2. ULUSLARARASI TRAVMA KONGRESİ

KONYA ŞEHİR HASTANESİ



Humerus üst uç Kırıkları

Kerem BİLSEL

Turkish Society of Shoulder and Elbow Surgery

ACIBADEM FULYA

ACIBADEM UNIVERSITY

Politravma ~ Omuz

- **Şiddetli yüksek enerjili travma!**
  - Omuz eklemi ve çevresinde masif şişlik, deformite
  - Üst ekstremite Nörovasküler defisit
  - Toraks radyolojisinde lateral deplasman

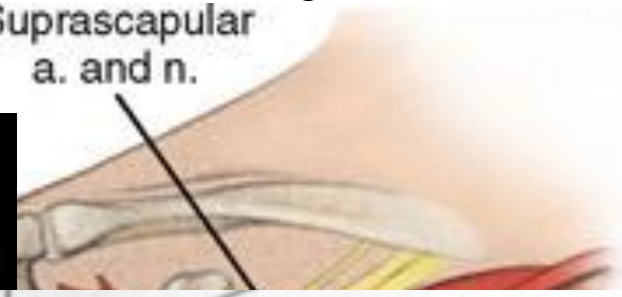
➢Omuz eklem çevresi yaralanma???
(KLAVİKULA - SKAPULA - PROKSİMAL HUMERUS)

