

Canine Unicompartmental Elbow

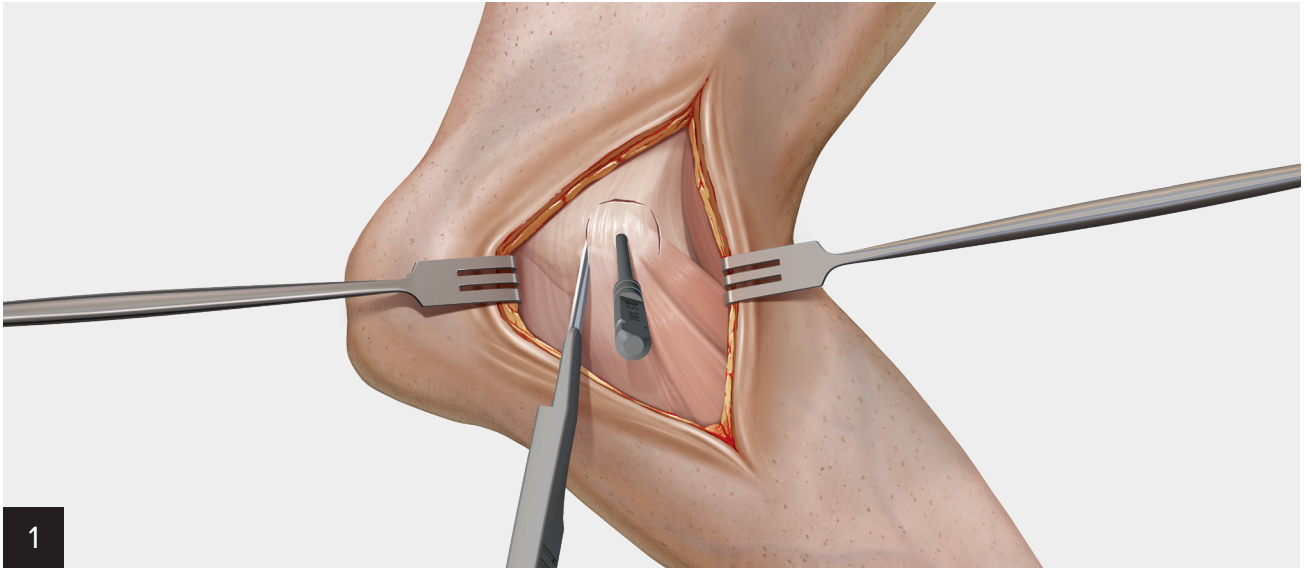
Surgical Technique



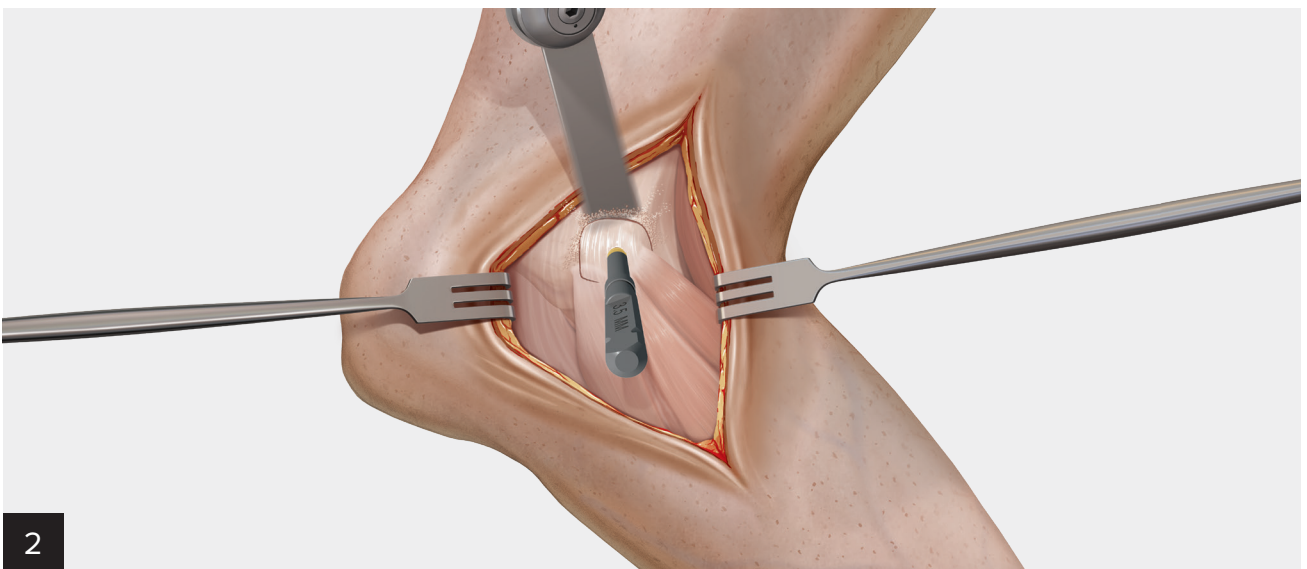
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Medial Approach With Epicondylar Osteotomy Option

