JuggerKnot Soft Anchor–1.0 mm Mini
Ulnar Collateral Ligament (UCL) Repair of the Thumb

Surgical Technique

Surgical Protocols by
Mark Rekant, M.D.
A. Lee Osterman, M.D.
Over 1 million times per year, Biomet helps one surgeon provide personalized care to one patient.

The science and art of medical care is to provide the right solution for each individual patient. This requires clinical mastery, a human connection between the surgeon and the patient, and the right tools for each situation.

At Biomet, we strive to view our work through the eyes of one surgeon and one patient. We treat every solution we provide as if it’s meant for a family member.

Our approach to innovation creates real solutions that assist each surgeon in the delivery of durable personalized care to each patient, whether that solution requires a minimally invasive surgical technique, advanced biomaterials or a patient-matched implant.

When one surgeon connects with one patient to provide personalized care, the promise of medicine is fulfilled.
The JuggerKnot Soft Anchor—1.0 mm Mini represents the next generation of suture anchor technology. The 1.0 mm deployable anchor is completely suture-based and the first of its kind. The award-winning JuggerKnot Soft Anchor is now designed specifically for hand and wrist procedures. The new configuration includes two T-28 tapered needles to aid in soft tissue reattachment.

The JuggerKnot Soft Anchor—1.0 mm Mini is indicated for:

- Repair/Reconstruction of collateral ligaments
- Scapholunate ligament reconstruction
- Ulnar or lateral collateral ligament reconstruction
- Flexor and extensor tendon at the PIP, DIP, and MCP joints for all digits
- Bankart repair
- Midfoot reconstruction
- Hallux valgus reconstruction

1. Data on file at Biomet, Inc. Bench testing results are not indicative of clinical performance. Test Report BSM03.
Patient Prep
Injured extremity is prepped and draped in the usual sterile fashion.

Esmarch bandage is utilized for extremity exsanguination. Inflatable tourniquet to 250 mm Hg.

Incision
Centered over the Metacarpal/Phalangeal joint make a curvilinear “S” shaped incision extending approximately 3–4 centimeters (Figure 1).

This material represents the surgical technique utilized by Mark Rekant, MD and A. Lee Osterman, MD. Biomet does not practice medicine. The treating surgeon is responsible for determining the appropriate treatment, technique(s), and product(s) for each individual patient.
Elevate the thick skin flaps. Identify the dorsal ulnar sensory branch to thumb and mobilize and retract volarly or dorsally. Be sure to protect the nerve. Expose and identify the adductor aponeurosis (Figure 2).

Prepare the UCL for Reattachment

Incise the adductor aponeurosis leaving a 2–3 mm cuff of tissue dorsally (Figure 3). Care should be taken to preserve the dorsal capsule layer. Mobilize soft tissues to allow for retraction of the extensor tendon dorsally and the adductor aponeurosis volarly. This will allow exposure and full mobilization of the torn Ulnar Collateral Ligament (UCL). This ligament typically avulses distally from base of the proximal phalanx in a proximal direction. The UCL should now be fully prepared for reattachment.
Anchor Placement

Determine placement of the first JuggerKnot anchor. The bone origin for reattachment should be at the base of the proximal phalanx (Figure 4). The isometric point should be roughed with a bone rongeur to promote healing of the UCL to bone. A similar process can be performed for avulsions of the UCL from the metacarpal head using the ligament origin as the point of reference.

Open a sterile packed JuggerKnot implant and using the enclosed step drill, prepare the pilot hole by inserting the step drill to the stop or full depth (Figure 5). To reach full depth it is preferred to drill at an angle as perpendicular to the bone surface as possible. This is important for full deployment of the anchor.
Anchor Placement (cont.)

Locate pilot hole with tip of JuggerKnot inserter (Figure 6A). The angle of insertion must be the same trajectory as the pilot hole. Failure to do this could prevent insertion and deployment of the anchor.

Apply gentle pressure to the JuggerKnot inserter to start advancement of anchor (Figure 6, 6A).

Note: It may be necessary to seat the anchor by lightly tapping the back of the inserter with a small mallet to promote advancement of the implant into the bone tunnel.

Advance the inserter until the clear JuggerKnot guide sleeve has retracted to the handle completely (Figure 7).

Note: At this point, do not pull up on the handle to set anchor (Figure 8).

Unscrew lure lock to release sutures and pull foam tab to release needles (Figure 9).