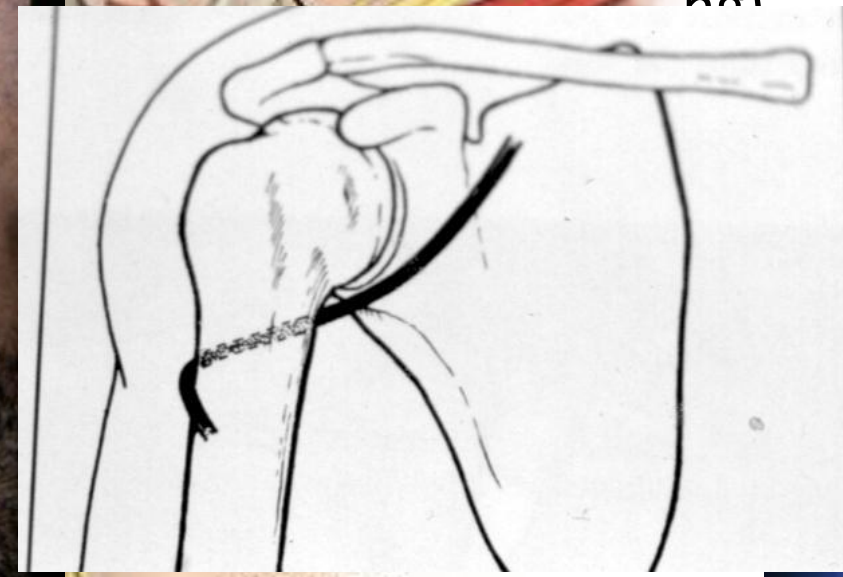




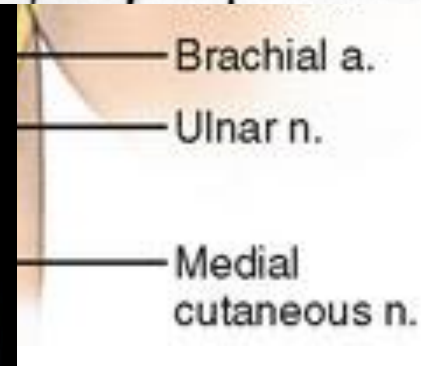
Omuz çevresi yaralanmalar





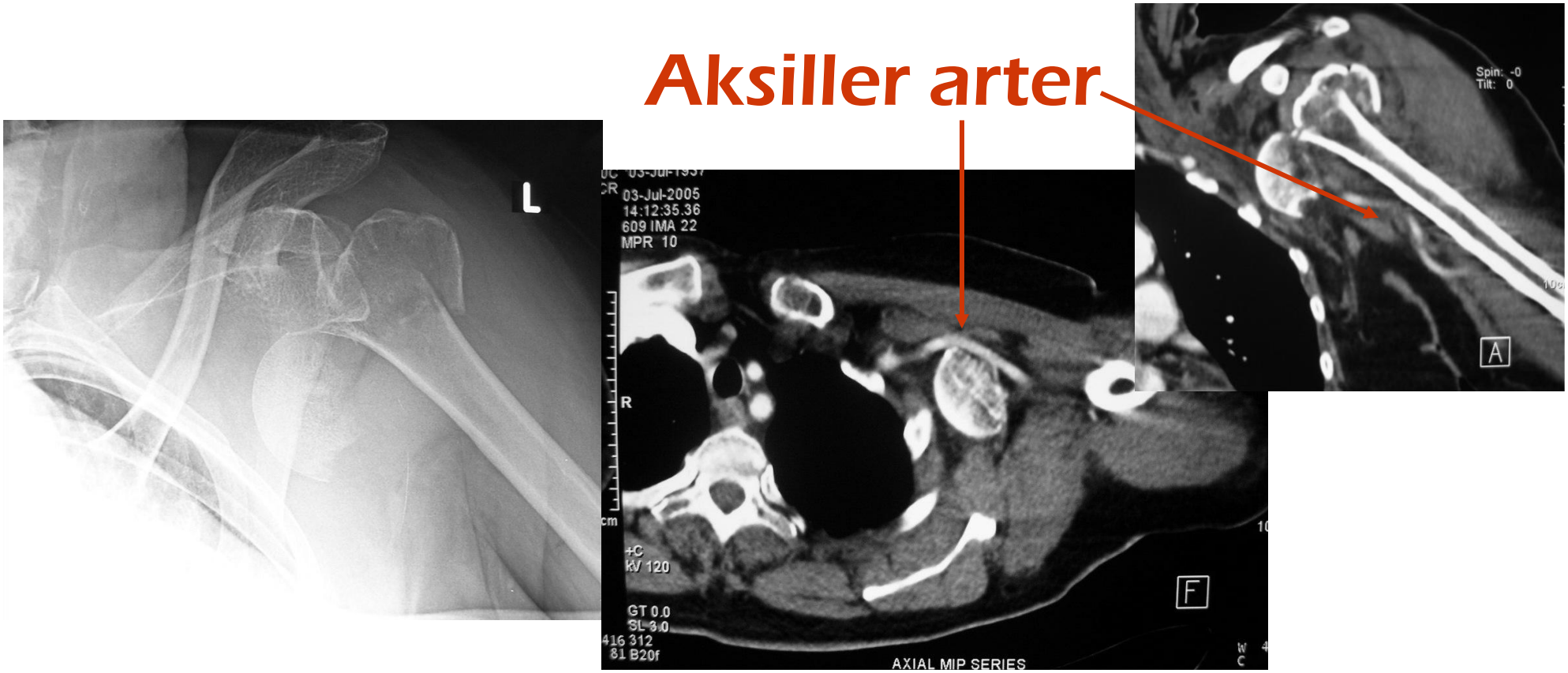






GH fx – dislokasyon

- Nörovasküler komşuluk!!!