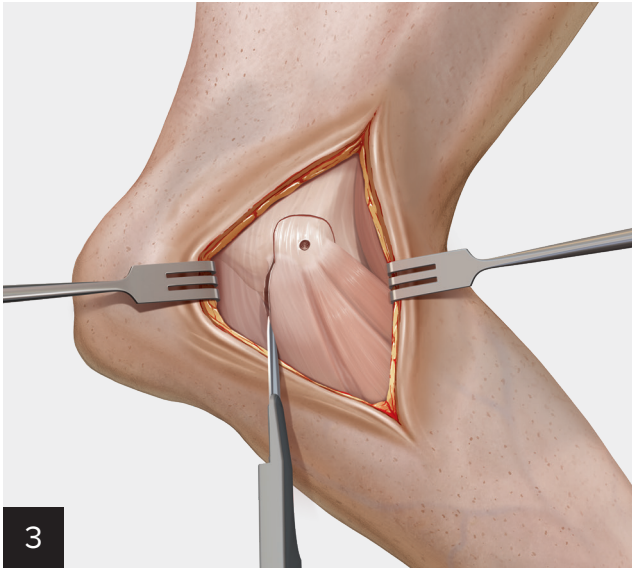
Dorsal recumbency with bean bag, pad, or block under the elbow



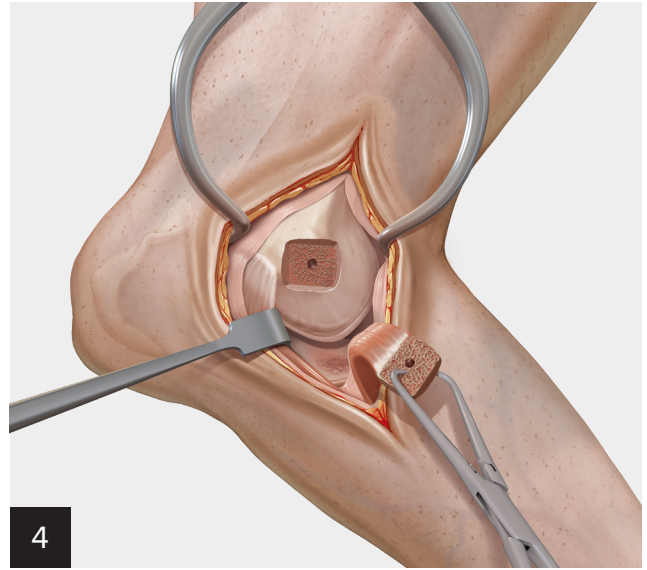
Make a medial incision along cranial border of the medial head of the triceps over the epicondyle and then between the flexor carpi ulnaris and the superficial digital flexor – skin and fascia – $\sim 1/4$ of humerus and $\sim 1/4$ of antebrachium length.



Drill 2.5 mm transcondylar bone hole and place the 3.5 mm tap. Use a sagittal saw with a thin blade to “osteotomize” the epicondyle at its “edges.” Angle the osteotomies so that you end up with a slight trapezoidal shape section of bone. It is important not to extend the osteotomy lines distal to the tap. The depth of the osteotomy should be approximately 5 mm. Finish removing the epicondyle using a sharp, 10 mm osteotome.



