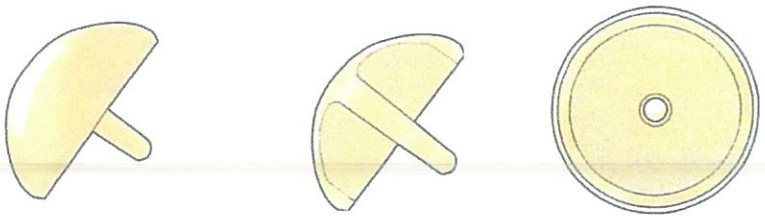
CEMENTLESS CERAMIC COATED SHOULDER RESURFACING SYSTEM

Surgical Procedure

Contents

1. Humeral instruments Employed

1.1 Humeral Resurfacing-Cement less Ceramic Coated- Shoulder System Implants



HUMERAL RESURFACING - 8 Sizes

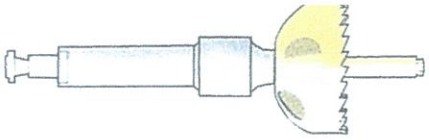
42mm, 44mm, 46mm, 48mm

50mm, 52mm. 54mm. 56mm

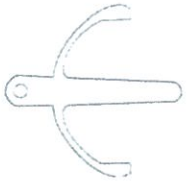
1.2 Instruments

HUMERAL RESURFACING PILOT DRILL

HUMERAL RESURFACING DRILL GUIDE



HUMERAL RESURFACING SHAPER



HUMERAL RESURFACING PILOT DRILL TEMPLATE

HUMERAL RESURFACING TAPERED REAMER

HUMERAL RESURFACING TRIAL

HEAD IMPACTOR

2. Summary

Incision

Exposure

Humeral Resurfacing

Surgical Technique

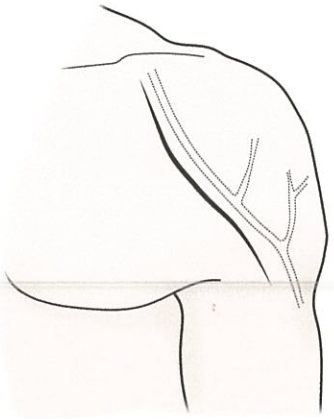
Humeral Resurfacing Shoulder System

Final Reduction and Evaluation

3. Humeral Resurfacing Shoulder System Surgical Procedure

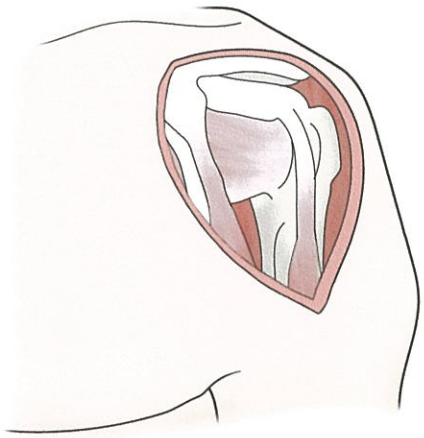
3.1 Skin Incision

Use a straight delto-pectoral skin incision, beginning 1cm distal to the clavicle and continuing past the axially fold. Longer incisions may be needed in heavy patients.



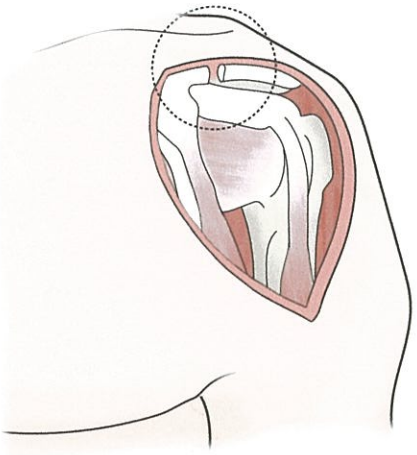
3.2 Deep Exposure

Develop the delto-pectoral interval with blunt dissection and maintain the clavicular attachment of the deltoid if possible. Protect the cephalic vein and retract it medially. If exposure is difficult, the cephalic vein can be ligated and transected. Incise the clavi-pectoral fascia in a vertical fashion lateral to the biceps short head and coracobrachialis tendons. Use the coracoid process as the proximal landmark for this incision.