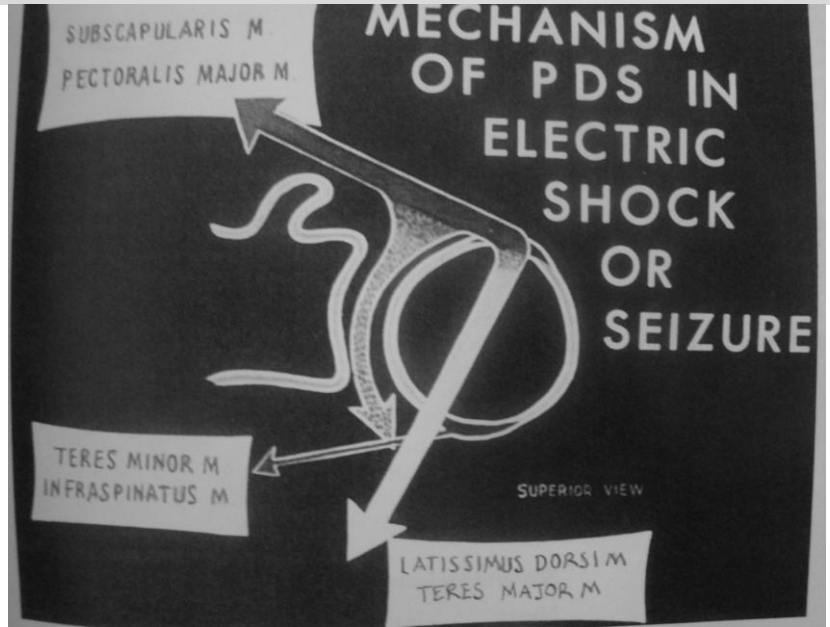
GH fx – dislokasyon

- Posterior çıkık

***Konvülzif nöbet** veya **elektrik çarpması**→ Güçlü kas kontraksiyonu→

→ Post. Çıkık

- **Çoğunlukla <u>kilitli !!</u>**
- **%60 atlanabiliyor!!** ***<u>"diagnostic trap"</u>*** (McLaughlin HL JBJS Am 34: 584, 1952)



The Shoulder 3rd edition Saunders
© 2004 Elsevier

GH fx – dislokasyon

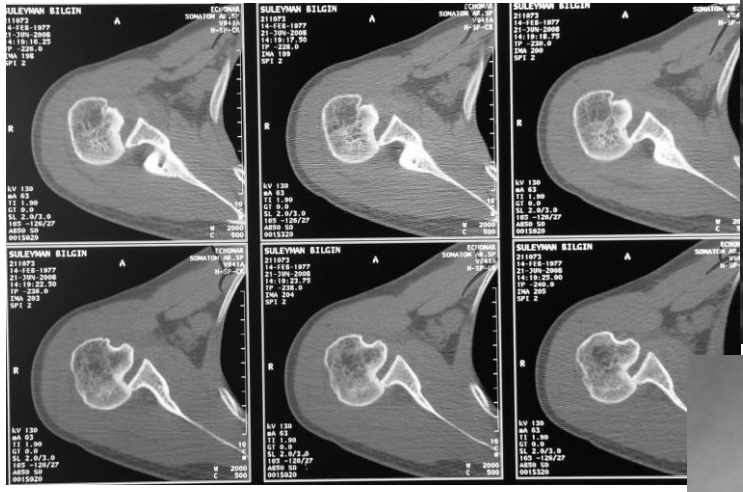
- **Posterior kilitli çıkık + impresyon kırığı**

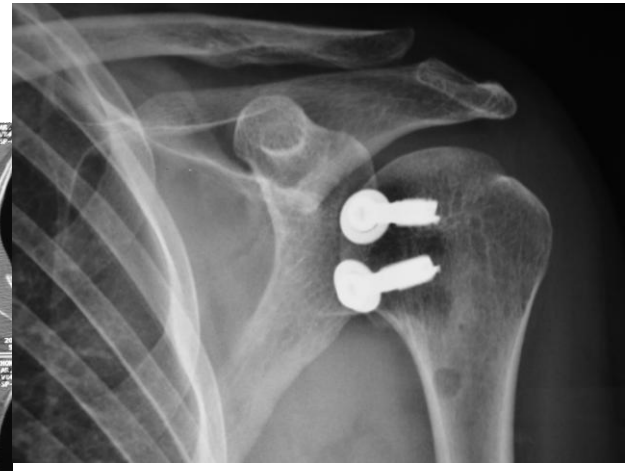
33 yaş E – ***<u>Modifiye McLaughlin</u>***

