Technical Note With Video Illustration

Percutaneous Arthroscopic Release of the Suprascapular Nerve

F. Alan Barber, M.D.

Abstract: Suprascapular nerve release is often performed for entrapment syndromes and to release pressure on the nerve associated with arthroscopic rotator cuff repair. Previous descriptions use basket forceps or scissors through a separate portal. This report describes an arthroscopic technique inserting a 14-gauge needle percutaneously in the superior suprascapular area while viewing through a standard posterior portal. A shaver through the lateral portal clears the acromion and distal clavicle of soft tissue and exposes the coracoclavicular ligaments. The medial border of the coracoclavicular ligaments (conoid ligament) is identified and then followed inferiorly to its coracoid attachment. The shaver removes the adipose tissue for better visualization and depresses and retracts the supraspinatus muscle. The transverse scapular ligament is located with the suprascapular artery coursing across its superior surface. A 14-gauge beveled needle is inserted in the "soft spot" medial to the junction of the scapular spine and clavicle. This insertion site is located approximately 7 cm medial to the lateral border of the acromion. The transverse scapular ligament is horizontal at this location and can be divided with the needle tip via an anterior-posterior sweeping motion, avoiding the suprascapular artery and decompressing the suprascapular nerve. **Key Words:** Arthroscopy—Suprascapular nerve—Transverse scapular ligament—Suprascapular notch—Rotator cuff—Shoulder.

Suprascapular nerve (SSN) compression at the transverse scapular notch can cause weakness of both the supraspinatus and infraspinatus muscles. Though uncommon, this SSN compression can result from transverse scapular ligament abnormalities,[1,2] ganglion cysts,[3-5] bony abnormalities,[4] trauma or throwing injuries,[5] and rotator cuff tears and their repair.[6,7] Surgical release of the SSN is indicated in patients with electrodiagnostically proven nerve compression, in patients whose chronic pain and weakness are unrelieved by an appropriate trial of nonoperative treatment, and in some cases associated with arthroscopic repairs of large rotator cuff tears for which significant lateral movement of the tendon is required.[7] Open surgical release, though acceptable, requires an extensive dissection. Arthroscopic decompression of the SSN dividing the transverse scapular ligament has been described by use of separate portals.[8-10] The purpose of this report is to describe a technique for the decompression of the SSN in which this release is performed percutaneously under arthroscopic visualization by use of a 14-gauge needle inserted in the area of the superior suprascapular portal.

From Plano Orthopedic and Sports Medicine Center, Plano, Texas, U.S.A.

The author reports no conflict of interest.

Address correspondence and reprint requests to F. Alan Barber, M.D., Plano Orthopedic and Sports Medicine Center, 5228 W Plano Pkwy, Plano, Texas 75093, U.S.A.

Cite this article as: Barber FA. Percutaneous arthroscopic release of the suprascapular nerve. Arthroscopy 2008;24:236.e1-236.e4 [doi:10.1016/j.arthro.2007.05.004].

0749-8063/08/2402-7169$34.00/0

doi:10.1016/j.arthro.2007.05.004

Note: To access the supplementary videos accompanying this report, visit the February issue of *Arthroscopy* at www.arthroscopyjournal.org

SURGICAL TECHNIQUE

The patient may be positioned in either the lateral decubitus or beach-chair position with the appropriate anesthesia administered. A standard posterior portal is established for viewing and the arthroscope inserted.

A standard lateral portal is created for instrumentation, and the bursal tissue is removed.

By use of the posterior viewing portal and a lateral portal for the motorized shaver, the undersurface of the acromion is cleared of bursal tissue and then the acromioclavicular joint is identified. Tissue is further removed to sufficiently visualize the undersurface of the distal clavicle and then more laterally until the coracoclavicular ligaments are identified (Fig 1). The posterior surface of the coracoclavicular ligaments is cleaned and identified, and the supraspinatus muscle is "retracted" by use of the shaver in the lateral portal to depress it away from the coracoclavicular ligaments (Video 1, online only, available at www.arthroscopyjournal.org). The medial border of the coracoclavicular ligaments (conoid ligament) is identified and then followed inferiorly to its attachment to the coracoid. The junction of the coracoid and coracoclavicular ligament is the location of the lateral insertion of the transverse scapular ligament (Video 2, online only, available at www.arthroscopyjournal.org). The transverse scapular ligament fibers are confluent with the conoid ligament and take off at about a 90° angle to the coracoid above the scapular notch. The suprascapular artery is located on top of the transverse scapular ligament in most cases (Fig 2), and the open face of the shaver should be oriented superiorly and used with caution to avoid damaging this artery.

