Arthroscopic Iliac Crest Autograft Augmentation To Treat Shoulder Instability With Bone Loss: Safety Profile And Short-Term Outcomes

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Disclosures

Matthew Oldfield
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Shoulder Instability With Bone Loss

• Patients with significant bone loss are **not** good candidates for arthroscopic Bankart repair\(^1\)
• Nearly 50% of all shoulder instability cases have >10% glenoid bone loss\(^2\)
• Significant bone loss (>25%) implicates a boney augmentation\(^1\)
• According to a systematic review of 46 studies, boney procedures have lower recurrence when compared to Bankart\(^3\)
Treatment Options

Latarjet
- Addresses bone loss
- Can use with soft tissue loss/laxity

But...
- Non-anatomic
- High SERIOUS complication rates (20-40%)
  - Including neurovascular
- Progression to GH OA → Difficult Revision
Arthroscopic Boney Augmentation

• According to a systematic review, arthroscopic surgery results in better outcomes than open procedures\(^3\)

• Arthroscopic boney augmentation allows for better visualization of the surrounding vasculature\(^4,5\)
  • Better accuracy = decreased OA
  • Can treat other pathologies
Arthroscopic Iliac Crest Boney Augmentation

- Autologous
- Anatomic reconstruction
- Can be done arthroscopically without subscapularis split
- Addresses bone loss
- Shown to have good clinical results\(^6,7\)
Purpose

To establish a safety profile for an all-arthroscopic anatomic glenoid reconstruction via autologous iliac crest bone graft to treat shoulder instability with significant bone loss.
Methods

• Retrospective review of prospectively collected data from 2014-2018
• Inclusion – Anterior recurrent dislocation with bone loss treated with iliac crest autograft
• Exclusion – Rotator cuff tear, posterior dislocations
• Primary Objective – Safety Profile
  • Any complication – nerve injury, admission to hospital, bleeding, infection, implant failure (intra-operative or post-operative)
• Secondary Objective – PROs and radiographic outcome
  • Collected WOSI preoperatively and post-operatively at 6 weeks, 3 months, 6 months, 1 years, 2 years, 3 years
  • All patients had a minimum one year follow-up
• Imaging – X-rays, MRI-A
  • Taken pre-operatively and at one year
### Demographics

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<thead>
<tr>
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<th>Iliac Crest Patients</th>
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<tbody>
<tr>
<td>N</td>
<td>13</td>
</tr>
<tr>
<td>% Male (N)</td>
<td>46% (6)</td>
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<tr>
<td>Age at surgery (years)</td>
<td>31.69 ± 13.90</td>
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<tr>
<td>% Right (N)</td>
<td>61.5% (8)</td>
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<td>Amount of bone loss (AP; mm)</td>
<td>7.33 ± 2.85 (25%)</td>
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<td>Average Follow-up (months)</td>
<td>12.75 ± 12.45</td>
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Results

- No intra-operative complications, neurovascular injuries, adverse events, or major bleeding
- One subluxation and no positive apprehension tests
- All patients had good graft union and only one patient had graft resorption as seen on CT
  - Average follow-up = 11.00 ± 14.63 months

ΔWOSI = 35.76 ± 19.01 (p = <0.0001)

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<tr>
<th>Outcome</th>
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<tr>
<td>WOSI Follow-up (months)</td>
<td>12.75 ± 12.45</td>
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<td>Pre-operative WOSI (n = 11)</td>
<td>24.15 ± 20.86</td>
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<tr>
<td>Post-operative WOSI (n = 9)</td>
<td>60.18 ± 17.88</td>
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Discussion

• Iliac crest augmentation shows good healing and graft positioning with minimal resorption
  • Similar to that of coracoid autografts and distal tibia allograft\textsuperscript{8}
• Can be performed arthroscopically without splitting the subscapularis while avoiding nerves\textsuperscript{4}
• This technique does not change the anatomy for future revision surgeries
Summary

- Arthroscopic treatment of shoulder instability with bone loss via autologous iliac crest bone graft is shown to have:
  - A good safety profile
  - Favourable short-term clinical outcomes
  - Favourable short-term radiological outcomes
- Further investigation with longer follow up is needed to evaluate the longevity of these positive health outcomes
References