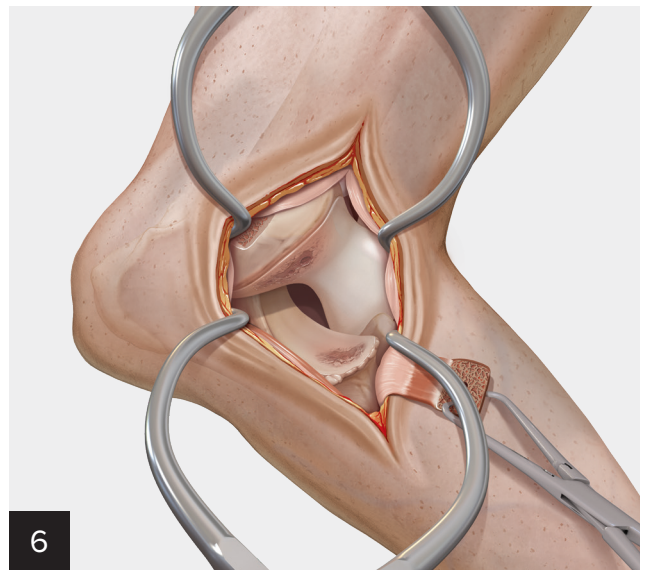
Incise from the caudal base of the osteotomy through the joint capsule extending 2 cm to 3 cm between the flexor carpi ulnaris and superficial digital flexor muscle.



Place a towel clamp through the epicondyle bone hole and extend the dissection intracapsular cranially along the medial humeral condyle (MHC), exposing the elbow joint.



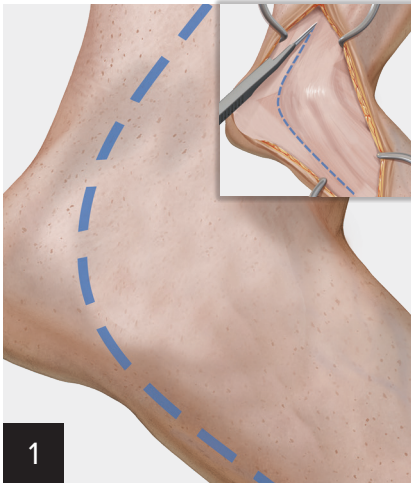
Perform valgus stress and internally rotate the antebrachium over a pad or block to expose and access the medial aspect of the MHC and medial coronoid process (MCP) for guide placement. The ulnar branch of the bicep tendon can be incised to aid in this exposure.



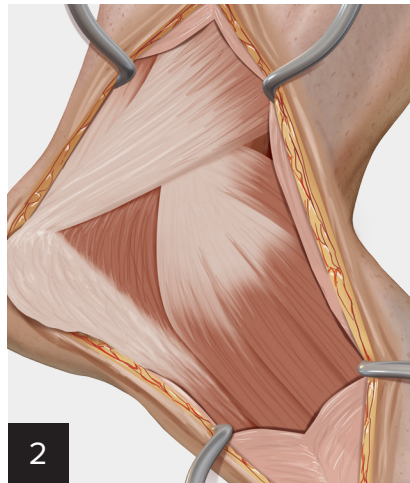
Gelpi retractors can be used to retract the periarticular tissues, while an assistant maintains valgus and internal rotation so that the CUE instruments can easily be placed perpendicular to the articular surfaces of the MHC and MCP.

Caudal Medial Approach

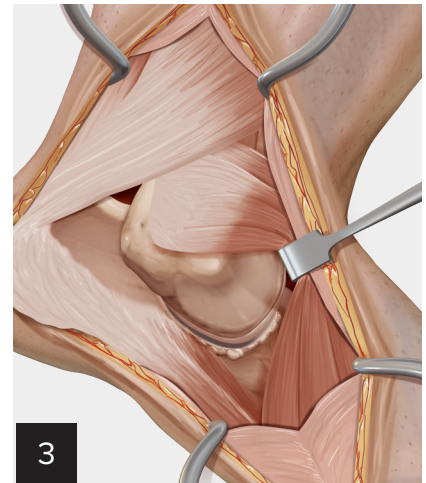
Dorsal recumbency with bean bag, pad, or block under the elbow



