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A Novel Suture Technique for Repairing the Short External Rotators in Primary Total Hip Arthroplasty

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Abstract

Given the wide variety of techniques for repair of the capsule and short external rotators in Total Hip Arthroplasty (THA), the technique proposed serves to standardize repairs of the short external rotators. The suture technique described here is that of anatomic repair. Restoration of the anatomy enhances the stability following a posterior approach in THA, resulting in fewer dislocations following surgery.

Introduction

It has been documented that the repair of soft tissue structures leads to improved stability of the hip after total hip arthroplasty when the posterior approach is utilized [1-3]. There are multiple techniques for repair of the capsule and short external rotators. As such, there is no standard for the repair of these structures. We propose our technique to standardize repairs of the short external rotators.

Methods

Our technique utilizes principles that are common practice in hand surgery for tendon repair. The concept is that of anatomic repair. Allow the cut edge of the tendon that was removed from the tip of the greater trochanter to heal back to bone. Once the Piriformis and conjoined tendons are detached from the greater trochanter, the suture is placed to maintain identification and position of the tendon (Figure 1). The needle is inserted into the cut edge of the Piriformis tendon and passed diagonally into and through the conjoined tendon from superolateral to inferomedial (Figure 2A). The needle exits the side of the tendon and re-enters 90° to the posterolateral. It then crosses to the superomedial portion of the Piriformis tendon and exits through the cut edge. Looking at the cut edge of the tendons, the suture would make an 'X' shape (Figure 2A). This is then repeated entering and exiting the cut edge of the conjoined tendon (Figure 2B). The finished product is shown (Figure 2C). During closure, after the capsule has been repaired (Figure 3), the short external rotators are addressed. The sutures that were placed in the Piriformis and conjoined tendons are passed through the greater trochanter via two drill holes. The suture tails in each tendon receive one drill hole per tendon, two tails per drill hole. These are then cinched down and tied in standard fashion (Figure 4).

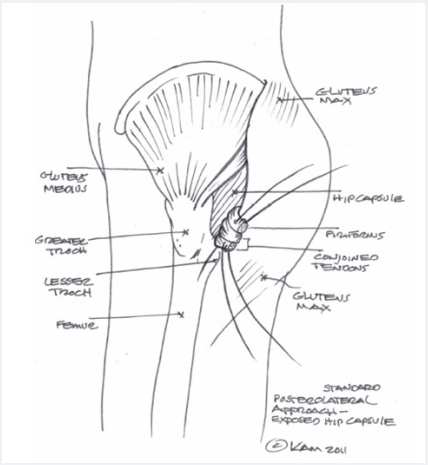

Figure 1: Exposed hip capsule showing suture intended for maintaining identification and position of the tendon.

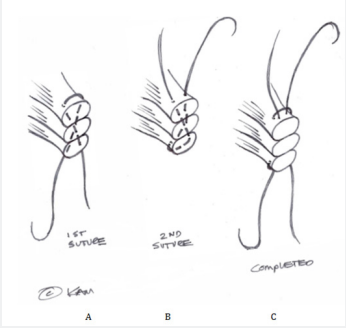

Figure 2A: 1st suture placed in the piriformis and obturator tendons

Figure 2B: 2nd suture placed in the piriformis and obturator tendons

Figure 2C: Finished product of the two completed sutures

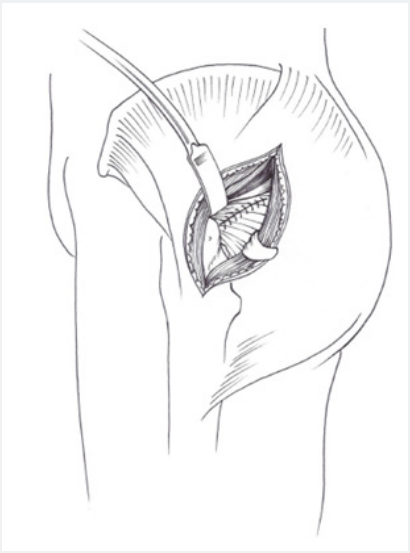

Figure 3: Repaired hip capsule.

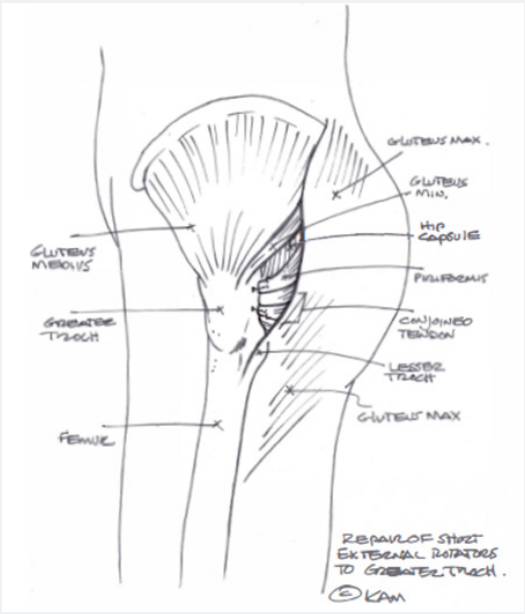

Figure 4: Short external rotators are repaired to the greater trochanter.

Discussion

Repair of the capsule and short external rotators is known enhancement to stability after the posterior approach in total hip arthroplasty. Dislocation rates are approximately 4% without repair of soft tissues and approximately 2% with repair in the literature [4]. A review of the senior surgeon's (JB) data and outcomes demonstrate that since the start of anatomic repair of capsule, approximately 3,357 total hip arthroplasties have been performed with 6 dislocations, 0.17% [5]. This is felt to be due to restoration of the anatomy.

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