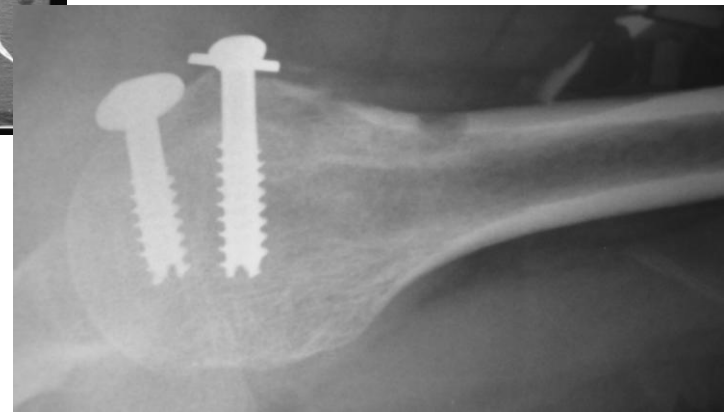


Röntgen Atlanabilir!!

Light bulb sign

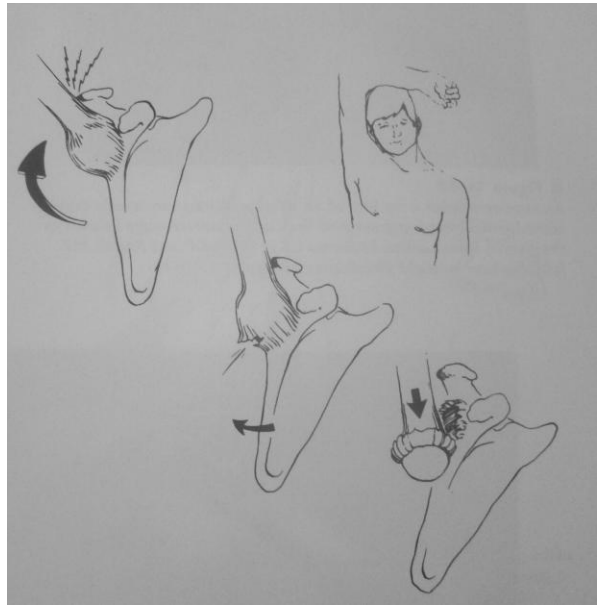






GH fx – dislokasyon

- İnferior çıkık **(Luxatio erecta)**
- "Hiperabdüksiyon" kuvveti → baş akromion ve glenoid inf. kilitlenir
- Humerus proksimali çevresi kırık ve ciddi yd. Yaralanması
- Nörovasküler yaralanma sık
- K.repozisyon veya inferior kapsül genişleterek açık red.