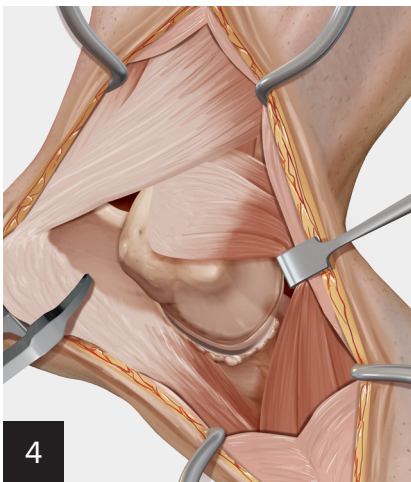
1
Make a medial incision along the cranial border of the medial head of the triceps extending caudally and distally along the caudal aspect of the ulna. Approximately one-third proximal and two-thirds distal to medial epicondyle.



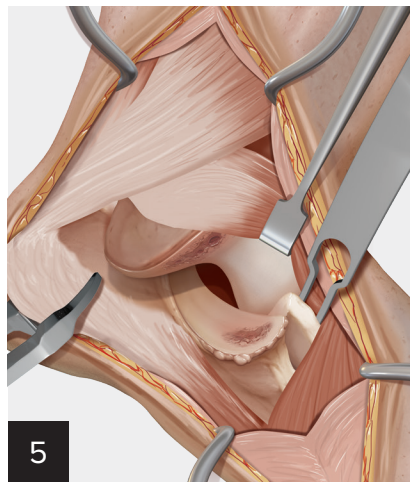
2
Incise the flexor muscle fascia 5 mm to 7 mm from the attachment to the ulnar spine. Elevate the flexor carpi ulnaris muscle from the medial surface of the ulna. Extend the dissection cranially along the medial head of the tricep muscle.



3
Incise the joint capsule exposing the elbow joint and extend the dissection proximally exposing the anconeal process. The insertion of the ulnar branch of the bicep muscle can be incised to aid in exposure to the ulna.

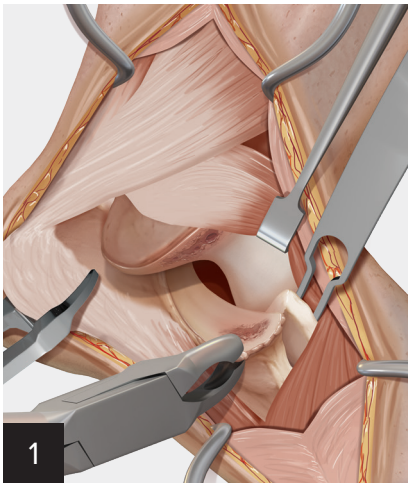


4
Place the retractor under the MCL along the cranial aspect of the radius. Place a serrated bone clamp on the caudal aspect of the proximal ulna to aid in ulnar retraction.

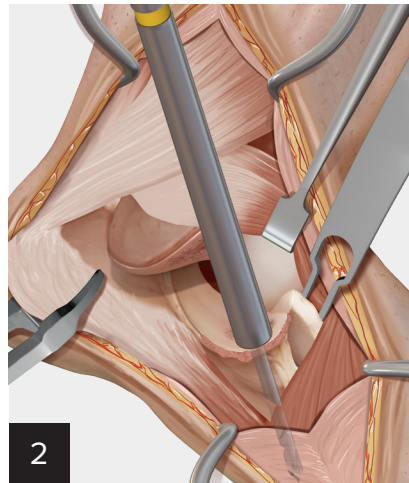


5
Apply valgus stress and internally rotate the antebrachium over a sand bag or block to expose and access the medial aspect of the MHC and MCP. **Note:** The annular ligament is often disrupted in the process which aids in MCP exposure.