3.3 Coraco-Acromial Ligament Resection

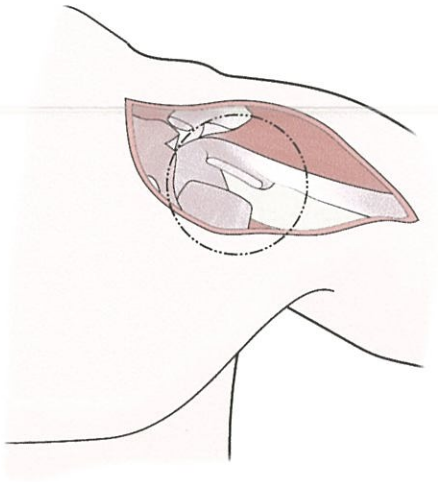
Resect the mid portion of the coraco-acromial ligament to aid in further exposure and prevent a postoperative impingement syndrome. If improved stability in needed avoid this resection.



3. Surgical Procedure

3.4 Gleno-Humeral Exposure

Abduct the arm 60° to facilitate exposure while retracting the deltoid laterally and the coracobrachialis and short head of the biceps medially. Externally rotate the proximal humerus and identify the subscapularis attachment on the lesser tuberosity. Incise the subscapularis tendon in a vertical fashion, 1cm from its attachment. Reflect the muscle medially after adding 2 #1 non-absorbable retrieval sutures and expose the humeral head. If the lesser tuberosity is fractured and displaced medially, free any soft tissue attachments and retract the lesser tuberosity with the subscapularis farther medially to expose the gleno-humeral joint beneath.

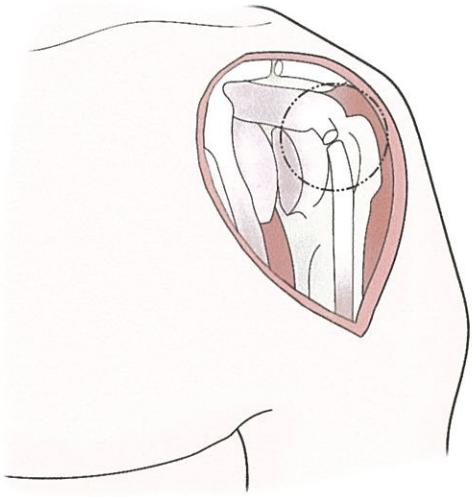


3.5 Biceps Tendon Resection

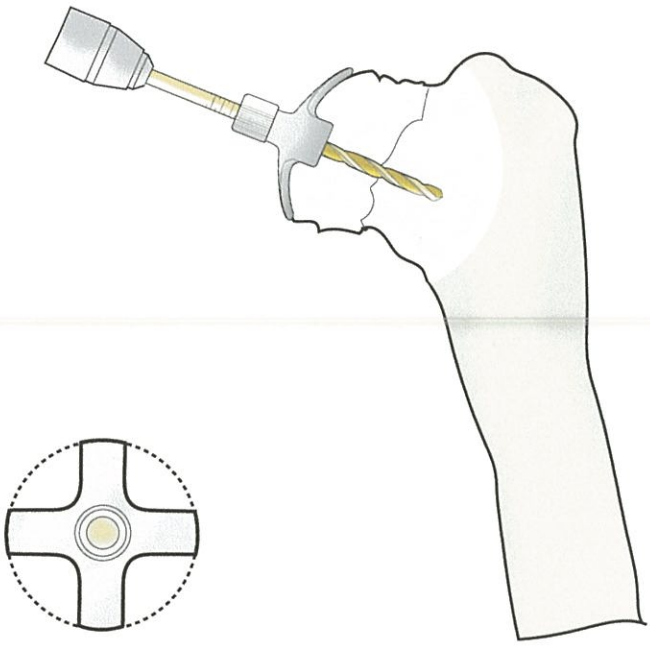
Resect the biceps tendon from the superior aspect of the glenoid if there is any evidence of fraying or if the intertubercular groove is disrupted. Retain the tendon for later use in repairing the rotator cuff, or suture it directly into the intertubercular groove to prevent post-operative tendinitis.

3.6 Humeral Head Exposure and Glenoid Inspection

Expose the humeral head by adducting and external rotation while retracting the soft tissues. Upon dislocating the humeral head, inspect the glenoid for signs of erosion or cartilage destruction. If a glenoid component is required, prepare the glenoid as described in the Buechel-Pappas Total Shoulder Surgical Procedure.

