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Editorial

Does anyone still need meniscectomy?

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"If it is torn, take it out, take it all out. Even if you just think it's torn, take it out". This sentence written in 1967 by Smillie [1] implies that the meniscus is useless. Since then, advances in diagnostic methods, management techniques, and outcome assessment have improved our understanding of meniscal function and pathophysiology. We know now that the meniscus should be preserved whenever possible.

Meniscus-preserving techniques (meniscal repair or masterly neglect) were first devised in the 1980s then started developing at a very brisk pace at the turn of the century. The meniscus-preserving concept rests on knowledge gained in four areas:

- the risk of progression to osteoarthritis after meniscectomy was first reported by Fairbanks [2] as early as 1948 then confirmed by many studies. In studies by the French Arthroscopy Society (SFA), the 13-year prevalence of secondary osteoarthritis in patients with stable knees was 28% after medial meniscectomy and 40% after lateral meniscectomy [3,4]. A concomitant tear in the anterior cruciate ligament (ACL) was associated with even worse outcomes, with osteoarthritis in all patients 20 years after total meniscectomy [5] and in about 40% of patients after ACL reconstruction combined with medial meniscectomy [6];
- the presence of peripheral blood vessels allows meniscal tears to heal [7]. The horns also receive a blood supply and can, therefore, be repaired;
- diagnostic tools have improved, most notably with the introduction of magnetic resonance imaging (MRI);
- therapeutic arthroscopy including meniscal repair techniques is now available. More specifically, the mechanical properties of hybrid systems (bar plus sutures) allow meniscal repair under good technical conditions [8].

The previous paradigm involving meniscectomy in most patients and meniscus preservation in selected cases clearly needs to be reversed: every effort should be made to preserve the meniscus (by meniscal repair or abstention), and meniscectomy should be reserved as a treatment of last resort.

Many different types of meniscal lesions exist. The best treatment depends on the nature of the lesion (Fig. 1). Congenital meniscal lesions are not considered here. True trauma-related meniscal lesions may occur with or without concomitant ligament damage. Meniscal lesions may also be related to degenerative disease.

Most meniscal lesions caused by trauma are longitudinal vertical tears. The local vascularity depends on the distance between the tear and the rim. The bucket handle tear is the most extensive form. Any symptomatic lesion in the red-on-red zone (vascular) or red-on-white zone (junction between vascular and avascular) deserves to be repaired (Fig. 2). A torn ACL must be reconstructed. In this optimal indication, the rate of failure defined as repeat arthroscopy for meniscectomy or repeat suturing is about 9% in our experience [9].

Compared to meniscectomy, meniscal repair is associated with a longer postoperative recovery period. However, the medium- and

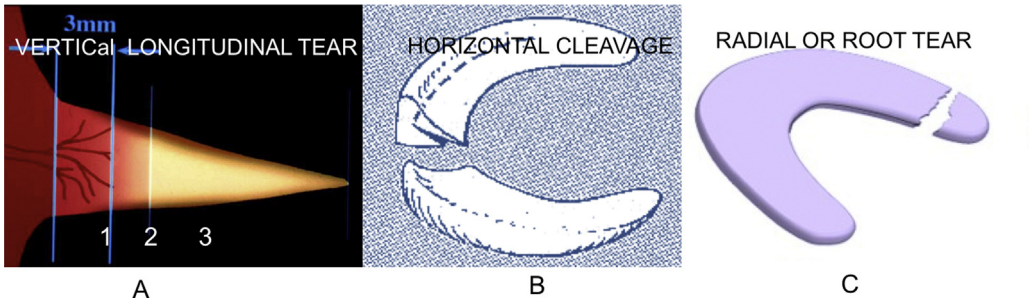

Fig. 1. diagram of surgical indications. (A) Vertical longitudinal tear in the red-on-red zone (1) or red-on-white zone (2): repair; tear in the white-on-white zone (3): abstention or meniscectomy. (B) Horizontal cleavage: usually abstention/meniscectomy if failure; repair in younger individuals. (C) Radial tear or root tear: repair if trauma-related.

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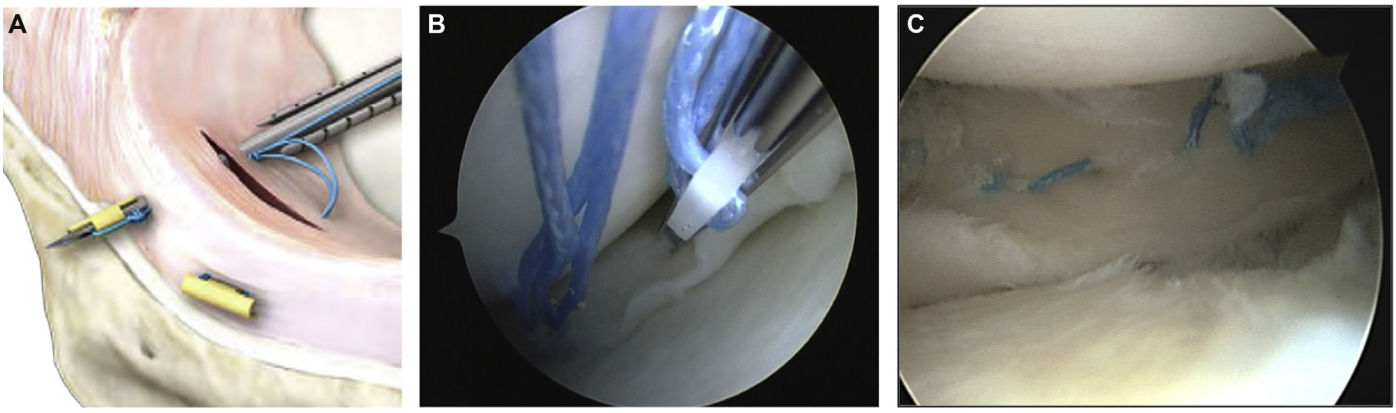

Fig. 2. vertical longitudinal tear in the medial meniscus. (A) Diagram of the hybrid fixation system (FasTFix, Smith & Nephew). (B) Intra-operative arthroscopic appearance. (C) Final appearance.

long-term outcomes are good [10–12] and better than those produced by meniscectomy. Finally, meniscal repair is associated with better cartilage preservation compared to meniscectomy [12,13].