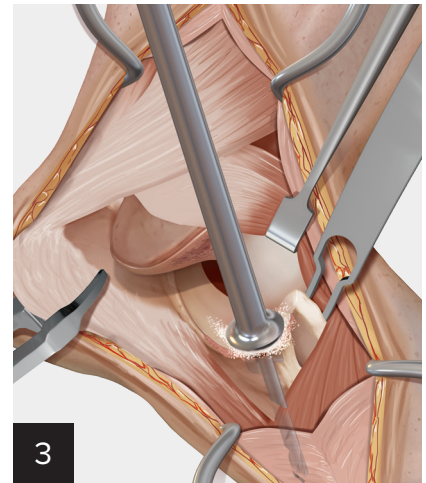
Ulna Implant Preparation



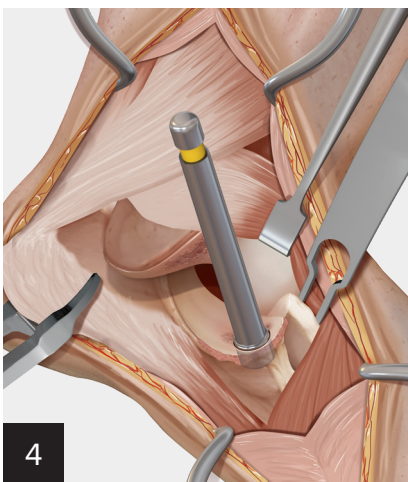
1
Remove fragments, osteophytes, abnormal cartilage, and bone to define the borders of the MCP. Large radial head osteophytes can also be removed at this time with a sharp osteotome to improve elbow flexion.



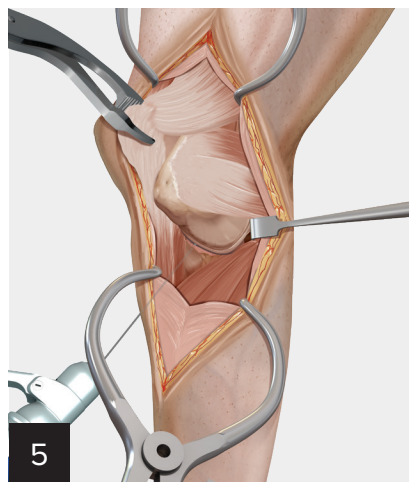
2
Center the appropriate size ulna drill guide on the MCP, flush to the articular surface, and place a beath pin through the ulna drill to exit the caudal ridge of the ulna.



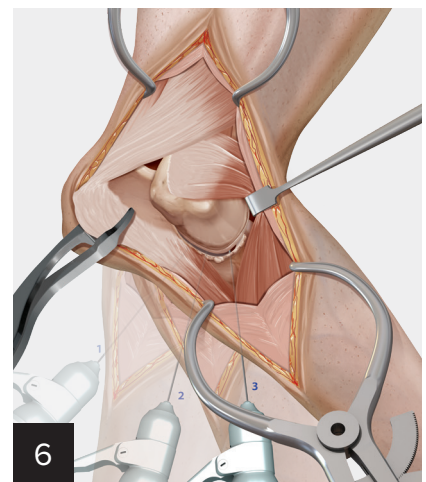
3
When the beath pin is properly placed, use the ulna drill (reamer) to create the ulnar socket. Be careful to stay aligned on beath pin while reaming. Do not get off axis or wobble.



