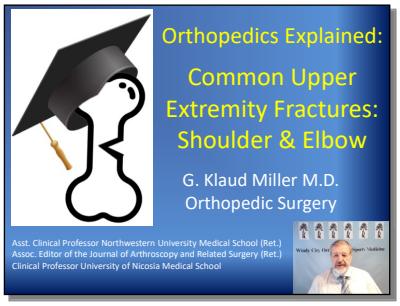
Slide 1



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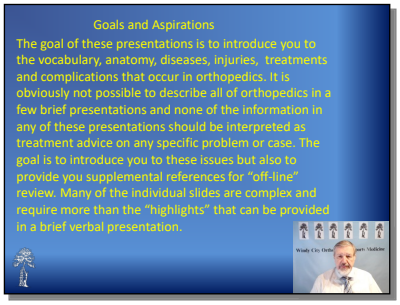

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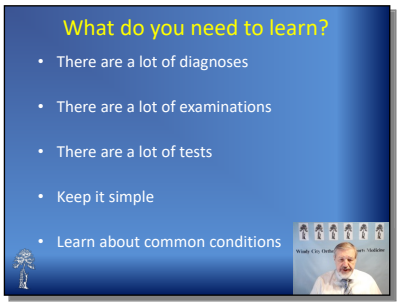

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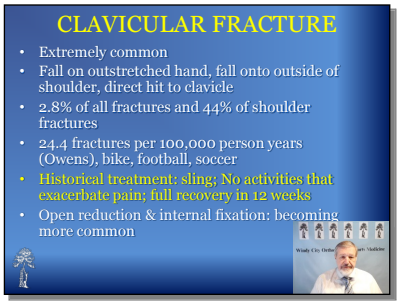
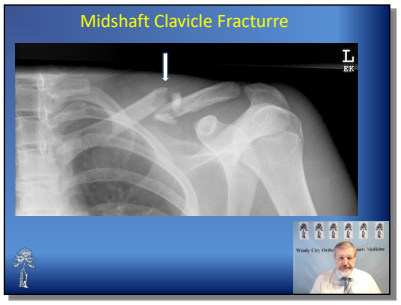


The clavicle is your collarbone. Fractures are very common in sports and bicycling. Historically, surgery was almost never done. More recently, open reduction and internal fixation is becoming more common.

Slide 5



A typical midshaft clavicle fracture with displacement and comminution.

Slide 6

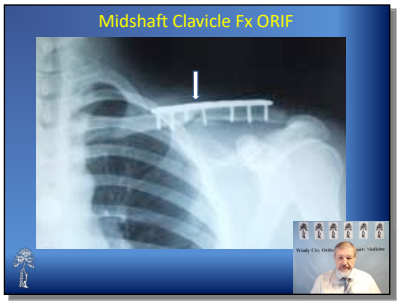


Plate fixation of a midshaft clavicle fracture

Slide 7

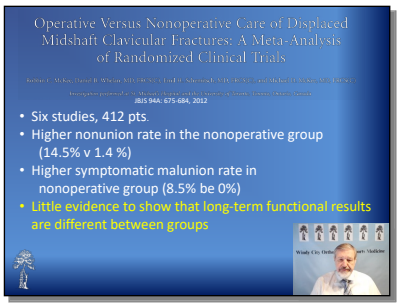
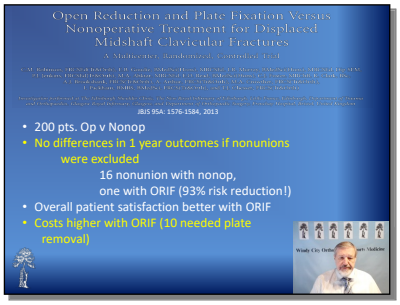


Plate fixation gives better x-rays and a higher healing rate, but does NOT necessarily improve function

Slide 8

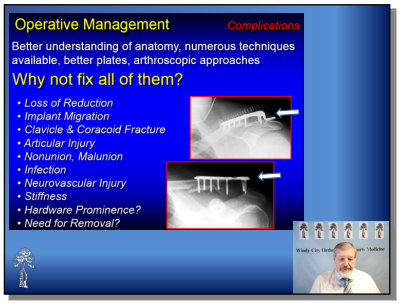


Another series that shows a higher risk of nonunion without surgery but costs were higher with surgery and equivocal better function

Slide 9

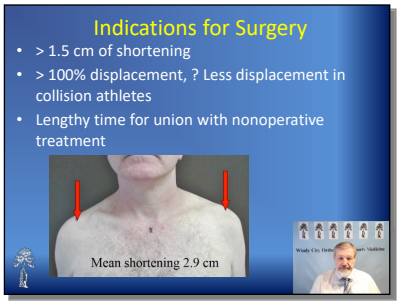
Again, a recent study showed a higher risk of nonunion without surgery but plates not uncommonly require removal. Overall, no definite difference with either treatment.