Several factors have no prognostic value, such as the site of the tear in the medial or lateral meniscus, the size of the tear, and whether the ACL is torn. Age is not a prognostic factor per se, and meniscal repair may be appropriate even after 50 years of age in well-selected patients. In contrast, a longer time from injury to surgery and severe meniscal damage (e.g., crushing or complex tears) are associated with treatment failure.

Meniscus repair is performed arthroscopically on an outpatient basis. Morbidity is low. Consequently, the risk of failure is warranted if accepted by the fully informed patient. Thus, the indications of meniscal repair should be expanded in children and/or patients with lesions of the lateral meniscus and/or ACL. In all these situations, meniscectomy is known to rapidly induce irreversible secondary osteoarthritis that is difficult to manage in young patients.

Apart from vertical longitudinal tears, other types of tears can be repaired. Examples include meniscal root tears [14] (Fig. 3), some radial tears, and horizontal overuse cleavage in young athletes [15].

Abstention can and should be considered among valid options for trauma-related meniscal lesions, particularly when an asymptomatic meniscal tear is discovered incidentally during ACL reconstruction surgery. Stable lesions of the medial meniscus should be repaired to avoid secondary meniscectomy. In contrast, stable lesions in the lateral meniscus can be left in place [16].

Meniscectomy still has a place in the treatment of trauma-related meniscal tears. However, this place is confined to cases where meniscal preservation is not feasible. Importantly, a survey conducted in the US found that 65% of meniscal tears discovered during ACL reconstruction surgery were treated by meniscectomy. This proportion is far too high and indicates that recommendations, even those issued by official organizations, are not always followed in clinical practice [17]. Meniscectomy may deserve consideration for the treatment of several trauma-related meniscal lesions:

- meniscal tears in avascular zones in patients with good knee stability, particularly older patients;
- ACL tear without functional instability in a middle-aged patient: in this situation, ACL reconstruction is not performed;
- meniscal damage precluding suturing or meniscal tear in an avascular zone (partial meniscectomy): in this situation, ACL reconstruction is performed also.

Degenerative meniscal lesions have been well-documented since the initial report by Smillie [1]. They generate grade 2 or 3 high signal by MRI (Fig. 4). Degenerative meniscal disease is the leading reason for the 116 000 meniscectomies performed annually in France. Whether this practice is still warranted deserves discussion. Degenerative meniscal disease is a normal age-related condition whose prevalence increases with age among individuals without

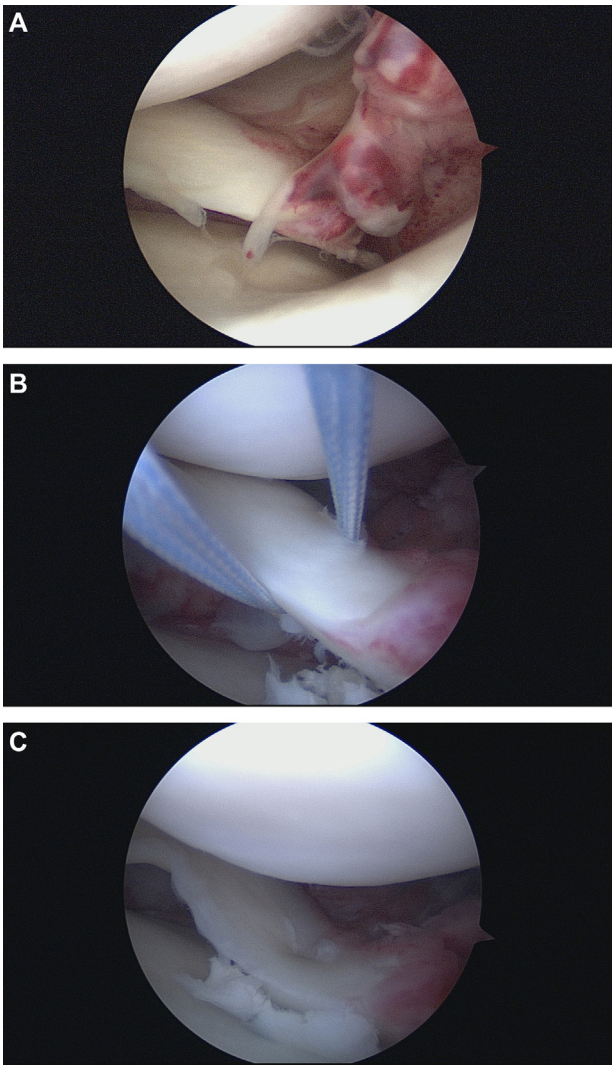

Fig. 3. (A) Acute tear in the posterior root of the medial meniscus. (B) Passage of sutures through the root for transosseous tibial fixation. (C) Final appearance: the meniscus is held in contact with its insertion site.