4
Remove the beath pin, lavage, and use the ulna trial to confirm the ulnar socket is properly reamed.

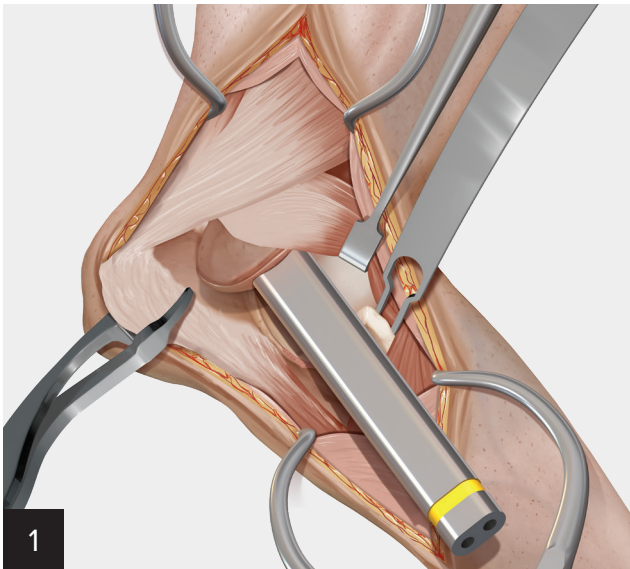


5
Place a 1.2 mm (0.049 in) K-wire through the ulnar socket exiting the skin of the caudal ulna.

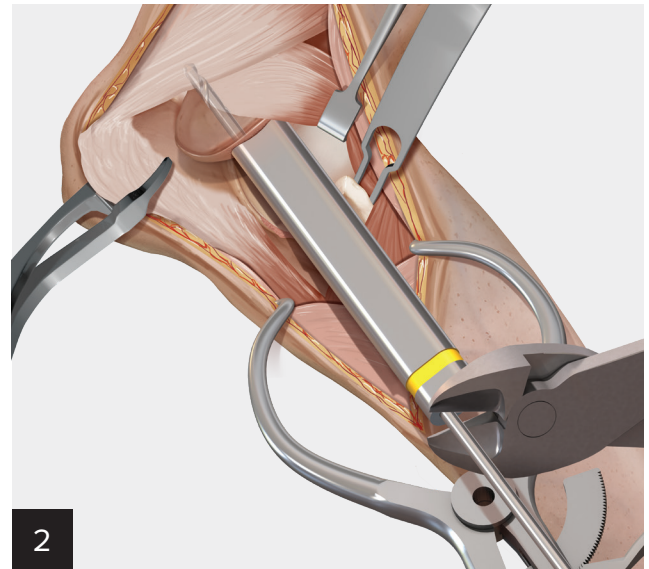


6
Reduce the elbow and advance the K-wire to mark points at full extension, 135° and 90° flexion. **Note:** Move on to the humeral implant socket prior to placing the ulnar component.

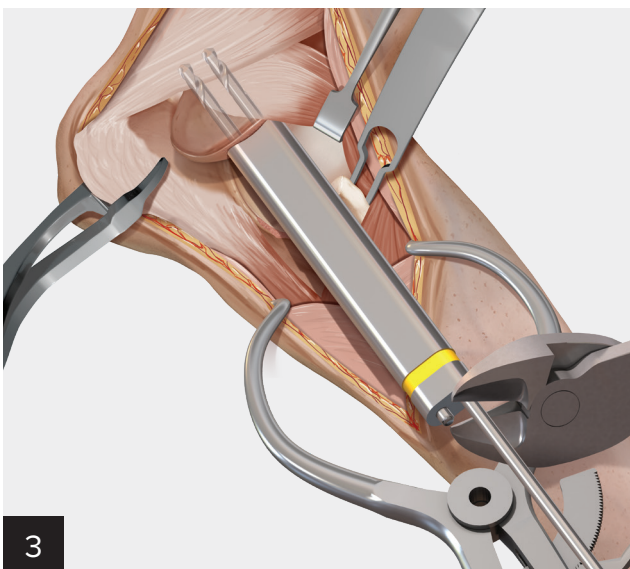
Humerus Implant Preparation



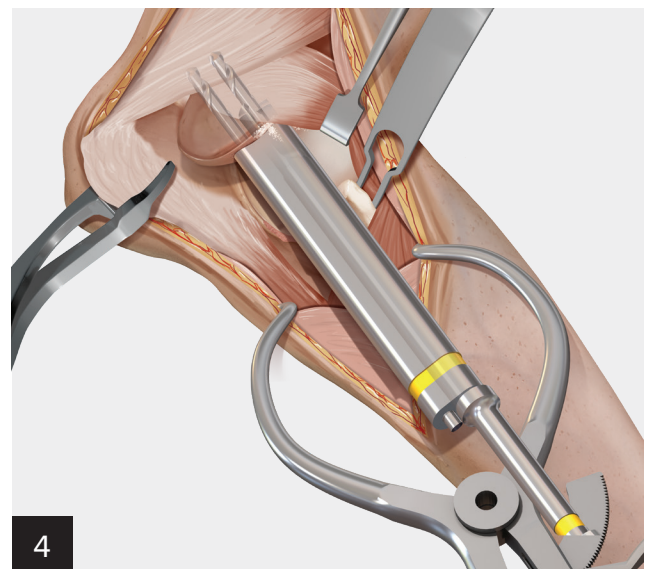
Place the appropriately sized humeral drill guide on the humeral articular surface, just covering the caudal K-wire hole. Align the drill guide along the sagittal axis and with the other two K-wire holes.



When the drill guide is optimally positioned, place the caudal beathe pin, extending through the medial osteotomy. Cut the pin short and align the cranial portion of the guide with the two cranial K-wire holes. This ensures proper sagittal implant alignment through range of motion.