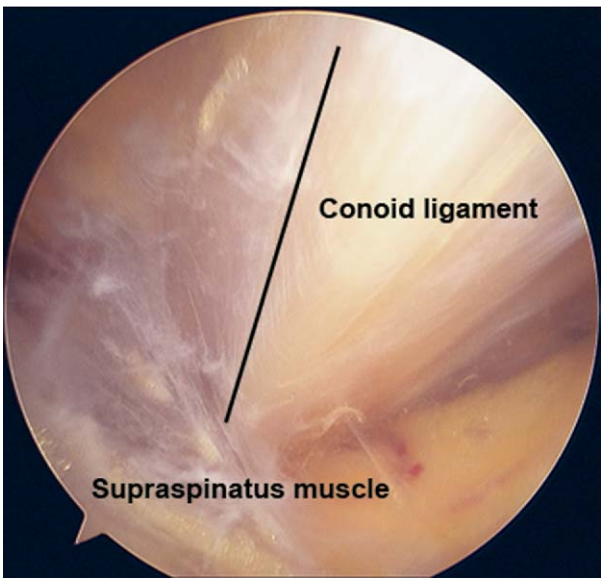

Figure 1. The conoid ligament and supraspinatus are visualized, viewing from the posterior portal.

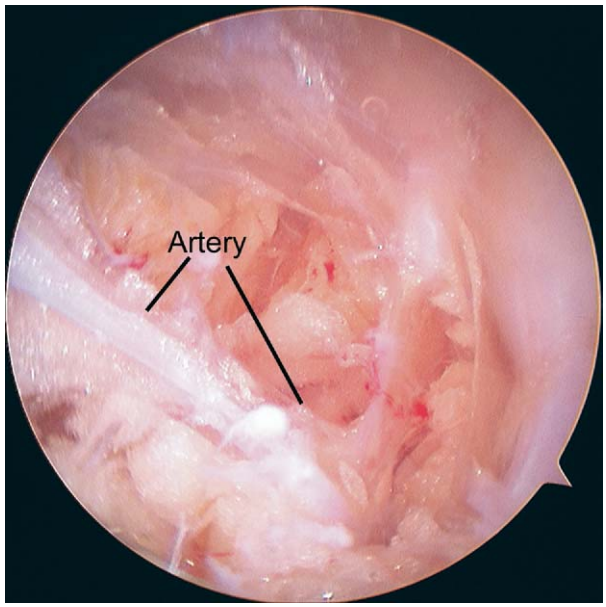

Figure 2. In this case, as is most common, the suprascapular artery is located on top of the transverse scapular ligament, and care should be taken to avoid injury to it.

Once the transverse scapular ligament is located with the suprascapular artery coursing across its superior surface, a 14-gauge beveled needle measuring at least 10 cm in length is inserted in the SSN portal,[9] between the clavicle and the scapular spine, approximately 7 cm medial to the lateral border of the acromion. This portal is approximately 2 cm medial to the standard Neviaser portal[11] and is also the location for the placement of an SSN block.[12] With proper orientation, the Jelco needle tip (Smiths Medical International Limited, Kent, England) should enter the area immediately anterior to the anterior border of the supraspinatus muscle (Fig 3). The transverse scapular ligament is horizontal at this location (Fig 4), and the surgeon can divide it with the tip of the needle by carefully using an anterior-to-posterior sweeping motion, avoiding the suprascapular artery and decompressing the SSN (Video 3, online only, available at www.arthroscopyjournal.org).

The SSN is located in fatty tissue inferior to the ligament and can be identified after division of the transverse scapular ligament. The ligament is not very thick and is reported to be on average less than 5 mm thick.[8] To avoid over-penetration by the tip of the needle into the area of the nerve, the surgeon's fingers should grip the needle at the level of the skin so that the insertion depth can be maintained during the back-and-forth motion of the needle. Meticulous hemostasis