

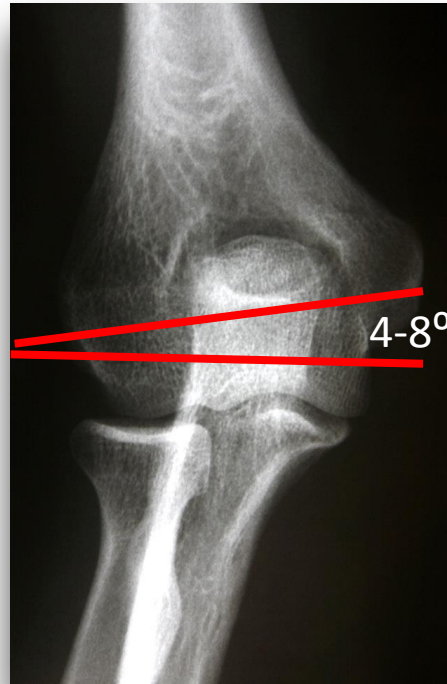
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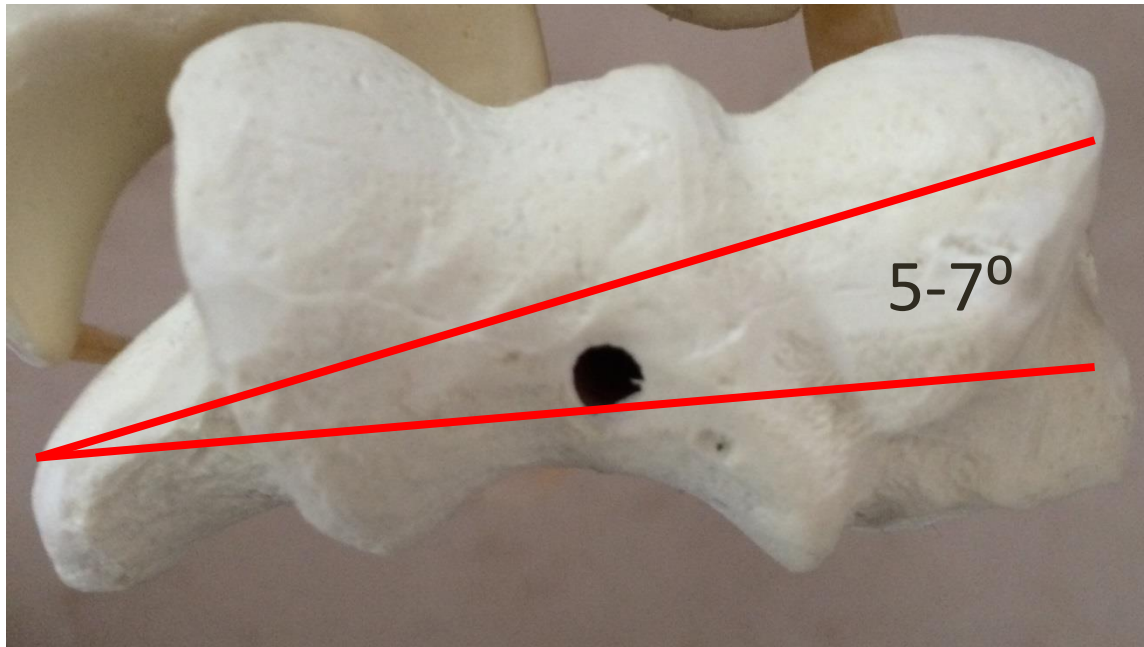
Distal Humerus Fracture – Challenge in Treatment ?