Slide 10



Again, surgery is not a free lunch, it has complications. Screws can pull out and plates can displace.

Slide 11



Current recommendations for surgery. Significant shortening and significant displacement.

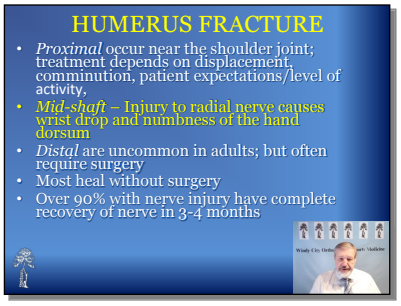
Slide 12

A bad malunion with deformity, shortening, and residual displacement

Slide 13

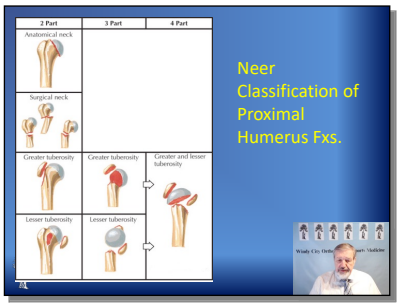
A bad nonunion with severe displacement, and a bad cosmetic deformity but without severe shortening

Slide 14



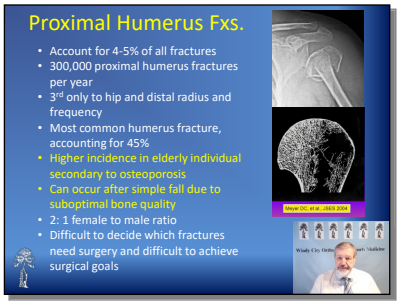
Humerus fracture characteristics are largely dependent on where the fracture is in the humerus. The midshaft humerus fractures tend to be the biggest risk of problems because of potential injury to the radial nerve and a wrist drop. However, most of these nerve injuries will recover spontaneously

Slide 15



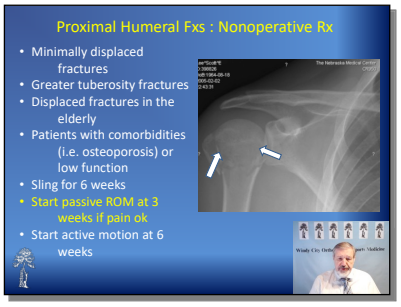
The Neer classification for proximal humerus fractures is still probably the most commonly used. It classifies by the number of fracture fragments (i.e. 2, 3 or 4 part fractures).

Slide 16



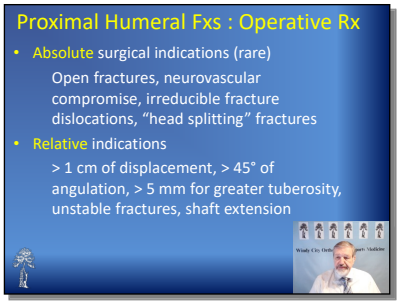
Proximal humerus fractures are the 3rd most common injury seen in the general population in the ER. They are very common in elderly women because of osteoporosis.

Slide 17



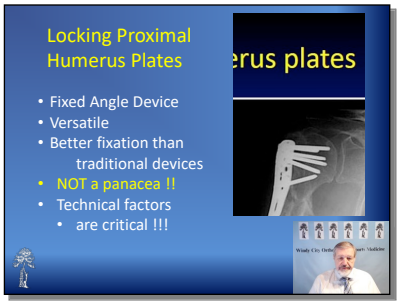
Most proximal humerus fractures can be successfully treated with nonoperative care

Slide 18



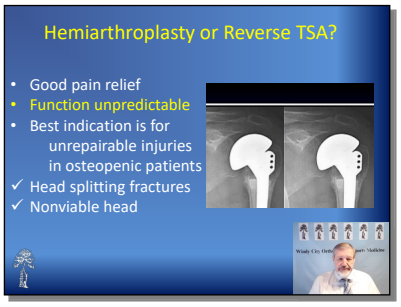
Surgery can be appropriate for the more severe types of proximal humerus fractures.

