Choosing a treatment for proximal humeral fractures

By Peter Pollack

WHETHER OR NOT TO OPERATE IS JUST ONE QUESTION

Proximal humeral fractures, notes Joseph D. Zuckerman, MD, have a higher rate of incidence than hip fractures, and increase exponentially in patients older than 50 years of age. Although most are nondisplaced fractures and are treated nonsurgically, the surgical treatment of complex fractures remains an issue.

According to Dr. Zuckerman, treatment decisions must consider not only the fracture, but also the patient and the surgeon (see Table 1). “Treating a displaced fracture nonsurgically does not generally provide good results,” he says. But a decision to treat the fracture surgically opens several options, including a closed reduction with internal fixation (CRIF), an open reduction with internal fixation (ORIF), reduction with intramedullary (IM) fixation, a prosthetic replacement, hemiarthroplasty or reverse total shoulder replacement.

CRIF vs. ORIF

Closed reduction and percutaneous fixation can be more technically demanding than alternative techniques, and the level of difficulty increases when moving from two-part to three- or four-part fractures. Percutaneous pins just beneath the skin can lead to skin problems and can interfere with early rehabilitation. For that reason, percutaneous screw fixation may be preferred. Dr. Zuckerman considers that the development of the locking plate has made a major difference in the treatment and outcomes of proximal humeral fractures and has extended the indications for nonprosthetic treatment.

“The reality is,” he says, “that the design and structure of a locking plate provide enhanced fixation for proximal humerus fractures that have, by definition, poor quality bone.” Although complications when using the locking plate have been reported, Dr. Zuckerman thinks that these will be addressed as the technique becomes more familiar to and used by surgeons.

Intramedullary fixation may be considered a hybrid procedure between closed reduction and open reduction.

“The problem here,” he says, “has been and always will be inserting [the IM device] through the subacromial space and the rotator cuff. My sense is that shoulder surgeons, who have a lot of respect for the rotator cuff and the subacromial space, tend to shy away from using IM fixation.

Trauma surgeons, however, look at it a little differently and have more enthusiasm for the procedure.”

For this reason, he suggests that surgeons review not just shoulder literature, but trauma literature as well.

Table 1 Factors in decision-making: Complex proximal humeral fractures

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<thead>
<tr>
<th>Fracture factors</th>
<th>Patient factors</th>
<th>Surgeon factors</th>
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<tbody>
<tr>
<td>Degree of displacement</td>
<td>Functional needs</td>
<td>Experience</td>
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<tr>
<td>Commination</td>
<td>Age</td>
<td>Expertise with technique</td>
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<td>Bone quality</td>
<td>Preexisting disability</td>
<td></td>
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<td>Articular surface involvement</td>
<td>Ability to participate in rehabilitation program</td>
<td></td>
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<td>Time from injury</td>
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Recommendations

“When considering the options of open reduction, closed reduction, or a combination of the two,” he concludes, “I think ORIF—whether with locking plates or another device—should be used with two-, three-, and four-part fractures. Patient and surgeon considerations will determine which fractures to use it on.

“Percutaneous techniques are probably best used for two- and three-part fractures. The exception may be a valgus-impacted, four-part fracture. There’s a learning curve, as I pointed out. Make sure your results are comparable to doing an open reduction. The intramedullary device, I think, has a role in two-part fractures primarily, and three-part fractures maybe, but it has to be done by a surgeon who is comfortable with the technique.”

Controversy

Final recommendations

Dr. Flatow provides the following indications for arthroscopic cuff repairs today: “All primary repairs, with the exception perhaps of a few traumatic subscapularis tears, can be treated arthroscopically. But you can do most subscapularis tears—even complete tears—arthroscopically.

“Arthroscopic surgery is also indicated in some revision surgeries—even those with stiffness, impingement, or recurrent tears—if there is good tissue, because it enables the surgeon to do all of the necessary releases,” he continues. “It’s especially indicated in elderly patients who have massive tears, because the morbidity is much less and the surgery can be performed as an outpatient procedure, using a regional block.”

Dr. Flatow offered the following indications for an open cuff repair:

- Traumatic subscapularis tears that are stuck to the axillary nerve; some larger retracted tears with good muscle where the patient is overwhelmingly concerned with strength; revision surgery where grafts and tendon transfers are going to be used; and, of course, if there’s coexisting arthritis and a concomitant arthroplasty is planned.”

Disclosure information for Joseph D. Zuckerman, MD, is available on the AAOS Web site at www.aaos.org/oko.

Disclosure information for Evan L. Flatow, MD, is available on the AAOS Web site at www.aaos.org/oko.

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