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Evaluation of Risk to the Suprascapular Nerve During Arthroscopic SLAP Repair: Is a Posterior Portal Safer?

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Summary:
Glenoid perforation of suture anchors placed posterior to the biceps anchor may risk injuring the suprascapular nerve. Use of the portal of Wilmington results in a much lower incidence of glenoid perforation during placement of posterior and far posterior suture anchors making this a safe and reliable method for posterior anchor placement during SLAP repair.

Abstract:
INTRODUCTION
Glenoid perforation of suture anchors placed posterior to the biceps anchor may risk injuring the suprascapular nerve. Our hypothesis was that the portal of Wilmington provides a safer method for placement of posterior anchors during superior labral repair.

METHODS
Ten matched pairs of human cadaveric shoulders were randomized to suture anchor placement through either a rotator interval portal on one shoulder and a portal of Wilmington on the contralateral shoulder. Standard 3x14mm anchors were placed into anterior, posterior, and far posterior positions on the glenoid rim, (corresponding to the one o'clock, eleven o'clock, and ten o'clock positions for right shoulders; eleven o'clock, one o'clock, two o'clock for left shoulders). The suprascapular nerve was then dissected and distance from the suture anchor tip to the nerve was measured if perforation occurred. Drill hole depth and distance from the glenoid rim to the suprascapular nerve were recorded at each anchor entry site. Biomechanical testing of anchor pullout strength was conducted using an MTS machine.

RESULTS
Two of ten far posterior anchors, and none of the posterior anchors placed through the portal of Wilmington perforated. All of the far posterior anchors, and six of ten posterior anchors placed through the rotator interval portal perforated. These differences were significant ($p= 0.005$, $p = 0.01$, respectively). For the far posterior anchor, distance from anchor tip to suprascapular nerve averaged 2.44mm (range, 0 to 5.64mm) using the rotator interval portal and 4.39mm (range 4 to 4.78mm) from the portal of Wilmington, a difference of 1.95mm ($p = 0.18$).

DISCUSSION AND CONCLUSIONS
The higher likelihood of posterior glenoid perforation with the rotator interval portal and the closer proximity of the suture anchor tip to the suprascapular nerve increase the risk of injury. Use of the portal of Wilmington results in a much lower incidence of glenoid perforation during placement of posterior and far posterior suture anchors making this a safe and reliable method for posterior anchor placement during SLAP repair.