

Defining The Number of Anchor Fixation Points for Labrum Refixation: A Multi-Center Prospective Cohort Analysis of Suture Anchor Fixation in Arthroscopic Hip Preserving Surgery

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Introduction

Labrum repair (refixation) is reported as superior to debridement during open or arthroscopic hip surgery.^{1,2} There is no current evidence to guide surgeons performing repair during selection of the number of appropriate anchor fixation points per distance of labrum disruption.

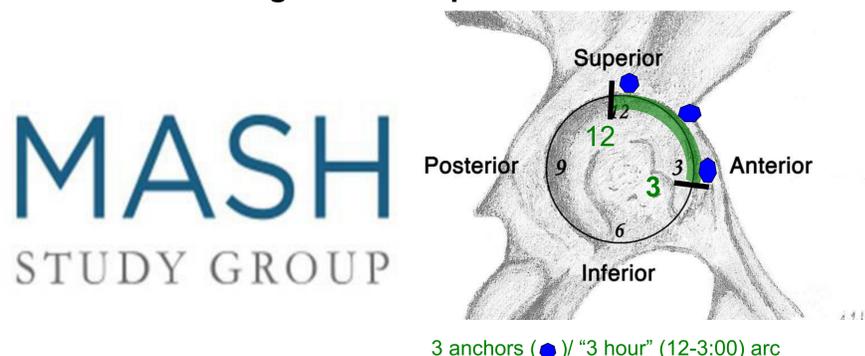
Our hypothesis is that a multicenter research group will demonstrate that a range of acceptable anchor point density per acetabular arc as defined by surgeon-observed clockface nomenclature³ exists in real-world setting of high volume hip arthroscopy practice.

Methods

A multi-center hip arthroscopy study group comprised of Board Certified surgeon members in the United States with greater than 300 cases completed prior to enrollment and with annual case volumes greater than 100 cases per year was created for the purpose of practicing clinical evidence-based medicine. Institutional Review Board approval for pre-hoc collection and storage of agreed upon de-identified clinical data points was granted at each center.

The de-identified data set was retrospectively reviewed and analyzed. All male and female patients who had hip preservation surgery to repair the acetabular labrum were included. A descriptive analysis was performed to describe the location (clock-face description), and number of anchors used to arthroscopically repair the acetabular labrum (Figure 1). Univariate analyses of variances with Tukey's post hoc testing was then performed to determine individual differences among the 7 surgeons as to the size, location (clock-face description), and number of anchors used for labral repair.

Figure 1: Sample Anchor/Arc Calculation



Results

There were 1978 patients from 7 individual surgeons that received arthroscopic repair of the acetabular labrum between January 2015 and January 2017. Anchors used ranged in size and suture pattern across centers but were consistent within each center.

- **The most common location for labral repair occurred between the 12 o'clock to 3 o'clock position, accounting for 28.2% of all labral repairs. Surgeons collectively averaged 2.69 anchors to repair the labrum in this region.**
- 7.8% of patients had posterior labral repairs in which the majority of the tear was located between the 8 o'clock to 12 o'clock position.
- For tears spanning "1 hour" surgeons averaged between 1 to 2.33 anchors per repair, $F(5, 36)=5.72$, $p=0.001$.
- For tears spanning "2 hours" surgeons averaged between 1.69 to 2.39 anchors per repair, $F(7, 423)=4.84$, $p<0.001$.
- 41.5% of patients had tears that spanned 3 hours clock face description and surgeons averaged between 2.11 to 3.21 anchors per repair, $F(7, 767)=36.86$, $p<0.001$.
- For tears spanning "4 hours" surgeons averaged between 2.22 to 4.08 anchors per repair, $F(7, 299)=35.93$, $p<0.001$.

Conclusions

Variation exists in the number of anchor implants per arc of acetabulum in a large multicenter cohort of labrum repair patients. This may have to do with variations in the manner of managing the labrum during acetabular preparation, the size and type of anchor available for use, or variations in recognition of pathology which will require further study.

When labrum repair involved clock-face-arc greater than 2 hours at least 2 anchor points were selected.

References

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