S.Pomianowski, D.Michalik, M.Urban

Complex articular anatomy

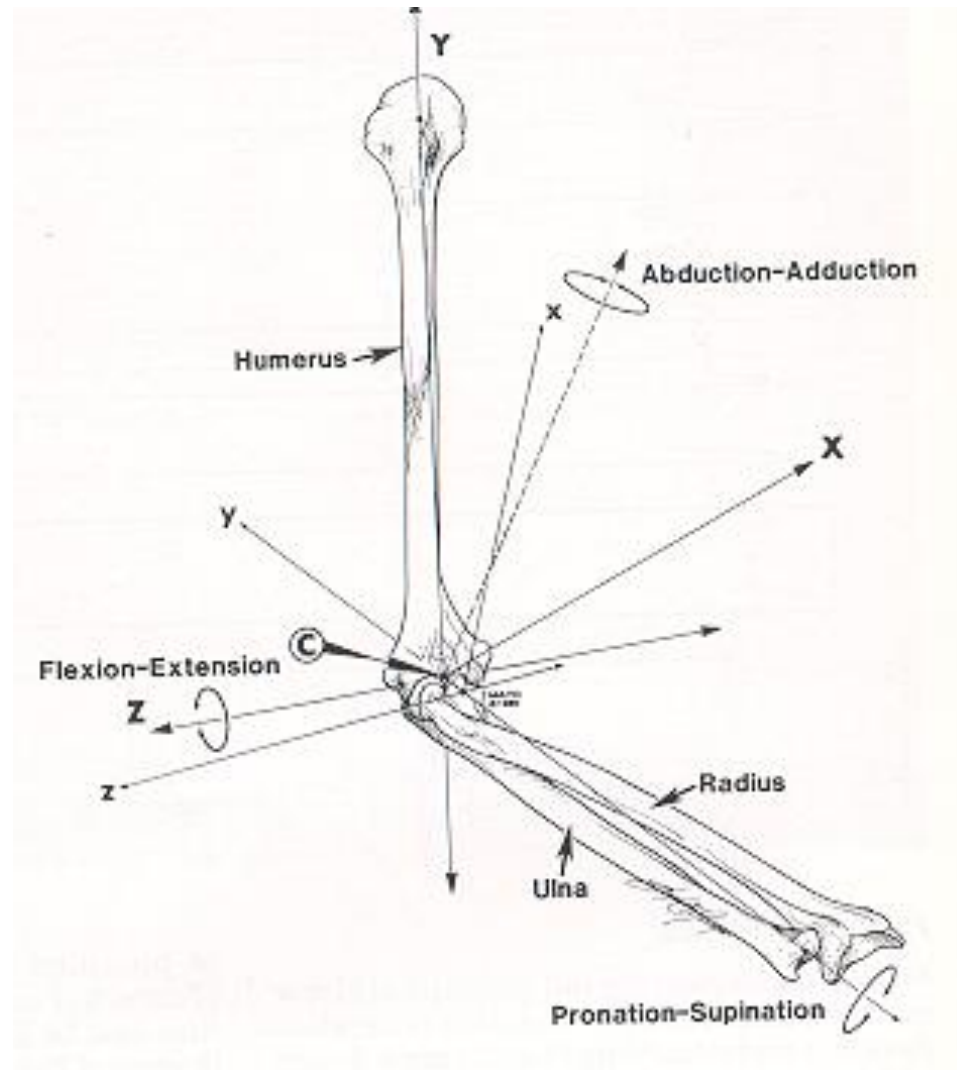


Complex articular anatomy



Distal humeral articular surface is internally rotated in reference to the line connecting the epicondyles

Complex elbow biomechanics



Extra articular	13-A1 avulsion	13-A2 simple	13-A3 multifragmentary
	<i>i</i> ▶ proceed	<i>i</i> ▶ proceed	<i>i</i> ▶ proceed
Partial articular	13-B1 lateral sagittal	13-B2 medial sagittal	13-B3 frontal
	<i>i</i> ▶ proceed	<i>i</i> ▶ proceed	<i>i</i> ▶ proceed
Complete articular	13-C1 simple	13-C2 metaphyseal comminution	13-C3 multifragmentary
	<i>i</i> ▶ proceed	<i>i</i> ▶ proceed	<i>i</i> ▶ proceed

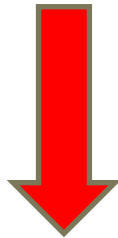
Therapeutic challenge

Comminuted intra-articular fractures

1. Complex articular anatomy

2. Complex elbow biomechanics

3. Comminuted intra-articular fractures



Complications after distal humerus fracture

Complications after distal humerus fracture

Surgical complications

- **Incorrect qualification**
- **Nonunion**
- **Malunion**
- **No elbow – after accident**
- Infection
- Damage to nerves and blood vessels

Long-term problems

- Heterotopic ossification
- Soft tissue contracture
- Elbow arthrosis

Ulnar nerve neuropathy



Limited range
of elbow
motion

Incorrect qualification

Incorrect initial
treatment
of fracture



8 months after osteotomy, reduction and LCP fixation



Flexion 135
Extension 15
Full rotation



Nonunion

Surgery does not guarantee healing of the fracture

- Fracture may pull apart
- Screws, plates or wires may shift or break

Reason:

- Patient doesn't follow directions after surgery
- The risk factors of healing (diabetes, smoking, open fractures, infection)