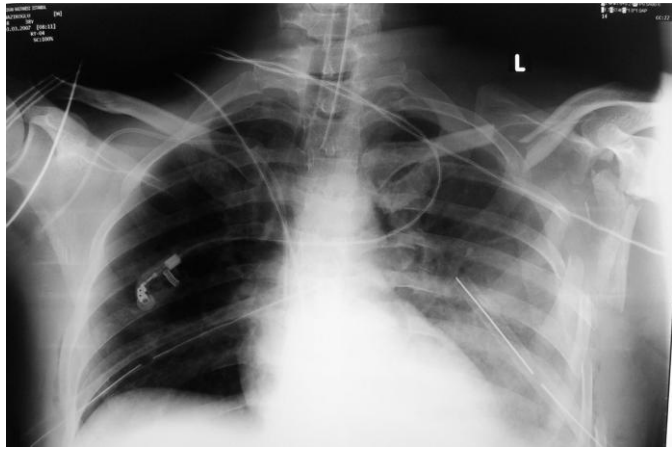




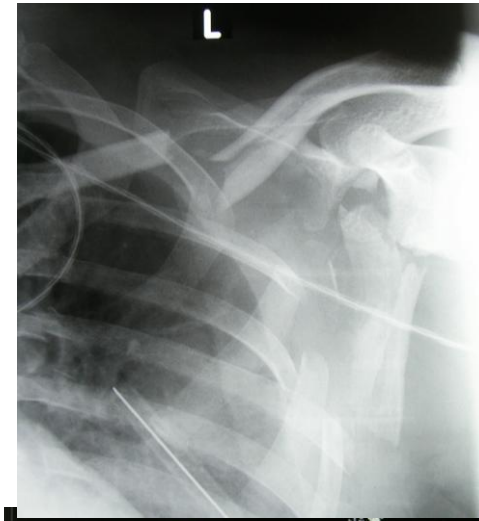


Floating Shoulder

- 38 y E

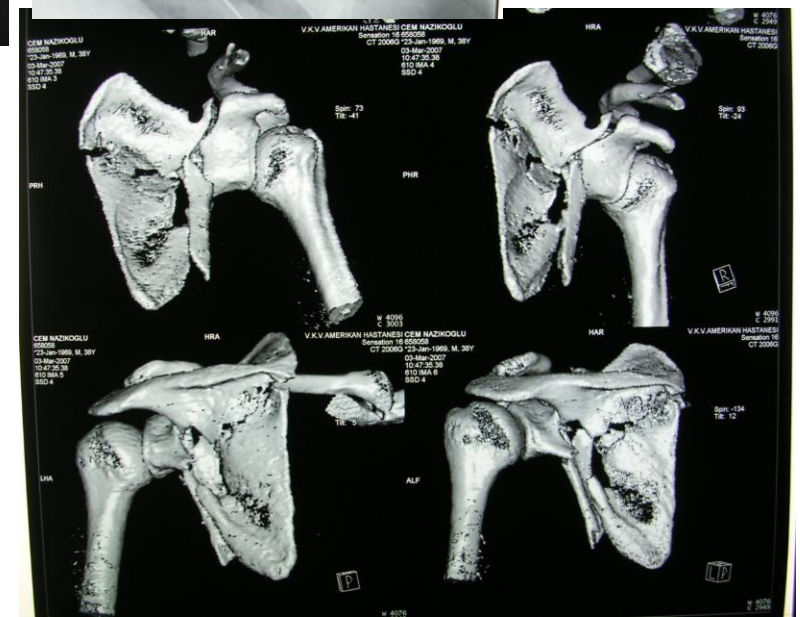








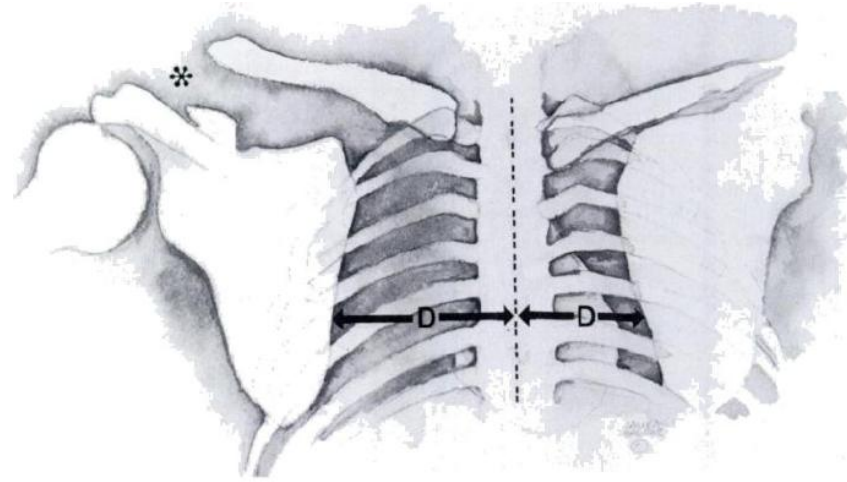




Skapulotorasik disosiasyon

- Skapula nın posterior göğüs duvarından travmatik ayrışması *"closed traumatic forequarter amputation"*
- *Osseöz ayrışma (Skapula, klavikula, proks. Humerus)