Slide 19



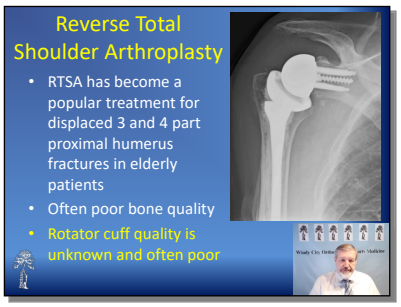
Open reduction and internal fixation with plates has been advocated but can be technically difficult and has a high complication rate.

Slide 20



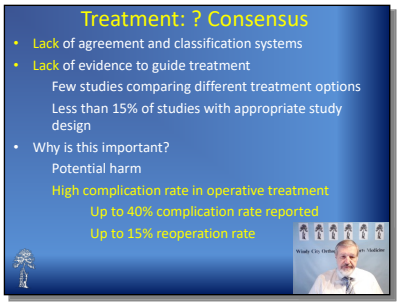
Hemiarthroplasty has been the “go to” treatment historically for the unrepairable fractures but function is frequently unpredictable.

Slide 21



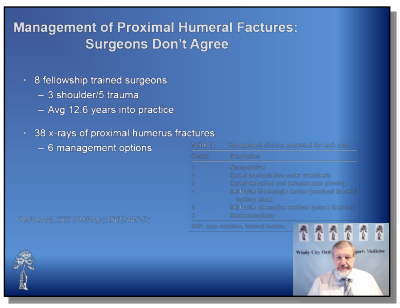
More recently, reverse total shoulder arthroplasty has been used more frequently. It provides much better function even in the face of a bad rotator cuff tear.

Slide 22



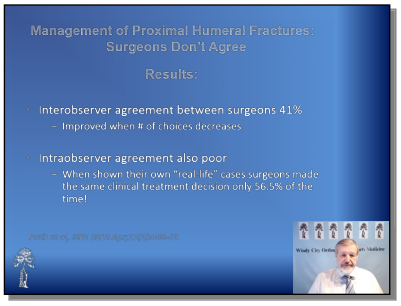
The literature is NOT clear on surgery versus nonsurgical treatment or what type of surgical procedure is appropriate for the individual patient. Surgery has a significant complication rate.

Slide 23



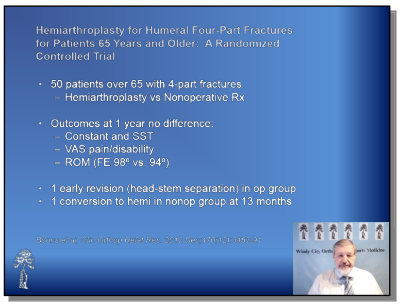
Eight “authorities” could not agree on the treatment of specific individual fractures

Slide 24



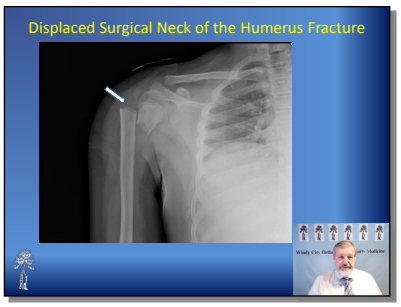
Only 50% of the surgeons even agreed with their OWN previous treatment recommendations when they were shown the same cases later on

Slide 25



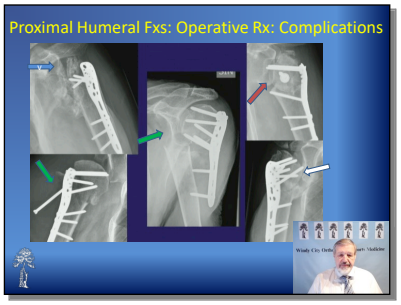
In this series there was no difference when people were randomized to nonsurgical versus prosthetic replacement

Slide 26



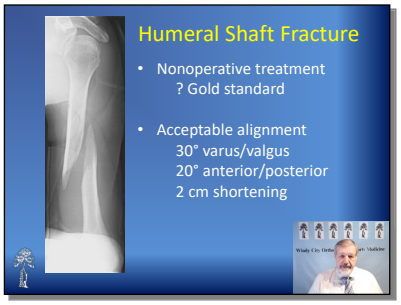
A completely displaced proximal humerus fracture

Slide 27



Complications of internal fixation of proximal humerus fractures include avascular necrosis (blue arrow), nonunion (red arrow), plate breakage, hardware pullout (green arrows)

Slide 28

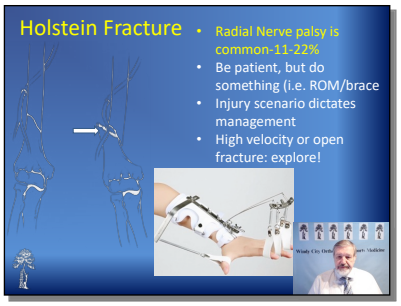


However, most patients with humeral shaft fractures can be successfully treated nonoperatively even with significant angulation