Nonunion



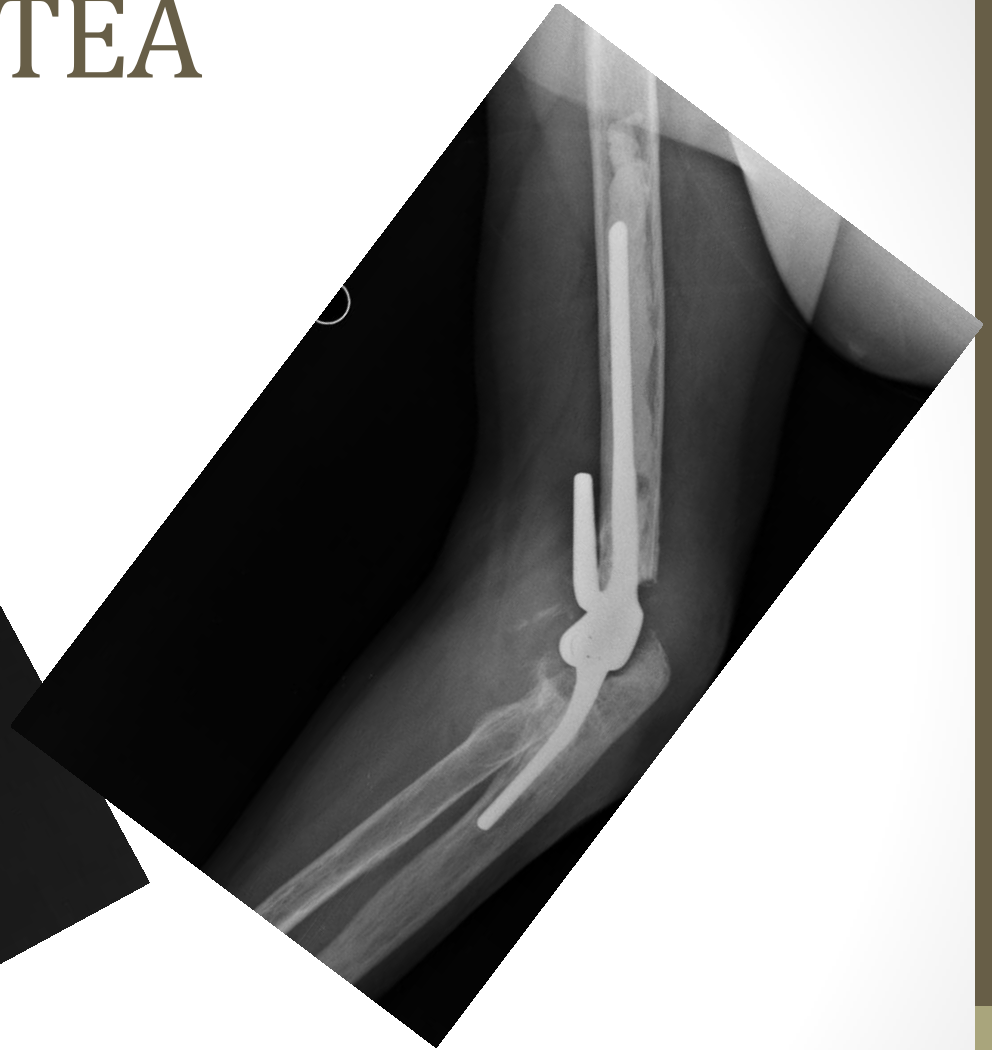
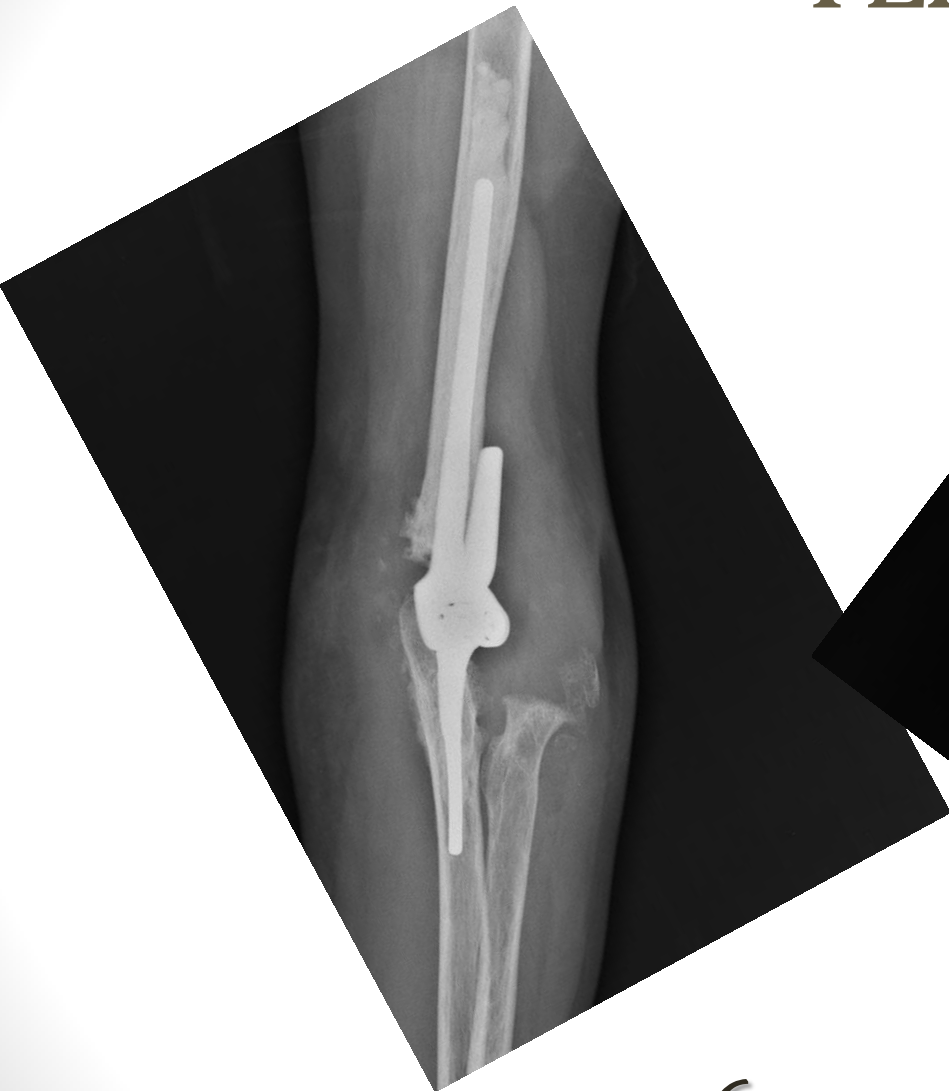
6 years after fracture

