CLOSED WOUND DRAINAGE IN SHOULDER ARTHROPLASTY: A RETROSPECTIVE COHORT

Brandon Frye, DO
Paul Hannon, BS
Jason Nydick, DO

Disclosures

- No personal disclosures
- No funding required
- The opinions or assertions contained herein are the private views of the authors and are not to be construed as official or as reflecting the views of the Department of the Army or the Department of Defense

Background

- Closed drainage systems common in total joint arthroplasty
- Correlation btw hematoma formation and developing deep post-op infection requiring additional surgery:
  - Total knee/hip arthroplasty[1]
  - Total shoulder arthroplasty[2]
- However, no benefit in knee/hip arthroplasty[3-6]:
  - Post-op ROM
  - Wound infection
  - Hematoma
  - Reoperation rate
- Besides Gartsman et al[7], no study to date has investigated closed drainage solely in shoulder arthroplasty

1) Saleh et al. *J Orthop Res*. 2002.
2) Cheung et al. *CORR*. 2008.
3) Parker et al. *Cochrane DSRev*. 2007
4) Parker et al. *JBJS Am*. 2004
5) Ritter et al. *JBJS Am*. 1994
6) Wood et al. *J Arthroplasty*. 2008
7) Gartsman et al. *JSES*. 1997

Question

Does any significant association exist between closed drainage usage in shoulder arthroplasty and post-op complications of infection & hematoma?

www.wikipedia.org/wiki/Jackson-Pratt_drain

Methods

- All primary total shoulder (TSA) and reverse total shoulder arthroplasty (rTSA)
- Sep 2013 – Feb 2015 w/ min 12 mo follow up
- Identified potential risk factors (RF):
  - Bleeding disorders
  - Anticoag therapy
  - DM
  - Autoimmune disorders
  - Immunosuppressive meds

www.orthop.washington.edu/?q=patient-care/articles/shoulder/reverse-shoulder-replacement

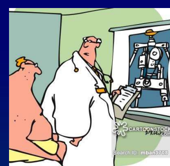
Methods

- Reviewed operative note for +/- drain usage
- Identified post-op complications:
  - Wound dehiscence
  - Hematoma/seroma
  - Infection
  - Reoperation (for any above)
- Exclusion criteria:
  - Hemi-arthroplasty
  - Non-primary/tumor
  - Lacking 12 months follow-up/documentation
- Statistical analysis: Fisher's exact test

www.arthrex.com/shoulder/total-shoulder-arthroplasty

Results

- 345 cases met inclusion:
  - 130 TSA
  - 215 rTSA

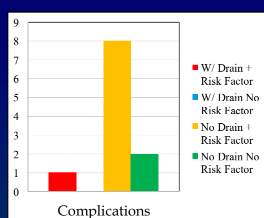


"We'll try putting you on a stronger antibiotic."

- 82 (23.8%) used drains
- 204 pts w/ potential RF
  - 46 w/ drains
  - 158 w/o drains
- Leading RFs:
  - ASA usage (111)
  - DM (61)
  - RA (37)
  - Some w/ multiple RFs

Results

- 11 complications (3.19%)
  - Deep infection (5)
  - Superficial infection (4)
  - Hematoma formation (2)

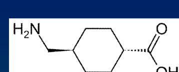


- No significant correlation:
  - Btw overall complication rate & drain usage (p=0.47)
  - Btw overall complication rate & RF(p=0.21)
  - Btw complication rate w/ drain and RF (p=1.00)
  - Btw complication rate w/o drain and RF (p=0.32)

Discussion

- Shoulder arthroplasty demand predicted to increase 755% by 2030[1]
- Are drains necessary in 1° TSA/rTSA?
- Role of TXA:
  - Significant reduction post-op blood loss[2]
  - Infection assoc. w/ hematoma in TSA[3]
  - ↓ possible risk of "seeding" infection w/o drain?

www.usa-traffic-signs.com



1) Padegimas et al. *CORR* 2015 2) Gillespie et al. *JSES* 2015 3) Cheung et al. *CORR* 2008

Discussion

- Infection rate:
  - Bohsali et al[1], reported prevelance 0.7%, over multiple studies
  - 2.6% rate (deep & superficial) in current study
- Limitations:
  - Retrospective study
  - Small sample size
  - 40% exclusion d/t lacking follow up/documentation
- Future Plans:
  - Include additional patients
  - Role of TXA with drain use

1) Bohsali et al. *JBJS Am*. 2006

Thank you

2008 – Tikrit, Iraq