Slide 29

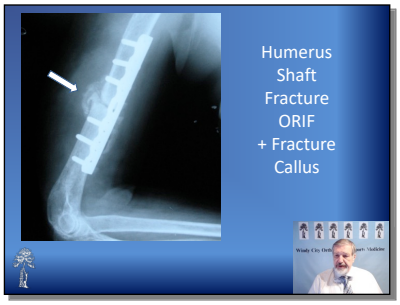
Dr. Augusto Sarmiento proved that most shaft fractures can be treated with a simple brace with low morbidity and good success

Slide 30



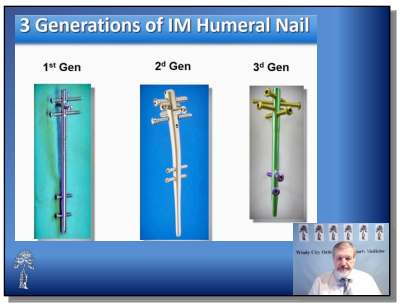
The Holstein fracture is a fracture close to the elbow that injures the radial nerve and results in a wrist drop. It usually can be managed nonoperatively with successful nerve recovery without surgery. A Wrist drop splint is shown in the lower right.

Slide 31



A humerus shaft fracture fixed with a plate and good callus

Slide 32

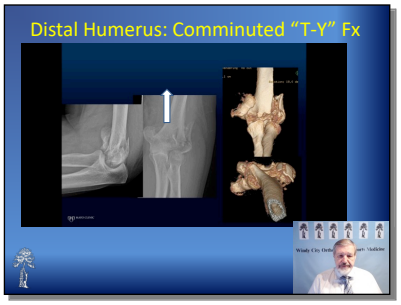


More recently, intramedullary rods are being used more frequently for humeral shaft fractures. Locked rods prevent shortening.

Slide 33

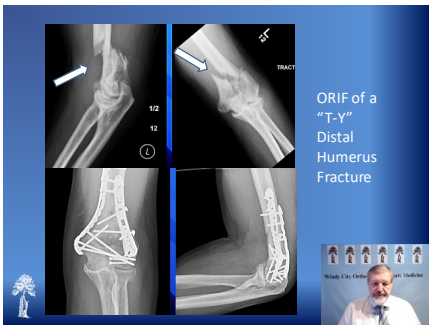
The classification of intraarticular distal condylar humerus fractures

Slide 34



Distal humerus fractures are commonly very comminuted and displaced and frequently require surgery. The pictures on the right are 3D CT reconstruction of the x-rays on the left. These are commonly from a fall on the elbow that forces the forearm bones up into the humerus.

Slide 35

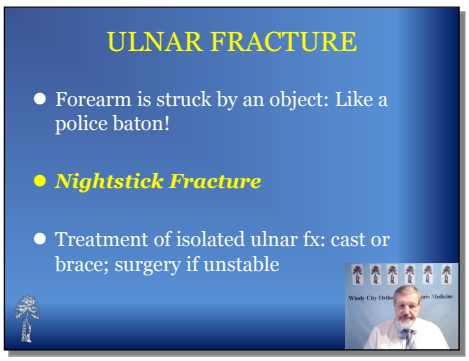


Open reduction and internal fixation of a distal “T-Y” fracture

Slide 36

A “T-Y” fracture with hardware failure and a varus malunion

Slide 37

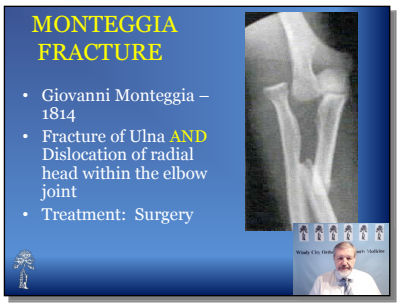


Ulnar shaft fractures ar commonly defensive in nature defending again a blow, hence the nam “nightstick fracture”

Slide 38

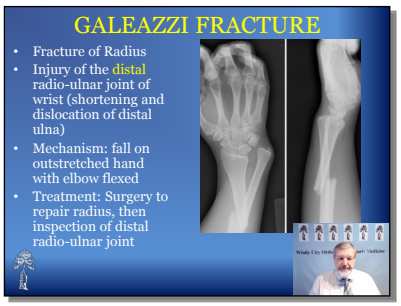
Typical examples of nightstick fractures