TEA



February 2015

TEA



6 months after TEA

Malunion

- 2 months after distal humerus fracture

Malunion



Malunion



CT scan

Osteotomy and screw fixation



5 months after osteotomy



12 months after osteotomy

- Elbow range of motion: flexion 120, extension 20, full rotation
- Elbow motion without pain

Male, 43 age

- Truck accident, October 2013
- Multitrauma, open distal humerus fracture and forearm fracture



No elbow

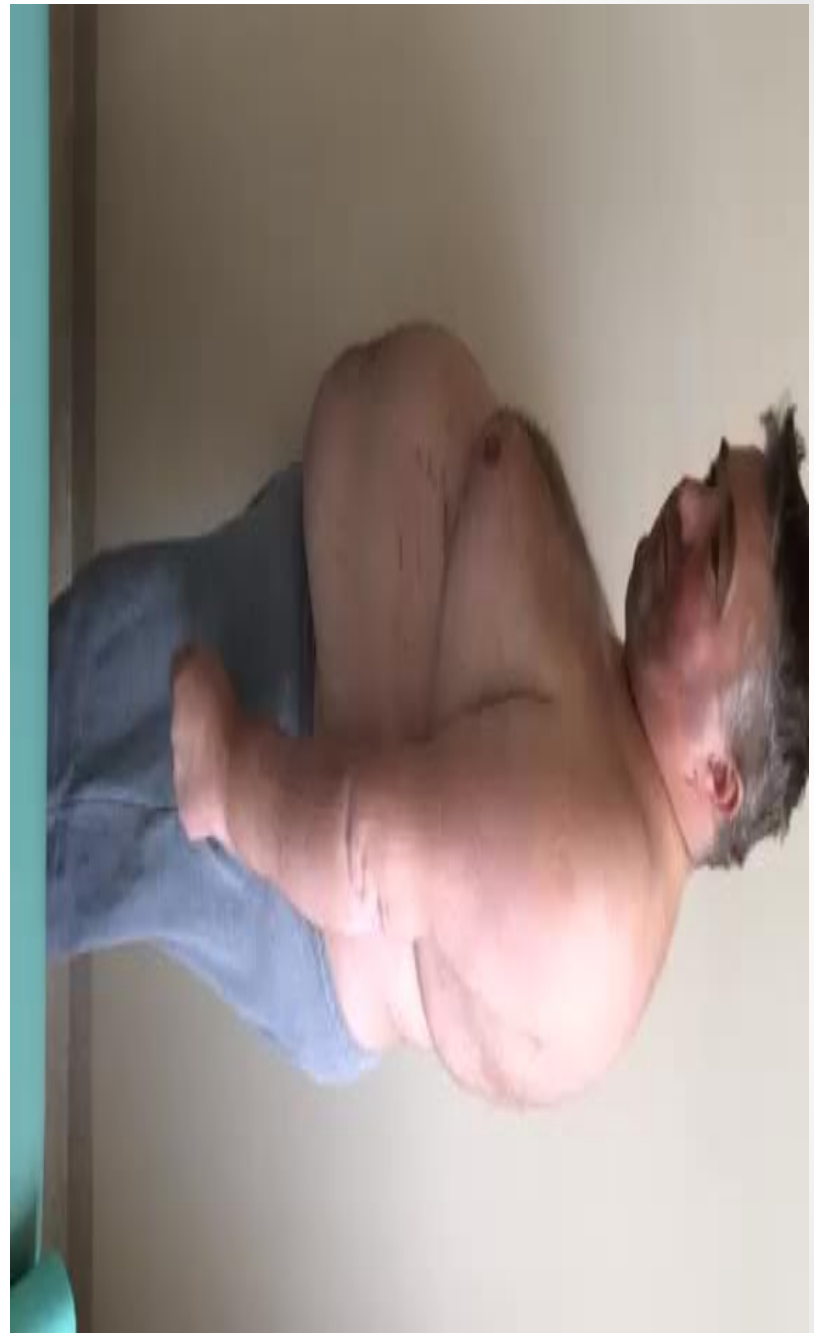
14.01.2015 (1.5 year after accident)



14.01.2015 (1.5 year after accident)



14.01.2015
(1.5 year after
accident)



15.01.2015

- TEA Coonrad Morrey
- Posterior triceps sparing approach

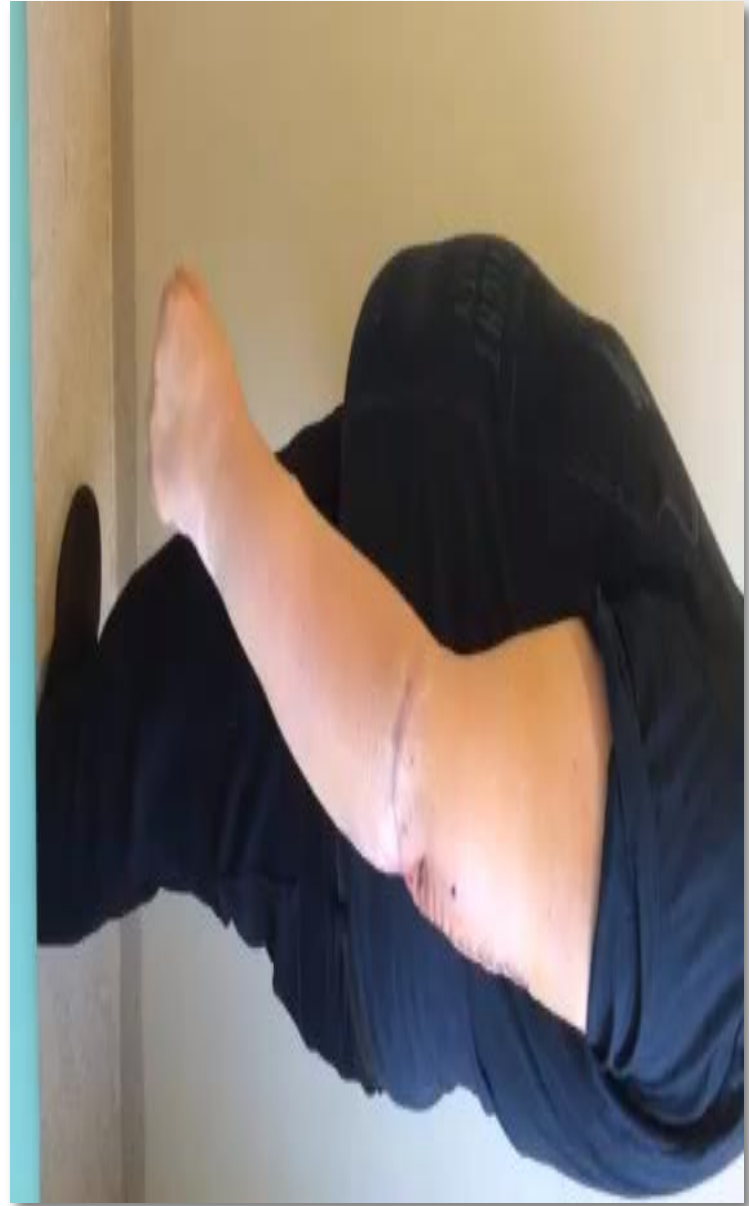
TEA - 15.01.2015



21.01.2015 (6 days after TEA)