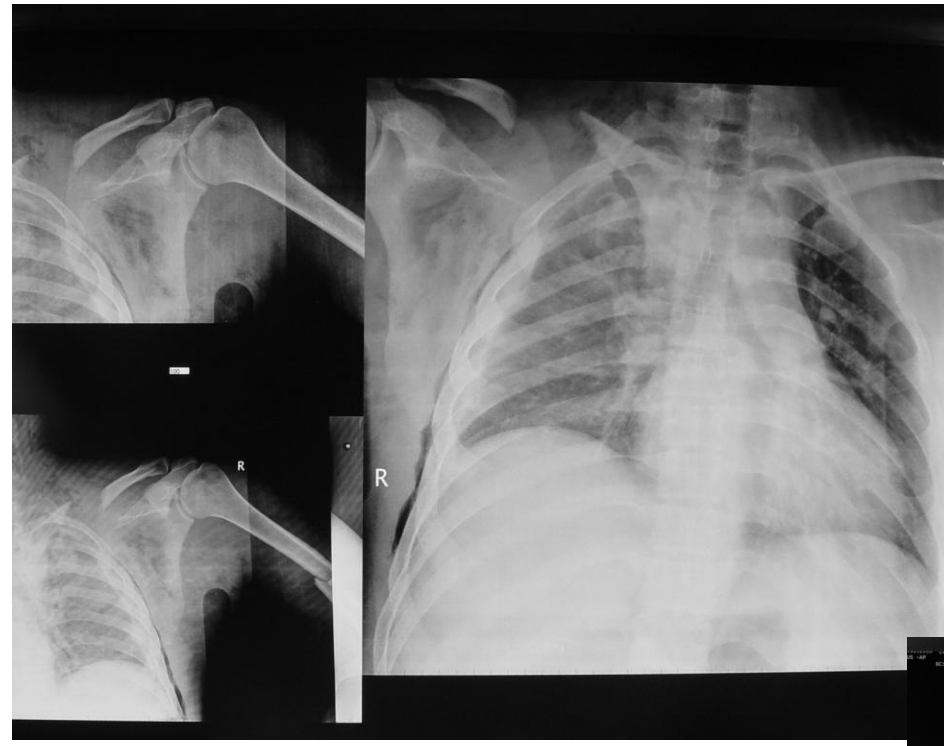
  *Yumuşak doku ayrışma (GH, AC, SC eklem)
- Pnömotoraks- Multiple Kot kırıkları
- Nörovasküler yaralanma sık (subklavien/ aksiller arter – parsiyel/komplet brakial pleksus)