Slide 39



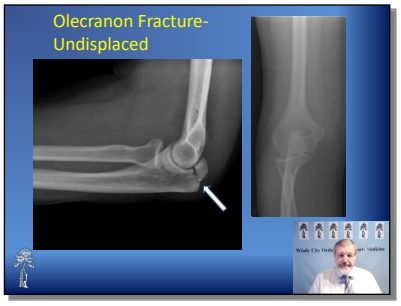
The Monteggia fracture is a proximal ulna shaft fracture with a dislocation of the radial head. It was described in 1814 before x-rays were invented! It typically requires surgery

Slide 40



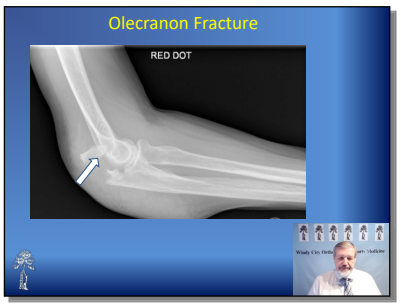
The Galeazzi fracture is a fracture of the radius with a dislocation of the ulna at the wrist. It also most commonly requires surgery.

Slide 41



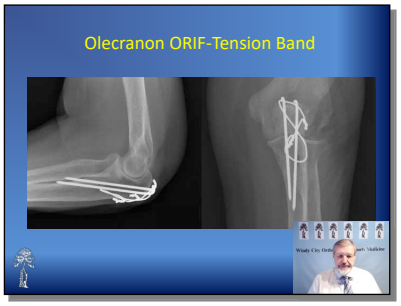
The olecranon is the "tip" of the elbow and is the attachment of the triceps muscle that straightens out the elbow.

Slide 42



A displaced olecranon fracture usually requires surgery.

Slide 43

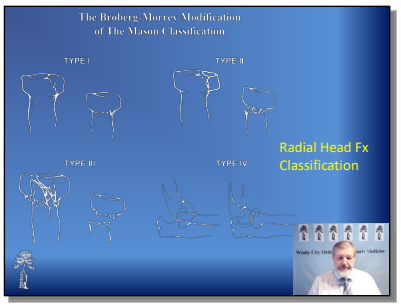


A tension band technique is the historical standard for ORIF.

Slide 44

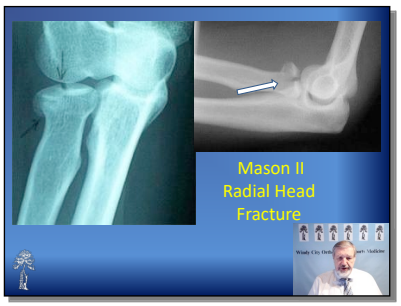
A plate is more commonly used recently

Slide 45



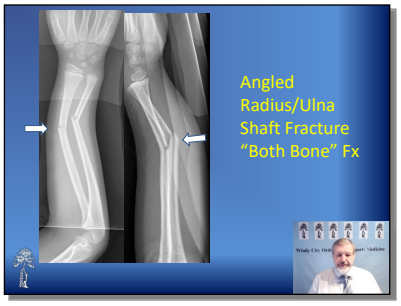
The radial head looks like the end of a baseball bat. It is an intra-articular fracture by definition. Treatment is typically nonoperative unless very severe or a loose piece.

Slide 46



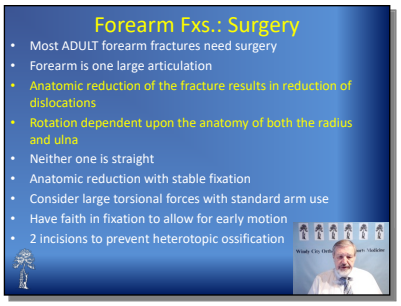
A typical Mason II displaced radial head fracture. This can be very successfully treated without surgery.

Slide 47



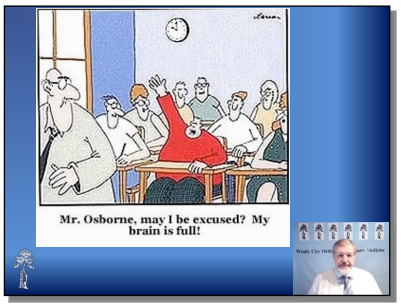
Both bone fractures involve fractures of the radius and ulna. In children, they can be treated nonoperatively. In adults they usualy require surgery.

Slide 48



Principals of surgical treatment of both bone fractures. The reductions need to be anatomic in order to avoid limitations of rotational motion.

Slide 49



Thank you for listening.