21.01.2015
(6 days after
TEA)



10.03.2015
(6 weeks after
TEA)



CRP (6 weeks after TEA)

Próbka: Serum

NRM:

Zona:

Nr.łóżka

Zlecił: MURAWA AGNIESZKA

Wysłano z:

CITO

Nie

Opis próbki:

Uwagi:

Test	Pełna nazwa testu	Koncentracja	Jednostka	Wyniki	Wzmianka	Odniesienie:
CRP	Białko CRP	3.14	mg/L	Normale		<=6,00

Data testu: 2015-03-03 09:22:14

Wykonał:

Data wysłania: 2015-03-03 09:22:14

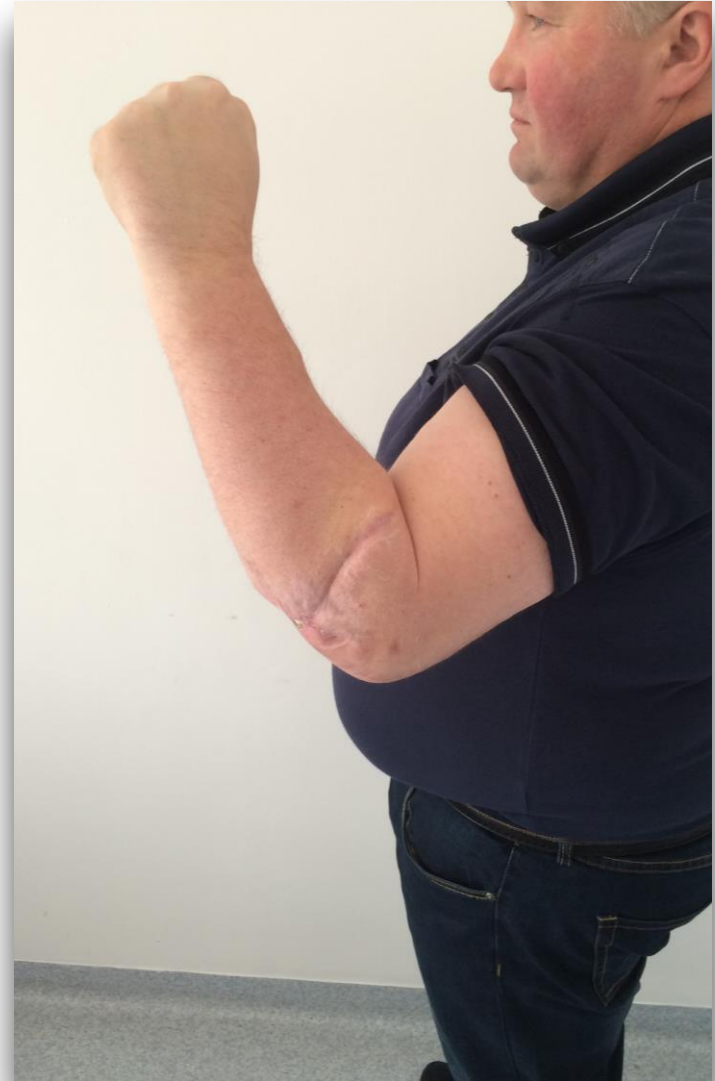
Przejrzał:

Data wydruku: 2015-03-03 12:20:41

Wyniki tylko dla tej próbki

mgr Iwona Wesolowska
DIAGNOSTYKA LABORATORYJNY

10.03.2015 (6 weeks after TEA)



6 months post op



Before and 6 months after TEA



Summary

- Incorrect qualification and incorrect surgery nearly always lead to disaster and necessity for the next surgery
- In some type of nonunions TEA is a reasonable option of treatment
- Malunion usually needs operative correction
- In the lost of elbow joint TEA is usually one option of treatment

Summary

- The proper rehabilitation after the operation is very important and can last even 6 months