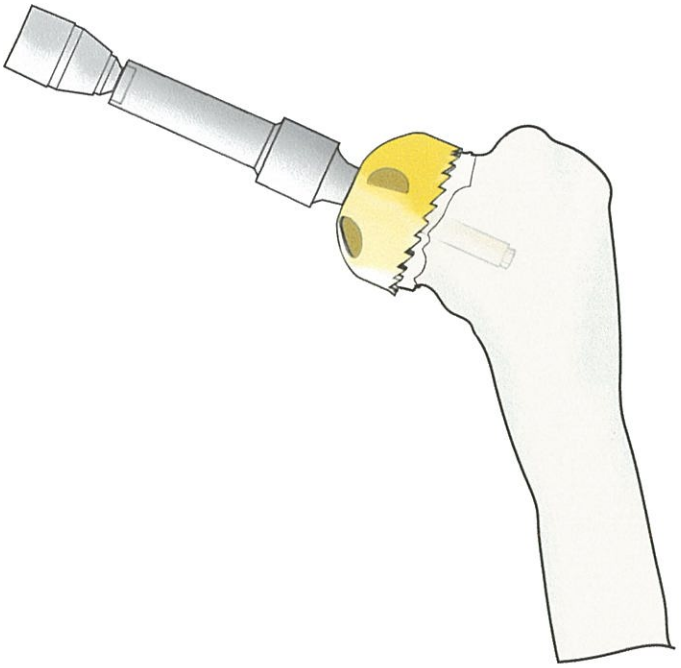


Note:
In cases where the humeral head bone stock is sufficient, a humeral resurfacing component can be used instead of a stem unit. This prosthesis is indicated for the reconstruction of painful and/or severely disabled shoulder joints resulting from osteoarthritis and rheumatoid arthritis. For proper function of this device, the humeral head and neck must be of sufficient bone stock to support the loads on it. Also, the presence of an intact or reconstructable rotator cuff is necessary to provide stability and avoid superior migration into the acromion process.



3.7 Humeral Preparation

Place the appropriate **Humeral Resurfacing Drill Guide** onto the center of humeral head. The outside diameter of the drill guide corresponds to the cylindrical cut of the humeral head. In addition, the curvature of the guide is identical to the curvature of the corresponding prosthesis. Using the **Humeral Resurfacing Pilot Drill**, drill a 3/16" hole through the guide down the center of the humeral head and to the appropriate size level marked on the drill shaft.

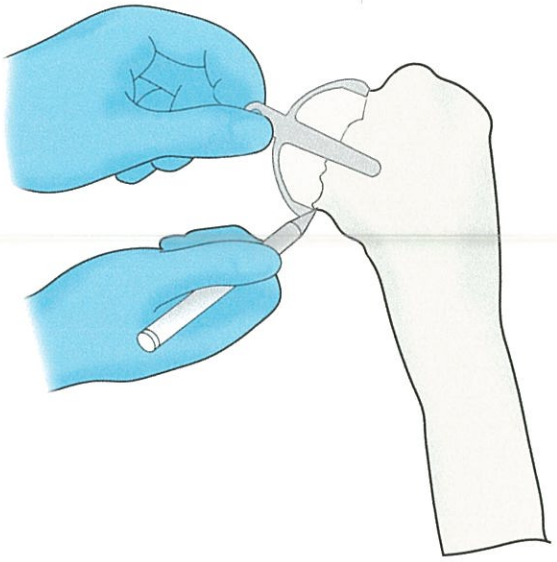


3.8 Humeral Head Shaper

Engage the pilot shaft of the proper size **Humeral Head Resurfacing Shaper** into the drill hole and plane down the humeral head surface to remove osteophytes and deformities. Check the alignment, plug and re-drill, if needed, to maintain centrality. Note: If cysts or fibrous tissue are found, curette this area down to solid bone, then drill the base of the cysts or avascular bone stock using a 1/16" drill parallel to the drill hole. Caution: Evaluate the shaped humeral head at this point. If it is insufficient to support a resurfacing component, use a stem type prosthesis.

3.9 Humeral Resection Check

Place the properly sized **Humeral Resurfacing Template** into the central drill hole and mark the level of final component seating with methylene blue or cautery.

