DÉBRIDEMENT, ABRASION AND MICROFRACTURE FOR
OSTEOARTHRITIS OF THE KNEE

These interventions might be expected to decrease the mechanical stress on cartilage, thus
lessening cartilage loss, and to prevent the release of yet more fragments, thereby interrupting a
vicious circle of joint damage and synovitis.

LAVAGE

It removes debris such as free microscopic
or macroscopic fragments of cartilage,
calcium phosphate crystals, and others
chemical products that may induce
synovitis, a likely source of pain.

Lavage is common to all other techniques.

Débridement

It consists in smoothing rough, fibrillated articular
and removal of torn menisci, shaving tibia-spine
osteophytes and loose body removal that
interfere with the motion of the joint, and minor
synovectomy removing inflamed synovium.

The procedure became increasingly popular in
the 1980s and 1990s with improved arthroscopic
instrumentation and surgical technique as well as
the minimal morbidity and swift recovery after the
procedure.

ARTHROSCOPIC ABRASION ARTHROPLASTY

Popularised by Larry L. JOHNSON in the 1980s, it is a superficial abrasion performed to
stimulate repair in the area of sclerotic lesions. Open surgical drilling procedures (PRIDIE) have
been advocated to reach the blood supply and the pluripotent cells to stimulate fibrocartilage growth.
Rather than drill holes, multiple superficial dimples are created with a motorized burr. This abrasion
of sclerotic bone leads to bleeding and formation of a blood clot that attaches to and fills the defect of
abraded areas and will transform in fibrocartilage by 4 to 6 months.
Patient have to walk with non weight bearing crutches during two months and malalignment is a contraindication (limiting patient selection).

THE MICROFRACTURE

Described by Rodrigo in 1994 includes removal of the calcified cartilage layer or exposed subchondral bone and the perforation of the subchondral plate with specially designed arthroscopic awls to restore a hyaline-like cartilage surface. The same as in the abrasion arthroplasty, this technique provides access to biologic modulators of healing and to mesenchymal stem cells that have the ability to differentiate into cartilage-like cells and produce a durable repair cartilage. This cellular differentiation ultimately leads to the development and proliferation of a durable repair cartilage that fills the original defect.

It requires limited weight bearing in conjunction with continuous passive motion. Full passive ROM of the injured knee is gained as soon as possible after surgery, as well as crutch-assisted touchdown weight bearing for 6–8 weeks.

The technique is better suited to isolated full-thickness articular cartilage lesions than for generalized arthritis in the knee.

The recovery is long because of the physiologic remodeling of the regenerate.

The arthroscopically debrided and microfracture procedure are recommended as the initial treatment for traumatic full-thickness chondral defects of the knee rather than for arthritis.

OUR OPINION

Arthroscopic debridement techniques of the arthritic knee remain a source of controversy in the surgical management of osteoarthritic knees. In the literature, clinical success in the arthritic knee has varied between 50% and 65%. The best short-term results are observed with good fill grade, low body-mass index, and a short duration of preoperative symptoms.

Despite their current popularity, lavage and débridement are probably not efficacious as treatments for most persons with osteoarthritis of the knee. For the subgroup of knees with loose bodies or flaps of meniscus or cartilage that are causing mechanical symptoms, especially locking, catching, or giving way of the joint, there is a consensus that arthroscopic removal of these unstable tissues improves joint function and alleviates symptoms. It may prolong the time to surgery.

A conservative arthroscopic debridement technique appears to have a more limited role today than in the past. Hyaluronic acid injectable agents (viscosupplementation) have become increasingly popular and may be other solution to debridements.