Indications: Fracture-dislocations of the elbow are rarely amenable to nonoperative management. Monteggia fractures, combined fractures of the ulna with dislocations of the radial head at the elbow, are one of the original “fractures of necessity”. These were injuries that identified as consistently debilitating without surgical treatment in the early history of orthopaedics.

Technique: The patient is positioned supine on an operating table with the arm draped across the patient’s body. A posterior approach is made to the ulna, elevating full-thickness flaps medially and laterally. The FCU/ECU interval is opened along the subcutaneous border of the ulna and the fracture site is exposed extra-periosteally. Live fluoroscopy is then used to reduce the radial head to anatomic position and, in segmentally-comminuted ulna fractures, the radiocapitellar joint may be pinned provisionally to maintain this relationship. The ulna is then secured with a compression technique, using lag screws whenever possible and compression plating in patterns not amenable to interfragmentary fixation. The elbow is then ranged under live fluoroscopy and, if the radiocapitellar relationship remains stable then no further soft-tissue procedures are indicated. The wounds are irrigated and closed in layers, then dressed steriley with a posterior mold splint in elbow flexion. Most of these injuries may be managed as an outpatient.

Precautions--
- Full-time protection in either postoperative splint or cubital tunnel splint
- No weight bearing to operative extremity.

Therapy begins on the 5-7th day after surgery--

Phase 1 Therapy (Protect Repair, Regain ROM)
Therapy 2-3x/week x 6 weeks
- Dressing is removed and the patient is placed in a hinged elbow brace with the forearm in neutral rotation. Teach the patient to don and doff/lock and unlock the brace. The brace should be locked at all times when not working on range of motion. This includes sleeping.
- AROM/ AAROM with gravity assisted extension.
- Gentle PROM of shoulder, wrist, and hand.
- Non-weightbearing at all times. May type, write, and use hand for assistance in feeding.
- Dry dressing to patient’s wounds, change daily. Patient may shower at 7 days after surgery.
- modalities prn
- HEP
1st postoperative visit 10-14 days after surgery--

- 3 views of the elbow to monitor for maintenance of reduction.
- Wound assessment. Stitches out when wound is well-coapted.
- Pain assessment. Refill pain meds as appropriate.
- Review postoperative limitations.
- Work Note: may type and write. no driving. No lifting, pushing, or pulling. Non-weight bearing to the operative extremity.
- Therapy Note: Continue Phase 1 Therapy
- Return to Office at 6 weeks after surgery.
- Expected Return to Work:
  - Cognitive/ Sedentary: 2 weeks
  - Light Labor: 8 weeks
  - Medium/ Heavy Labor: 3-4 months

2nd Postoperative Visit at 6 weeks after surgery--

- Three views of elbow. Assess for bridging bone at repair sites.
- Pain assessment. Refill pain meds as appropriate.
- If bridging bone visible on x-ray and elbow non-tender to palpation, then advance to phase 2 of therapy. If still tender or if there is concern for delayed union, continue with phase 1 therapy and see the patient back in 2 weeks to reassess.
- Phase 2 work restrictions: At 8 weeks, may return to lifting up to 20#. No pushing/pulling. May drive.
- Return to Office at 12 weeks after surgery.
- Expected Return to Work:
  - Cognitive/ Sedentary: 2 weeks
  - Light Labor: 8 weeks
  - Medium/ Heavy Labor: 3-4 months

Phase 2 Therapy (Regain ROM and wean from protection)

- Splinting-- may wean from hinged brace as tolerated. Start ROM out of brace.
- Range of Motion--
  - AROM/ PROM of shoulder, elbow, wrist, and hand.
    - may allow abduction of elbow.
  - AROM/ AAROM as tolerated in flexion, extension, pronation, and supination.
  - PROM
    - may add static progressive splint for extension or flexion as needed if extension is < -30 degrees or if flexion is <130 degrees at 8 weeks postoperatively.
may use light dumbbell hangs to facilitate elbow extension.

- Strengthening:
  - Isometric rotator cuff and scapular strengthening
  - Light grip strengthening.
- Modalities prn
- HEP
- Advance to Phase 3 when:
  - Patient has painless range of motion between 30-130 degrees of flexion.
  - Able to perform exercises with good mechanics.

### Phase 3 Therapy (Normalize Function and Regain Strength)

#### Therapy 1-2x/ week
- AROM/ PROM
  - Shoulder, elbow, wrist, and hand. Goal is for at least 10-140 degree arc of motion.
- Strengthening
  - Isotonic Rotator Cuff, Scapular Shrugs and Prone Rowing.
  - Biceps and triceps strengthening
  - Grip strengthening
  - When strength is 80% of contralateral side, patient’s with unusually high demands either for occupation or recreation may benefit from a work conditioning or sport-specific conditioning program. Please contact Leslie Hedge, RN at 573-388-3026 to arrange for a referral if needed.
  - Throwing athletes may add interval throwing program after week 10.
- modalities prn
- HEP

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3rd office visit 12 weeks after surgery--
- x-rays: 3-views of elbow.
- pain assessment
- DASH score
- Work note: Depends on patient’s clinical performance. Patients with very high demand, manual laboring jobs may require further work hardening. Majority of patients may return to normal life demands without restrictions at this point.
- MMI at one year from surgery