Predictors Of Traction Time During Hip Arthroscopy

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ONE OR MORE OF THE AUTHORS OF THE NEXT PRESENTATION HAVE IDENTIFIED THE FOLLOWING POTENTIAL CONFLICTS OF INTEREST:

- Smith & Nephew\textsuperscript{a,b,c}, Arthrosurface\textsuperscript{b}, HIPCO\textsuperscript{b}, MIS\textsuperscript{b}, Bledsoe\textsuperscript{b}, DonJoy\textsuperscript{b}, Ossur\textsuperscript{c}, Arthrex\textsuperscript{c}, Siemens\textsuperscript{c}, Linvatec\textsuperscript{b}, Ceterix Inc\textsuperscript{d}

\textsuperscript{a} Consulting/Royalty payments directly related to products discussed
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INTRODUCTION

• The intra-articular hip joint has been described of two compartments a central and a peripheral compartment
• In order to address central compartment pathologies, distraction of the femoral head from the acetabulum is necessary
• Byrd et al described the use of traction in the supine position on a traction table for hip arthroscopy
• This requires both feet placed in boots to apply axial traction and a perineal post.
INTRODUCTION

• Byrd et al
  – Requires both feet placed in boots to apply axial traction and a perineal post
INTRODUCTION

• Complications have been described in the literature regarding the use of traction during hip arthroscopy
• Post related complications include perineal nerve palsies, genital compression and injuries
• Other traction related injuries include superficial peroneal nerve traction injuries, sciatic nerve injuries, skin related injuries and ankle fractures
• Harris et al reported that the amount of traction is related to nerve injuries
• Most authors agree that minimizing total time of traction is important
The purpose of this study was to describe factors that contribute to traction time during hip arthroscopy.

The authors hypothesize that there are patient demographic and surgical factors that contribute to the total traction time.
METHODS

• This study was IRB approved.
• Prospective data registry of hip arthroscopy patients 2009-2013.
  – Patients were 18 years or older.
METHODS

• Data included
  – Patient demographics
    • Age, gender
  – Total traction time
  – Surgical treatment
    • Type of labral treatment
      – Repair (number of anchors)
      – Reconstruction (number of anchors)
    • Presence of hip laxity
    • Revision
METHODS

• Total traction time was monitored by anesthesiologist
• Traction was released and then reapplied as necessary during the procedure.
• Traction was summed for the entire procedure
• Minutes of traction time was normally distributed
METHODS

• 1092 Arthroscopies
  – Total traction: 97 minutes (15 to 281)
  – Age: 32 (12 to 71).
  – Gender:
    • 589 males
    • 503 females.

• Revision hip arthroscopy: 189 (17.3%).

• Labral Treatment: # of Hips (%)
  – Debridement: 31 (2.8)
  – Repair: 843 (77.2)
  – Reconstructions: 167 (15.3)
  – No labral treatment: 51 (4.7)

• FAI Type
  – Mixed 939
  – CAM 77
  – PINCER 7
METHODS

• Total traction time
  – Revision Surgery
    • Primary: 95 minutes
    • Revision: 106 minutes
    • p=0.001
  – Gender
    • Females: 91
    • Males: 102
    • p=0.01
  – Age
    • (rho=0.216;p=0.001)
  – Anchors
    • (rho=0.484;p=0.0001).

• Labral treatment
  – Labral debridement:
    • 72 minutes (range 25 to 135)
  – Labral repair
    • 93 minutes (range 15 to 281)
  – Labral reconstruction
    • 167 minutes (range 33 to 245)
    • ANOVA (p=0.001)

• Hip Laxity
  – Laxity 95
  – No Laxity 99
  – p=0.095
RESULTS

• Multivariate analysis
  – Independent Predictors:
    • Age, gender, labral treatment, and number of anchors used
    • \( r^2=0.264; p=0.001 \).
  – Other specific procedures are associated with longer traction times
    • Ligamentum teres reconstruction, resection of myositis ossificans, lysis of adhesions, and treatment of rim fractures.
RESULTS

• Type of labral treatment was associated with traction time (p=0.001)
  – Hips with labral debridement had an average total traction time of 72 minutes (range 25 to 135)
  – Labral repair had an average total traction time of 93 minutes (range 15 to 281)
  – Labral reconstruction had an average total traction time of 167 minutes (range 33 to 245)

• There was no difference in total traction time for hips with laxity compared to those without (95 vs 99; p=0.095)
RESULTS

• Multivariate analysis identified age at surgery, gender, type of labral treatment and number of anchors used on labrum as independent predictors of total traction time ($r^2=0.264; p=0.001$)

• Other specific procedures associate with longer total traction time included ligamentum teres reconstruction, myositis ossificans, adhesions, and rim fractures
LIMITATIONS

• Data was gathered prospectively, however, data analysis was retrospective
• Individual traction periods were not analyzed
• Minutes off traction were not analyzed
• Single surgeon in a referral population
CONCLUSION

- Patient age, gender, type of labral treatment and the number of anchors used are predictors of total traction time.
- This data provides information that will help in operative planning to reduce total traction time.
- Older males with labral reconstruction may require the most total traction time so it is critical to prepare a traction plan for hip arthroscopy in these patients.
REFERENCES


THANK You!