

PERICHONDRIAL AUTOGRAFT IN TRAUMATIC CHONDROMALACIA PATELLAE

Report of a Case

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A case of clinically successful autografting of rib perichondrium to the patella in a 55-year-old woman suffering from painful traumatic chondromalacia patellae is reported. A postoperative arthrogram however did not show any significant regeneration of cartilage but arthroscopy revealed a smooth surface of cartilage on the patella. Biopsies were not performed.

Key words: chondromalacia patellae; knee surgery; perichondrium; transplantation

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The cartilaginous potential of the perichondrium in rabbits was first demonstrated experimentally by Skoog et al. (1972) and confirmed in later experiments by the same authors (Skoog et al. 1975). Sohn & Ohlsén (1974) showed that this potential is preserved in free autografts. Rib perichondrium is superior to ear perichondrium in generating cartilage after free grafting (Enquist et al. 1979).

In humans free perichondrial grafting has been successfully used in the smaller joints (metacarpophalangeal, metatarsophalangeal and temporomandibular joints) in a few cases (Enquist et al. 1975, Tajima et al. 1978).

The present paper reports a case of clinically successful autografting of rib perichondrium to the patella.

CASE REPORT

The patient was a 55-year-old woman. At the age of 20 she underwent surgical treatment for bilateral "housemaid's knee" and had not experienced any knee discomfort since. Six months prior to admission the patient was involved in a car accident, in which she sustained a

direct blow to her left kneecap. From that moment she complained of retropatellar pain on climbing stairs, bicycling, carrying burdens and on running. Conservative treatment had no effect.

On examination: The left knee was stable, meniscal signs were negative and there was no joint effusion. Grating was noted behind the left patella only. Patella alta and a tendency for subluxation were not found. The Q-angle was within normal limits.

X-ray investigation: Plain films did not show any significant abnormalities. Arthrography revealed grade III-IV chondromalacia over the entire medial facet of the patella. Lesion of the cartilage of the medial femoral condyle was also noted (Figure 1).

On operation: The knee was entered through a medial Payr incision. The arthrographic findings were confirmed (Figure 2), the extent of the patella lesion being approximately 2.5 cm². The femoral lesion was insignificant. The affected patellar cartilage was excised and replaced by a graft of rib perichondrium. The graft was secured by dextron sutured through burrholes made in the patella. The knee was immobilized in plaster of Paris for 5 weeks. Ten weeks postoperatively the patient was fully mobilized, quadriceps power was restored and knee function was painless.

The patient has been symptom-free for more than 4 years. Follow-up arthroographies 5 and 19 months post-

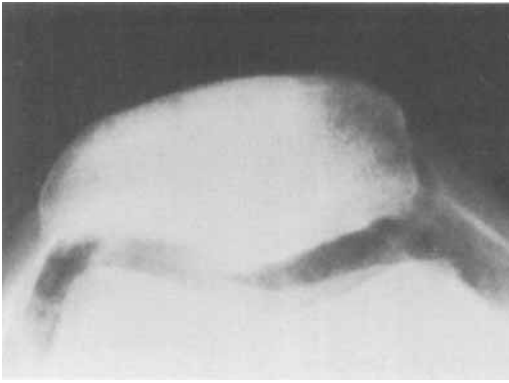


Figure 1. Preoperative arthrogram (double-contrast technique). Medial patellar facet almost devoid of cartilage exposing the bone. Cartilage also seems to be absent on the extreme medial aspect of the trochlea (arthrograms performed by Dr. H. Schmidt).

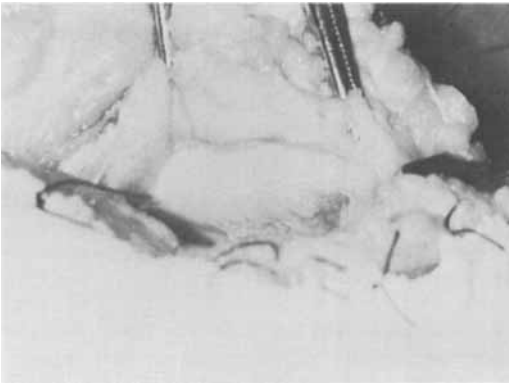


Figure 2. The patella at operation. Severe chondromalacic changes on the medial facet. The lateral facet is not involved.

operatively revealed only thin soft tissue on the medial patella facet (Figure 3). Arthroscopy 4 years after the operation showed the medial facet of the patella covered with cartilage. Only discrete and superficial fibrillation was seen and the border between the grafted and non-grafted cartilage could not be distinguished.

DISCUSSION

The history was classical for chondromalacia of a traumatic origin, symptoms appearing after a heavy direct blow to the kneecap. No evidence of occult traumatic patellar luxation was found.

Enquist et al. (1975) found in their patients with perichondrial autografts to smaller human joints that hyaline cartilage of normal thickness developed. We considered it unjustified to biopsy the graft in our case because we suspected this might threaten the normal and painless knee function that was obtained. However the arthrograms showed only a thin soft tissue layer on the medial patellar facet and it thus seems unlikely that substantial amounts of hyaline cartilage were formed. The arthroscopic investigation showed that the medial patellar facet was quite smooth with only superficial fibrillation.

The clinical outcome was nevertheless encouraging and suggests that perichondrial grafting is an alternative choice when conservative treatment has failed in patients with traumatic cartilage lesion of the patella.

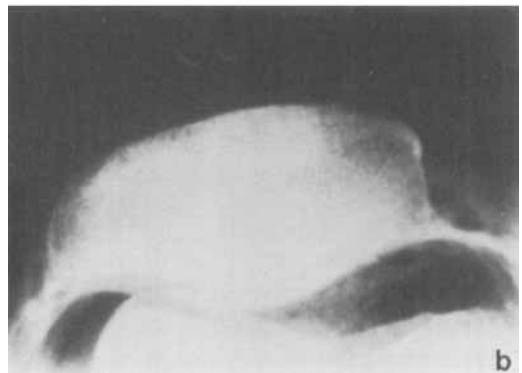


Figure 3a and b. Postoperative arthrograms, (a) at 5 months and (b) at 19 months. Only a thin soft tissue covering can be demonstrated.

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