Chondromalacia patellae

Chondromalacia patellae needs to be distinguished from osteoarthritis of the patellofemoral joint. The former is usually a self-limiting condition of adolescence, with a predilection for girls, affecting the articular cartilage of the medial patellar ridge. Few of these patients show later overt clinical and radiological osteoarthritis.1 3

Osteoarthritis is usually seen in older patients as part of aging or perhaps after a fracture of the patella, and the disorder eventually extends to the rest of the joint. Since the causes and the natural history of the two conditions are not the same the treatment of each should differ, with attention directed in the former to the patella alone and in the latter to the knee joint as a whole.

During normal function the patella is subjected to heavy mechanical loading as it increases the moment-arm of the extensors of the knee. The act of climbing stairs apes a force across the patellofemoral joint of more than three times the body weight—around 170 kg.5 One cause of early damage to the articular cartilage may be a shear stress imposed by differing stiffness zones in the underlying bone—relative osteopenia in one area permitting the bone to collapse a little relative to an adjoining region.6 The patella may also be damaged in falls or by contact with the facia in motor accidents: forces short of those required to fracture the bone may damage the articular cartilage,7 though this is likely only when the contact area between patella and femur at the time of impact is quite small (as occurs when the knee is at right-angles).8

The clinical diagnosis in patients complaining of pain around the patella needs, therefore, to take account of age, any history of trauma, and evidence of pain under circumstances where the patellofemoral joint is subjected to stress. Examination may elicit pain under the medial articular surface of patella on pressure or on manipulating the patella against the femoral condyles.9 Factors thought to provoke changes in the articular cartilage typical of chondromalacia are patella alta,9 patella malalignment,1 and structural abnormalities in the form of an extra patellar facet9 or a ridge at the proximal margin of the articular surface of the medial femoral condyle.10 Some, but not all, of these features can be identified clinically or radiologically to support the diagnosis. As cartilage possesses no pain fibres the pain is thought to arise in that area of bone no longer cushioned from stress by the damaged articular cartilage overlying it.9

Since chondromalacia patellae is usually a self-limiting condition, palliative conservative treatment is appropriate—namely, analgesics, suitable physiotherapy, and a support for the patella. Strict avoidance of all sports and games, a serious deprivation for an adolescent, should not be necessary.1 Over-treatment is always possible when pain tolerance cannot be clearly assessed; adolescents frequently accept chronic or recurrent discomfort badly and with impatience.

The many surgical options available are an index of therapeutic chaos. Many surgeons try to avoid all surgery, and most would certainly wish to try conservative treatment for at least six months. The residue of patients with apparently intolerable discomfort may be offered chondroplasty (shaving or excision of the abnormal cartilage, realignment of the patella by proximal lateral release, or transplantation of the tibial tubercle).1 These operations are by no means universally effective but are generally regarded as harmless. Where they seem to fail (and the criteria of failure are rather subjective), patellectomy or a patella resurfacing procedure may be considered.11 Some authorities favour patellectomy12; others do not.13 Certainly the young patient with an otherwise healthy knee has a better prospect of good recovery from patellectomy or resurfacing14 than an adult with an osteoarthritic knee, but even at the best the postoperative sequelae will last six months and may extend to 18 months.15

Resurfacing of the patella is a new procedure with some design problems.16 The results are only moderately good but, not surprisingly, better in patients with chondromalacia than with osteoarthritis.16 17 The experienced surgeon, however, might speculate at the depressed state of the patient’s psyche and the reduced efficiency of the quadriiceps at the end of a series of operations beginning with chondroplasty, through patella realignment, to resurfacing and finally patellectomy. The knee tolerates repeated surgical insults badly, and there may be something to be said for moving straight from conservative treatment to excision of the patella, but only after careful, critical, and prolonged observation of the patient.