



Fifty shades of knee instability: a commentary on “Repair of intraoperative injury to the medial collateral ligament during primary total knee arthroplasty”

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Instability following total knee arthroplasty (TKA) can be the source of residual pain, swelling, and is a leading cause for early revision following knee replacement surgery (1). While the true definition and causes for instability are not well defined, intraoperative injury to the medial collateral ligament (MCL) without proper management can result in dysfunction and dissatisfaction following TKA.

Injury to the MCL during primary TKA is not uncommon with reported incidences ranging from 1.2% to 2.7% (2). The ligament can either be avulsed from the femoral or tibial insertions or injured by a stray saw in its mid-substance. While there is agreement that recognition and treatment to minimize instability are critical for successful outcome, there is no consensus or guidelines to the best practice to managing these injuries should they occur.

Options for treatment include: (I) repair; (II) constrain; and/or (III) increase the polyethylene thickness to tighten the flexion gap. All these techniques have been reported successful in the literature (2). However, the degree of intervention maybe dependent on the location and severity of the ligament injury and prosthesis design. While primary repair of the MCL during cruciate retaining (CR) TKA has been shown to yield satisfactory results (3), there is controversy with regards to the management of the injured collateral during a posterior cruciate substituting (PS) TKA. Institutionally, we reported on a series of 37 intraoperative MCL injuries (1,650 knees) undergoing PS TKA and

found that attempts at ligament repair resulted in high failure rates (2). Based on these findings, we concluded that MCL injuries in the setting of a PS knee design should be managed by increasing prosthesis constraint. However, others have not found constraint to be absolutely necessary to insure a good clinical outcome. Koo and Choi reported successful treatment of MCL avulsions by simply increasing the thickness of the polyethylene insert without high revision rates (4). Finally, Bohl *et al.* also reported successful treatment of MCL disruptions in PS knees treated with primary repair without increasing prosthetic constraint (5). With so many options, so what is one to do?

The reliability of increasing prosthetic constraint should be balanced against the possibility of increased wear and loosening. However, whether the ligament is injured or not during TKA, the achievement of a balanced flexion and extension gap remains a principal goal. How this is accomplished depends on surgical technique, experience and most importantly, governed by the concept that no compromises should be made with regards knee stability with hopes of subsequent ligament healing or tightening. This concept is illustrated by Siqueira *et al.* who evaluated a series of MCL disruptions during TKA treated with various methods and found that clinical outcomes did not differ so long as intraoperative stability could be achieved (6).

In summary, intraoperative MCL injury during TKA is not uncommon and failure to recognize and appropriately manage it can result in postoperative

instability. The degree of laxity following ligament injury can be variable and successful outcomes can be achieved with primary repair, increasing polyethylene thickness, and/or increasing prosthetic constraint so long as balanced flexion and extension gaps can be achieved without compromises.

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