Indications: The radial head is the primary determinant of resistance to valgus stress at the elbow. It is commonly injured through both low and high energy mechanisms. Radial head replacement is indicated as a treatment for displaced radial head fractures and radiocapitellar osteoarthritis. It is commonly used when the dressing severely comminuted (greater than 3 fragments) radial head and neck fractures. Radial head hemiarthroplasty is also used in cases of fracture-dislocations of the elbow and longitudinal disruptions of the forearm axis (Essex-Lopresti injuries) with associated fractures of the radial head and neck.

Technique: Patient is taken to the operating room where they're positioned supine on the OR table. A longitudinal incision is made over the posterior lateral elbow using the Kocher approach. Staying anterior to the midline of the radial head, the capsule is incised and mobilized to expose the radial head and the proximal 1 cm of the radial shaft. Care is taken during distal exposure to avoid the posterior interosseous nerve. At this point the wound is cleared of hematoma and fracture fragments are directly inspected. In cases with more than 3 fragments, fracture dislocations, and extensive comminution of the radial neck, the radial head will then be removed and the proximal radius prepared with broaches to accept a trial radial head replacement. The elbow is reduced and joint stability is tested both with live fluoroscopy as well as with manual stress. Care is taken to avoid overstuffing the joint by assuring that the most proximal aspect of the replacement is colinear with the most proximal elements of the coronoid process. Once an appropriate device has been confirmed, the trials are removed and and the wound irrigated copiously with normal saline. The definitive implant is then impacted into place and the elbow reduced. The wound is irrigated and then closed in layers. LUCL is carefully inspected and confirmed to be intact with no evidence of posterolateral rotatory instability after closure of the capsule. If this appears to be the case, the incision is then extended distally and the insertion of the LUCL is closely inspected. Appropriate repairs were performed and the wound then finally closed in layers. The patient is placed into a sterile dressing with a well-padded/ well-molded posterior mold elbow splint. They are then admitted to hospital overnight for pain control & iv antibiotics. They will typically be discharged the day after surgery.

Immediate postoperative period:
- Full time splinting.
- Full hand extension to tight fist 10x/ hour while awake.
- Non-weight bearing to operative extremity. No resisted extension exercises.

1st therapy visit at 5-7 days after surgery--
- Therapy 1-2x/week x 6 weeks.
- Dressing down. Instruct in non-adherent dressing changes to be done daily.
- May shower if incisions are dry. Water runs off skin and patient pats incisions dry with clean towel (not to be used for the rest of the patient’s body).
- Splint: Hinged elbow brace. This is to be worn at all times.
- AROM/ AAROM of elbow with gravity assisted extension of elbow. AROM/ PROM of shoulder, wrist, and hand.
- Light putty exercises for grip once full ROM of digits is restored.
- Edema control.
- Modalities prn.
- Review postoperative precautions.

1st postoperative visit at 2 weeks postop--
- Pain Assessment/ Rx adjustments or refills as needed.
- Stitches out. Steri-strips applied.
- Review postoperative limitations/ precautions.
- Therapy Rx
  - Work Note: No lifting, pushing, pulling. Must wear splint at all times. No driving/ operating machinery. No contact sports.
- Expected Return to Work:
  - Sedentary: 2 weeks
  - Light Manual: 8 weeks
  - Heavy Manual: 3 months.

Therapy 2-6 weeks
- Continue splint.
- AROM/ AAROM with gravity assisted extension of elbow. AROM/ PROM of shoulder, wrist, and hand.
- May advance elbow flexion ad lib after 4 weeks.
- modalities prn
- HEP

2nd postoperative visit at 6 weeks--
- X-rays typically not required at this visit. Only X-ray if patient has had a new injury or has unusual pain symptoms.
- Pain Assessment/ Rx adjustments or refills as needed.
- Review postoperative limitations/ precautions.
- Follow-up in 6 weeks
- Therapy Rx
  - Work Note: 20# lifting. No contact sports.
- Expected Return to Work:
  - Sedentary: 2 weeks
  - Light Manual: 8 weeks
  - Heavy Manual: 3 months.
Therapy 6-12 weeks

- 1-2x/week x 6 weeks
- May discontinue hinged elbow brace.
- AROM/ PROM of elbow, wrist, and hand. Include pronation and supination.
- If >20 degree lack of extension or elbow flexion <130 at 8 weeks, add a static progressive splint to address this deficit.
- Start progressive general strengthening of shoulder, elbow, wrist, and hand.
- When is at least 10-130 degrees of flexion and elbow flexion/extension strength = 80% of contralateral, may advance patients with heavy manual laboring jobs to work hardening. Other patients may advance to HEP.
- modalities prn
- HEP

3rd postoperative visit--
- x-rays: 3-views of elbow.
- pain assessment, VAS
- DASH score
- Work note: no restrictions. Patients with very high demand, manual laboring jobs may require further work hardening.
- MMI at one year from surgery