Is lateral retinacular release still a valid surgical option? From release to lengthening

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In 1974 Merchant and Mercer (1), for the first time in medical literature, refer to the surgical technique they called "lateral release of the patella". This technique consisted of an "isolated release of the lateral patellar retinaculum and capsule". One year later, in 1975, Ficat *et al.* published in French literature the section of what he called the "lateral patellar ligament", which was really none other than the lateral retinaculum (LR) (2). The objective of this surgical technique was to treat a radioclinical entity described in 1972 by him called "syndrome of external hyperpressure of the patella" (3). However, in the conclusion of the paper by Ficat *et al.* in 1972 he briefly mentions the "section de l'aileron externe" (3). Since then and up to a few years ago this technique, currently called lateral retinacular release (LRR), has become popular worldwide among orthopedic surgeons (4). The reasons were pretty obvious, it was a very easy technique, accessible to the average orthopedic surgeon, and also because it was considered as a "minor surgery". The last, from our point of view, is a great mistake. We frequently hear these words when talking about the LRR: "*I am going to perform a very minor surgery that can do you no harm, and still leaves the door open for more aggressive realignment procedures*". There is nothing further from the truth. This way of thinking is a big mistake that has led to many problems; there are no "minor surgeries" only "minor surgeons".

With the abuse and poor use of the LRR came bad results and complications (5). The most important of these was iatrogenic medial patellar instability (IMPI), described for the first time by Hughston and Deese in 1988 (6). The increase of complications and bad results led to a drastic decrease in the number of LLR's performed. Currently, even among experienced knee surgeons with a special interest in the patellofemoral joint, isolated LRR is rarely performed (4). However we emphasize that the problem has nothing to do with the technique in itself, but with the poor surgical technique and an incorrect indication. To diminish complications we must avoid the over-release of the retinaculum, which means not cutting the vastus lateralis tendon (7). The surgical indication should be correct as well. If the LR is not tight it should not be released (7). Moreover, an isolated LRR should never be performed in the presence of trochlear dysplasia, patella alta, or hyperelasticity (7). However, we cannot go from performing a LRR on all patients with anterior knee pain (AKP) to demonizing it from usage. This would not be fair. In our experience, an isolated LRR that has been performed properly for the correct indications has never caused an IMPI with severe quadriceps atrophy and disabling pain.

In 2012 Pagenstert *et al.* (8) recommended the lengthening of the lateral retinaculum to avoid the complications of a LRR such as a medial patellar instability that was found in 57% of their control group, in which a LRR had been performed. The lengthening technique is becoming more popular nowadays. However this procedure was already described by Ceder and Larson in 1979, therefore it is not a new technique at all (9). It is well known that the failure of the LRR is due to a poor surgical technique or an incorrect indication (5,7). In fact, if the paper by Pagenstert *et al.* (8) is analyzed in detail, we can observe that the authors are unconsciously causing an IMPI in their control group, due to the over-

release of the retinaculum by using the 90° tilt-up endpoint (rotational elevation of the lateral patella up to 90° in relation to the epicondylar axis) published by Henry *et al.* in 1986 (10). In 1995 Marumoto (11) stated: "*A lateral patellar retinacular release that transects the tendon of the vastus lateralis muscle may result in significant complications*". He also stated: "*Complications of lateral releases include medial patellar subluxation, vastus lateralis muscle atrophy and persistent quadriceps muscle weakness. These are likely due to excessive superior extension through the tendon of the vastus lateralis muscle that eliminates its function as a dynamic lateral stabilizer of the patella, and a major extensor of the knee. Maximizing the inferior extent of a lateral release while preserving the tendon of the vastus lateralis muscle may allow an adequate release of the patella while maintaining the physiologic function of the vastus lateralis muscle*". Usually the surgical technique is not the villain, it is the orthopedic surgeon himself who does not indicate a technique correctly or who does not perform it correctly from a technical standpoint. From our point of view, and although we are aware of how important the LR is (5,12), what is relevant is not release versus lengthening, but to determine if a surgical procedure is necessary in order to eliminate lateral patellar hyperpressure or not.

What is pretty clear, unfortunately, is that IMPI is becoming a reality these days (5,13). Among all the techniques performed by the first author to treat IMPI, the one that faithfully reproduces the anatomy of the deep layer of the LR is the technique described by Andrish *et al.* from the Cleveland Clinic in 2005 (14,15). We published our results with this technique in *Arthroscopy* in 2015 (13). One particular fact from our article that deserves special attention is the high percentage of cases in which the LR reconstruction was associated with a partial synovectomy of the Hoffa's fat pad, adjacent to the inferior pole of the patella (13). Therefore, we cannot be sure if the cases with a good result were because of the reconstruction, or because of the synovectomy performed, or maybe both. We could hypothesize that the initial cause for pain in our patients could be in Hoffa's fat pad, and that a poorly performed or indicated LRR was, colloquially speaking, the last straw.

The patient with AKP is an ideal candidate to perform surgical techniques with little or no scientific basis, simply because AKP is one of the musculoskeletal pathologic entities with the least known etiopathogeny. Another big problem is that evidence-based medicine does not help much with this clinical entity because there are no studies with a high level of scientific evidence, such as clinical trials about it. The relevant question is not if we should perform a release of the LR or a lengthening. The question is if the patient will benefit or not from a hypothetical reduction of the pressure in the lateral patellofemoral compartment. If this is not clear then we should not operate on him. The sentence by Hippocrates, father of modern medicine, "Primum non nocere" reflects perfectly well what we just mentioned; it should be a priority for the orthopedic surgeon not to cause more damage than already exists. The primary indication for isolated LRR is limited to the rare patient with a symptomatic tight LR and the absence of patellar instability that has failed to improve with non-operative treatment. LRR is not indicated until all proper physical therapeutic measures have been exhausted. Such measures can successfully treat about 90% of all patients complaining of AKP (16). If we follow these premises we are giving the LRR the highest chances of success.

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Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

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