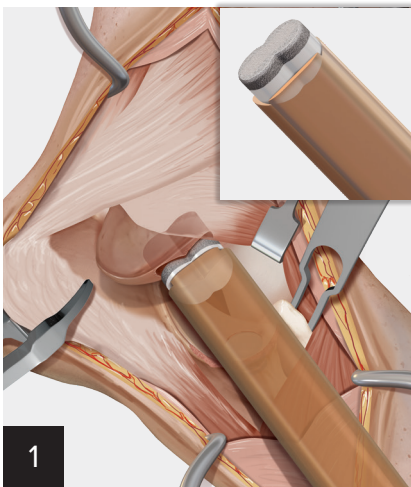


Advance the beathe pin through the osteotomy and cut the second pin short. Check for proper humeral guide alignment in all planes. Remove the humeral guide and insert the humeral drill guide over the beathe pins.

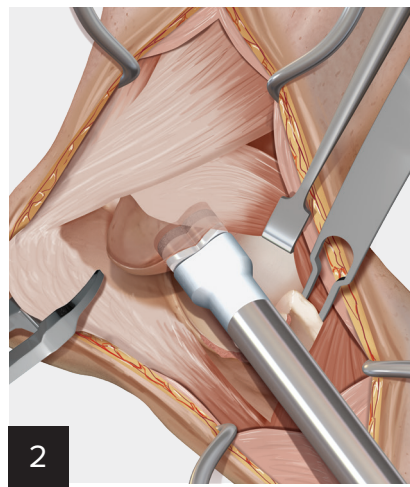


Place the humeral drill (reamer) in the humeral drill stop and over the beathe pins. Keep the humeral drill guide pressed firmly and flush against the articular surface. Use the reamer to fully ream the first socket, flip the reamer guide and ream the second humeral socket.

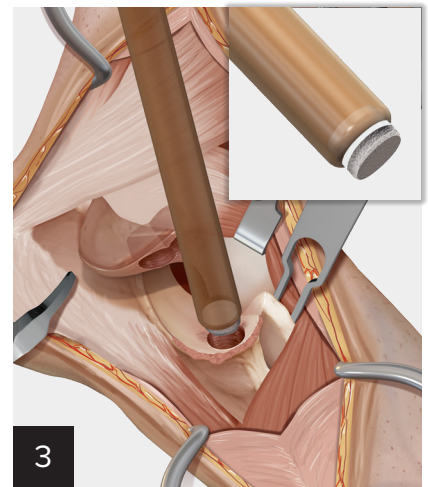
Implantation



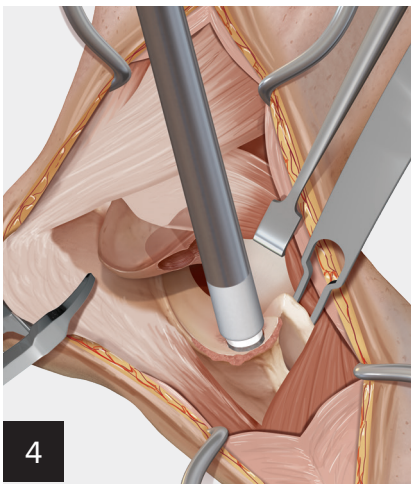
Place the humeral implant in the humeral implant holder so that the bone ingrowth surface is facing outward and gently implant into the humeral socket.



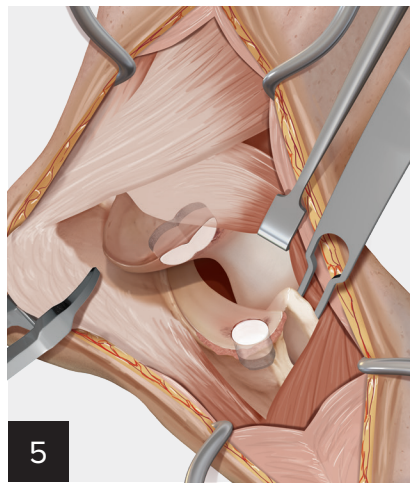
Use the humeral tamp to fully seat the humeral implant, ensuring the cranial and caudal implant surfaces are flush with the articular surface. **Note:** The midsection of the implant is designed to be raised approximately 1 mm to 2 mm above the articular surface.