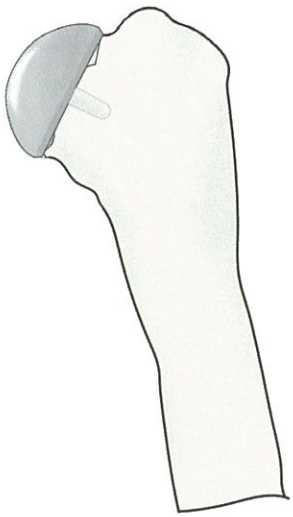


3.10 Humeral Stem Conical Reaming

Pass the **Humeral Resurfacing Tapered Reamer** down the central drill hole until it reaches the level corresponding to the humeral component size selected.

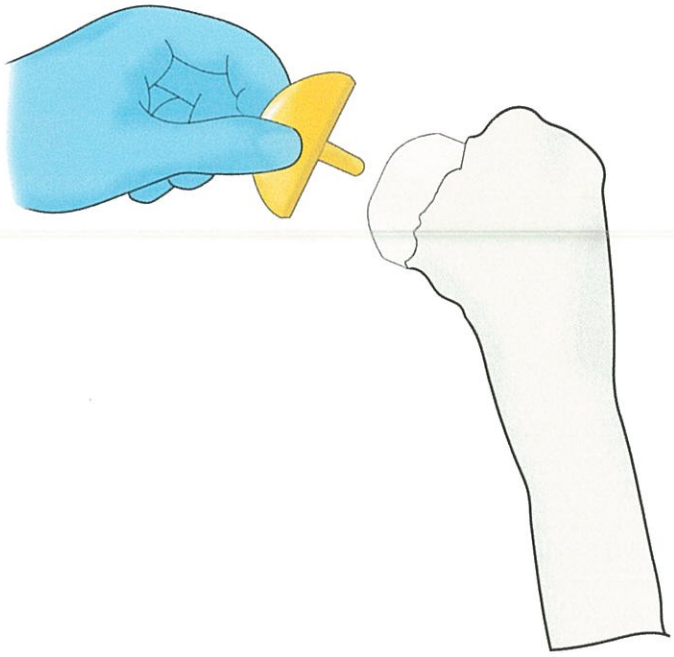
3.11 Trial Reduction of Components (optional)

Place the **Humeral Resurfacing Trial** into the central neck drill hole. Reduce the **Humeral Resurfacing Trial** into the **Glenoid Trial** (if used) or natural glenoid and assess range of motion stability and impingement. Perform any soft tissue or bony modifications at this time to avoid impingement.