Remove JuggerKnot inserter by gently pulling straight up on the handle. This will separate the anchor from the inserter, leaving the anchor in the pilot hole (Figure 10).
Anchor Placement (cont.)
Set the anchor by lightly pulling back on both strands of suture (Figures 11A/11B). The 2-0 or 3-0 suture should move back and forth freely within the all-suture anchor (Figure 11C).

Reattach the UCL
Using the attached needles, re-attach the UCL utilizing a horizontal mattress stitch technique (Figure 12). This will allow for tensioning of the ulnar collateral ligament (UCL) to the cortical bone surface.
Closure

Repair the adductor aponeurosis with a 4-0 resorbable suture (Figure 13).

Deflate the tourniquet and irrigate the wound. Hemostasis is assured with electrocautery bipolar.

Repair the skin incision (Figure 14) and apply a short arm splint.

Post Operative Care

For rehabilitation, immobilize the thumb MP joint for six weeks with a hand based removable thermoplastic splint or short arm thumb spica cast.
JuggerKnot Soft Anchor–1.0 mm Mini

Ulnar Collateral Ligament (UCL) Repair of the Thumb

Implants

JuggerKnot Soft Anchor–1.0 mm Mini with 2-0 Suture

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>912076</td>
<td>JuggerKnot Soft Anchor–1.0 mm Mini 2-0 Needles with Drill-Single</td>
<td>2-0 Suture</td>
</tr>
<tr>
<td>912080</td>
<td>JuggerKnot Soft Anchor–1.0 mm Mini 2-0 with Needles 10pk</td>
<td>2-0 Suture</td>
</tr>
</tbody>
</table>

JuggerKnot Soft Anchor–1.0 mm Mini with 3-0 Suture

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>912082</td>
<td>JuggerKnot Soft Anchor–1.0 mm Mini 3-0 Needles with Drill-Single</td>
<td>3-0 Suture</td>
</tr>
<tr>
<td>912084</td>
<td>JuggerKnot Soft Anchor–1.0 mm Mini 3-0 with Needles 10pk</td>
<td>3-0 Suture</td>
</tr>
</tbody>
</table>

Instruments

JuggerKnot Soft Anchor–1.0 mm Mini 2-0

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>912077*</td>
<td>JuggerKnot Soft Anchor–1.0 mm Mini Step Drill (Sterile)</td>
<td>1.0 mm</td>
</tr>
</tbody>
</table>

*Provided as a backup since each JuggerKnot Soft Anchor–1.0 mm Mini is packaged with a sterile step drill.
INDICATIONS
The JuggerKnot Mini Soft Anchor is intended for soft tissue to bone fixation for the following indications:

Shoulder
• Bankart Repair

Foot and Ankle
• Midfoot Reconstruction
• Hallux Valgus Reconstruction

Hand and Wrist
• Ulnar or Lateral Collateral Ligament Reconstruction
• Repair/Reconstruction of Collateral Ligaments
• Flexor and Extensor Tendon at the PIP (Proximal Interphalangeal), DIP (Distal Interphalangeal), and MCP (Metacarpal Interphalangeal) Joints for all Digits
• Scapholunate Ligament Reconstruction

CONTRAINDICATIONS
1. Infection.
2. Patient conditions including blood supply limitations and insufficient quantity or quality of bone or soft tissue.
3. Patients with mental or neurologic conditions who are unwilling or incapable of following postoperative care instructions or patients who are otherwise unwilling or incapable of doing so.
4. Foreign body sensitivity. Where material sensitivity is suspected, testing is to be completed prior to implantation of the device.
This material is intended for health care professionals and the Biomet sales force only. Distribution to any other recipient is prohibited. All content herein is protected by copyright, trademarks and other intellectual property rights owned by or licensed to Biomet Inc. or its affiliates unless otherwise indicated. This material must not be redistributed, duplicated or disclosed, in whole or in part, without the express written consent of Biomet.

Check for country product clearances and reference product specific instructions for use. For complete product information, including indications, contraindications, warnings, precautions, and potential adverse effects, see the package insert and Biomet’s website.

This technique was prepared in conjunction with a licensed health care professional. Biomet does not practice medicine and does not recommend any particular orthopedic implant or surgical technique for use on a specific patient. The surgeon is responsible for determining the appropriate device(s) and technique(s) for each individual patient.

Not for distribution in France.