectomy. Furthermore, the rating scale used in our study on-

Table 1. Score following patellectomy according to Pinsky and Olson (3)

	Acceptable		Unacceptable	
	Excellent	Good	Fair	Poor
Subjective symptoms	None	Mild with activity	Intermittent at rest	Constant
Activity level	Normal	Normal	Not able to participate in athletics	Not able to work
Extension defect (degrees)	0	≤10	≤15	>15
Flexion defect (degrees)	≤ 10	≤ 20	≤ 30	≤ 30
Quadriceps atrophy (cm)	<1.5	≤ 3.0	> 3.0	>3.0
Extension strength (percent)	>75	> 50	> 25	≤ 25
Instability	None	None	Minimal	Clinical

Table 2. Data for 15 patients with 17 patellectomies

A	B	C	D	E	F	G	H	I	K	L	M	N	O
1	26 F	1	4	3	3	3	–	–	–	–	4	4	102
2	36 M	2	3	2	3	2	0–100	1	3	3	3	2	29
3	46 M	1	3	2	2	1	0–130	1	3	3	3	2	83
4 R	50 F	1	2	2	2	1	0–130	1	1	2	2	1	79
4 L	55 F	1	2	2	2	1	0–130	1	2	2	2	1	27
5	42 M	2	4	3	3	3	0–130	1	1	3	4	4	61
6	44 F	1	3	2	3	2	0–110	2	1	3	3	3	88
7	32 M	1	3	1	3	2	0–130	1	2	3	3	2	85
8	28 F	1	3	2	1	1	0–130	1	1	3	3	1	72
9	38 F	2	3	3	2	2	0–130	1	2	3	3	4	44
10	23 F	2	3	2	3	1	0–130	1	2	2	3	2	81
11 R	36 M	0	2	1	1	1	0–130	1	1	1	2	1	82
11 L	38 M	0	3	1	1	1	0–130	1	2	2	3	1	64
12	34 M	2	3	2	2	2	0–130	1	2	3	3	2	33
13	54 F	1	2	3	2	1	0–130	1	1	1	2	1	68
14	33 M	0	2	3	3	1	0–130	1	1	1	2	2	55
15	35 M	1	–	–	–	-	–	–	–	–	4	–	–

A case.
B age/sex.
C number of previous knee operations.
D pain: 1 none, 2 mild with activity, 3 intermittent at rest, 4 constant.
E squatting: 1 able to work, 2 difficult, 3 impossible.
F subjective instability: 1 none, 2 feeling of instability, 3 knee giving way.
G activity level: 1 normal, 2 not able to participate in athletics, 3 not able to work.
H range of motion (degrees).
I ligament instability: 1 none, 2 minimal, 3 clinical.
K quadriceps atrophy: 1: < 1.5 cm; 2: ≤ 3.0 cm; 3: > 3.0 cm.
L extension strength: 1: > 0.75; 2: > 0.50; 3: > 0.25; 4: ≤0.25.
M Pinsky's score: 1 excellent, 2 good, 3 fair, 4 poor.
N patient's assessment: 1 much better, 2 better, 3 unchanged, 4 worse.
O follow-up (months).

ly included isometric extension strength at 90°. Isokinetic measurements might give a different result. Secondly, most studies do no distinguish between primary and secondary patellectomy. In accordance with Bentley and Dowd (7), our study suggests better results after primary patellectomy. In our opinion, however, patellectomy should not be performed as a primary operation because of the deleterious influence of the patellectomy on knee function (8) and the unpredictable spontaneous progression of the chondromalacia (1). In the past, patellectomy has been used as a last resort after repeated surgery; but patellectomy in such cases causes unacceptable results (7), and most authors today recommend preservation of the patella whenever possible (1, 7, 9, 10).

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