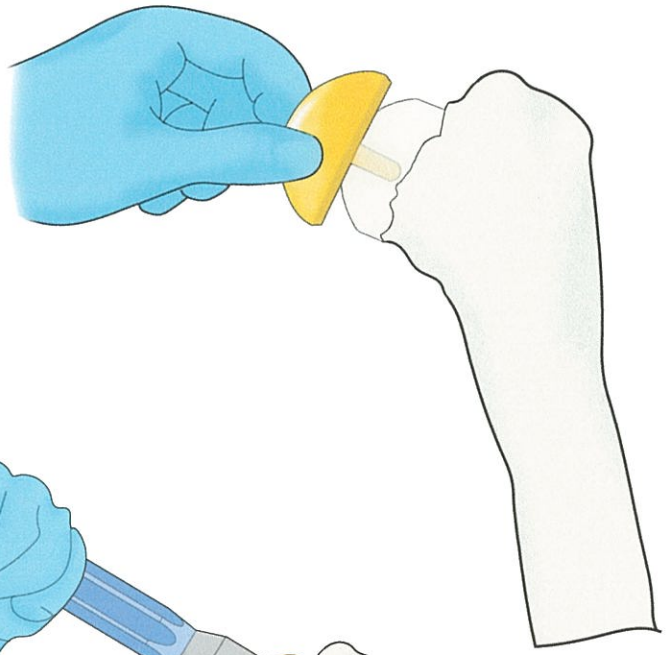
3.12 Humeral Component Placement

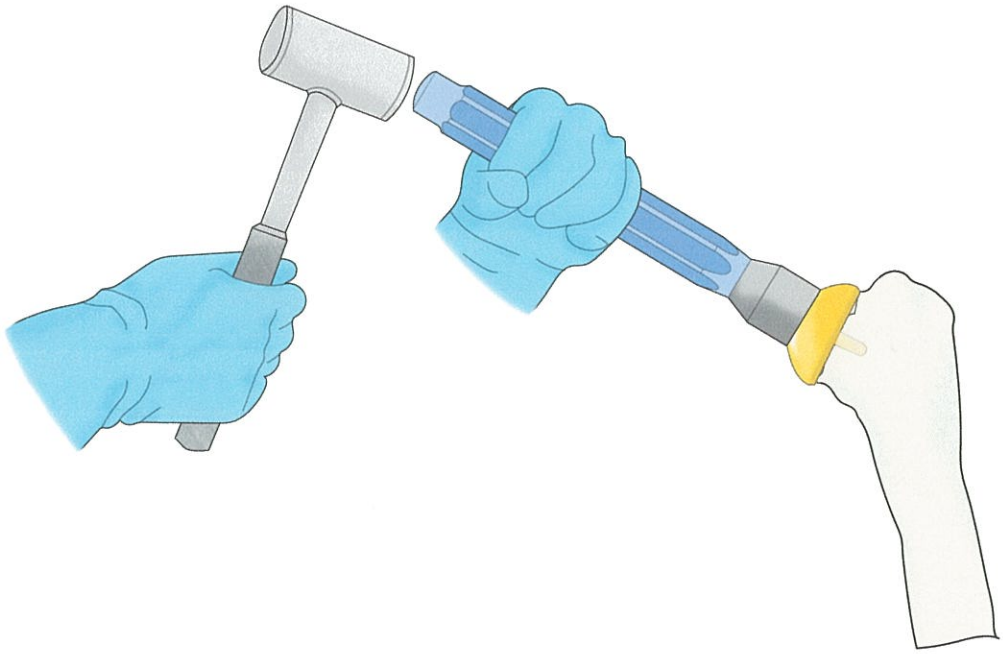
Engage the short tapered stem of the **Humeral Resurfacing Component** into the central drill hole. Apply morselized bone graft to any previously prepared areas of bone deficiency.



3.13 Humeral Component Impaction

Drive the **Humeral Resurfacing Component** downward using a mallet on the **Head Impactor** until the rim of the metal implant reaches the previously identified seating mark. Trim away any overhanging bone at the neck-prosthesis junction.





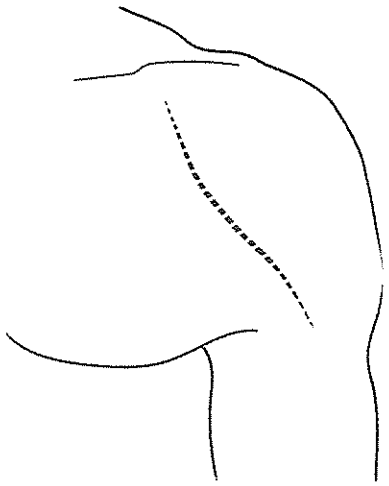
3. Surgical Technique

3.14 Final Reduction and Evaluation

Carefully reduce the **Humeral Resurfacing Component** by traction and internal rotation. Flex the elbow to 90° and record the internal and external rotation available. Any final soft tissue or bony impingement to motion should be corrected at this time.

3.15 Wound evacuation and Closure

Close the subscapularis interval with interrupted 0 - nonabsorbable sutures, followed by a running 0 - absorbable suture for reinforcement. Close the delto-pectoral interval with 2-0 absorbable suture. Use 2-0 absorbable suture for subcutaneous tissue and skin staples or subcuticular suture for final closure.



3.16 Postoperative Dressing

place the operated extremity in a shoulder immobilizer sling after applying a compression dressing to the wound. Mepilex is preferred.

3.17 Postoperative Protocol

Rehabilitation of soft tissue through early passive range of motion exercise is extremely important to the success of long-term results. The patient should be cautioned against active motion above eye level during the first six weeks following surgery. We do not allow external rotation for the first 6 weeks following surgery.

Pendulum and circumduction exercises can be started for 5 min, three times per day, beginning on the first post-operative day out of the sling with patient bent forward 90 degrees, otherwise wear the sling for the first 3 weeks. Passive pulley forward flexion may begin after 2 weeks to gain maximum overhead motion. Active range of motion may begin after 6 weeks with progressive resistance to tolerance therapy