After placing the humerus implant, place the ulna implant in the ulna implant holder. Make sure the bone ingrowth surface is facing outward and gently implant it into the ulnar socket.



If necessary, use the ulna tamp to fully seat the ulna implant.



Final implantation.

Postoperative Care Recommendations

- Oral antibiotics (cephalexin, clavamox, or similar) for 10 days
- Soft-padded bandage maintained for 2 weeks minimum (can extend if sore or concerned)
- Cage rest and leash walking only for a minimum of 8 weeks
- Start rehabilitation at 8-12 weeks toward progressive return to function
- Full athletic function not expected until 6 months postoperatively
- Rechecks at 2 weeks (suture and bandage removal), 8-12 weeks (with radiographs), and 6 months (with radiographs)

Ordering Information

Product Description	Item Number
CUE Instrument Set	VAR-7020S
CUE Instrument Set Case	VAR-7020C
Instruments for CUE Humerus	
CUE Humerus Template, medium	VAR-7001-M
CUE Humerus Template, large	VAR-7001-L
CUE Humerus Trial, medium	VAR-7002-M
CUE Humerus Trial, large	VAR-7002-L
CUE Humerus Implant Holder, medium	VAR-7003-M
CUE Humerus Implant Holder, large	VAR-7003-L
CUE Humerus Tamp	VAR-7004
CUE Humerus Drill, medium	VAR-7011-M
CUE Humerus Drill, large	VAR-7011-L
CUE Humerus Drill Stop, medium	VAR-7012-M
CUE Humerus Drill Stop, large	VAR-7012-L
Instruments for CUE Ulna	
CUE Ulna Trial, medium	VAR-7006-M
CUE Ulna Trial, large	VAR-7006-L
CUE Ulna Implant Holder, medium	VAR-7007-M
CUE Ulna Implant Holder, large	VAR-7007-L
CUE Ulna Drill, medium	VAR-7014-M
CUE Ulna Drill, large	VAR-7014-L
CUE Ulna Guide, medium	VAR-7015-M
CUE Ulna Guide, large	VAR-7015-L
CUE Ulna Tamp	VAR-7016

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Accessories

Product Description	Item Number
Cannulated Driver Handle with AO Connector	AR-13221AOC
T15 Hexalobe Driver	VAR-8941DH
Drill Bit, 2.5 mm	VAR-8943-30
Tap, 3.5 mm	AR-8935T
Retractor	AR-13313
Osteotome, 10 mm	AR-13203-10

Implants

Product Description	Item Number
Implants for CUE Humerus	
CUE Humerus Implant, medium	VAR-7000-M
CUE Humerus Implant, large	VAR-7000-L
Implants for CUE Ulna	
CUE Ulna Implant, medium	VAR-7005-M
CUE Ulna Implant, large	VAR-7005-L
Anchors	
Corkscrew® FT II Anchor, 5.5 mm × 16 mm w/three #2 FiberWire® Sutures	AR-1928SF-3
Low-Profile Screws	
Low-Profile Screw, 3.5 mm × 24 mm, stainless steel	VAR-8835-24
Low-Profile Screw, 3.5 mm × 26 mm, stainless steel	VAR-8835-26
Low-Profile Screw, 3.5 mm × 28 mm, stainless steel	VAR-8835-28
Low-Profile Screw, 3.5 mm × 30 mm, stainless steel	VAR-8835-30
Low-Profile Screw, 3.5 mm × 32 mm, stainless steel	VAR-8835-32
Low-Profile Screw, 3.5 mm × 34 mm, stainless steel	VAR-8835-34
Low-Profile Screw, 3.5 mm × 36 mm, stainless steel	VAR-8835-36
Low-Profile Screw, 3.5 mm × 38 mm, stainless steel	VAR-8835-38
Low-Profile Screw, 3.5 mm × 40 mm, stainless steel	VAR-8835-40

Disposables

Product Description	Item Number
Drill Tip Guide Pin, 2.4 mm (required)	VAR-1250L
K-Wire, 0.049 in (1.1 mm)	VAR-8920P
Curved Cruciate Needle	VAR-5000