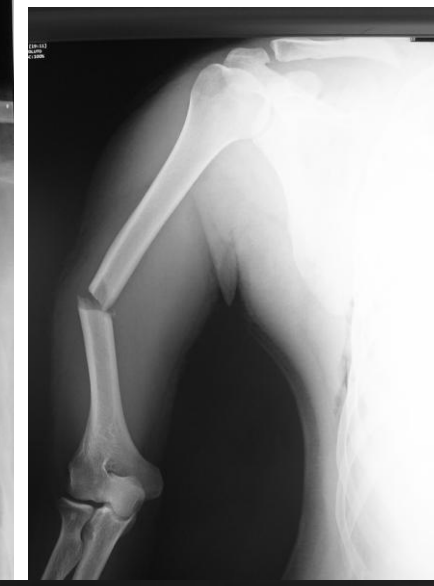


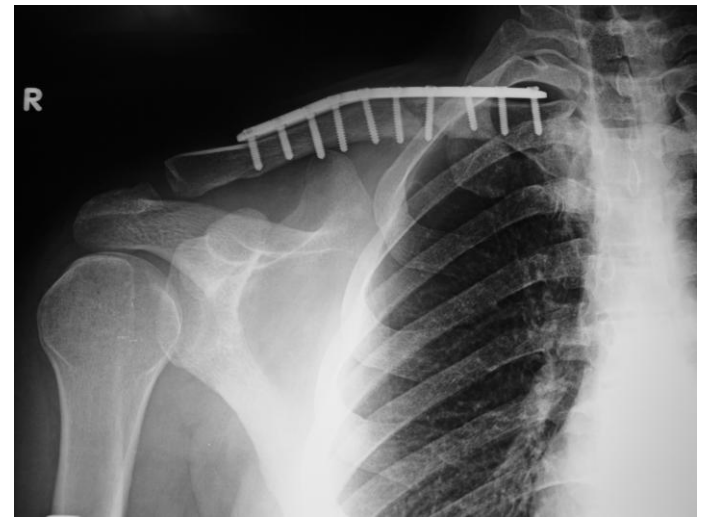
Toraks grafisinde Skapula da belirgin lateral deplasman!

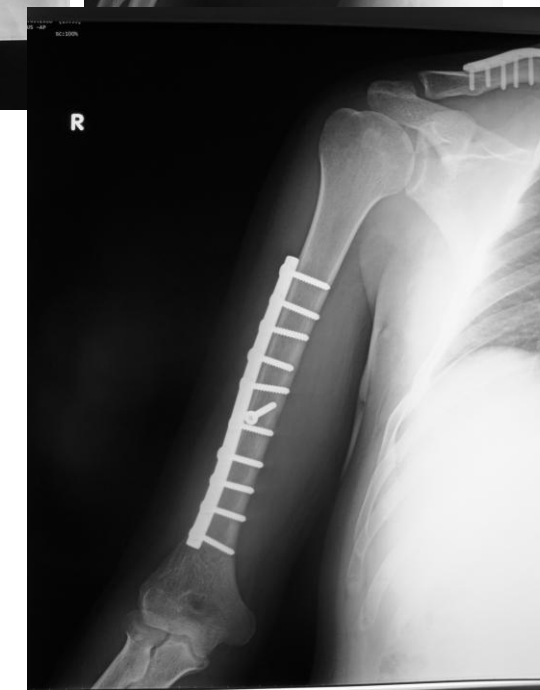
- 30 yaş E







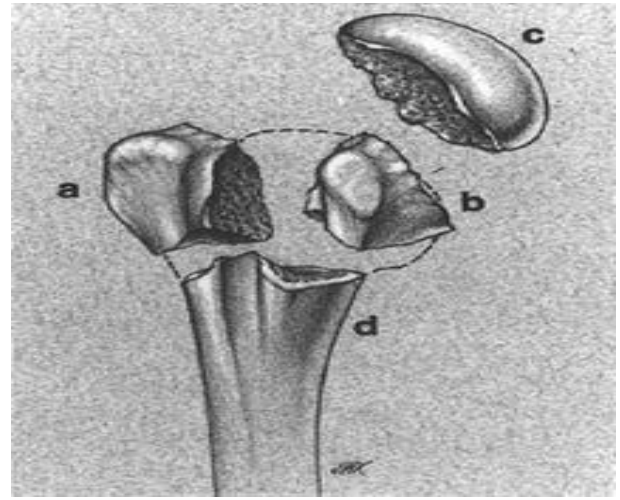




HUMERUS PROKSİMAL KIRIK

Epidemiyoloji

- Tüm üst ekstremite kırıklarının **%3- 5**
- **%75** >60yaş
- **Kadın** > Erkek (**3** / 1)
- **Osteoporoz** (majör faktör)
- %80-85 **minimal deplase** (düşük enerjili travma)



Anatomi

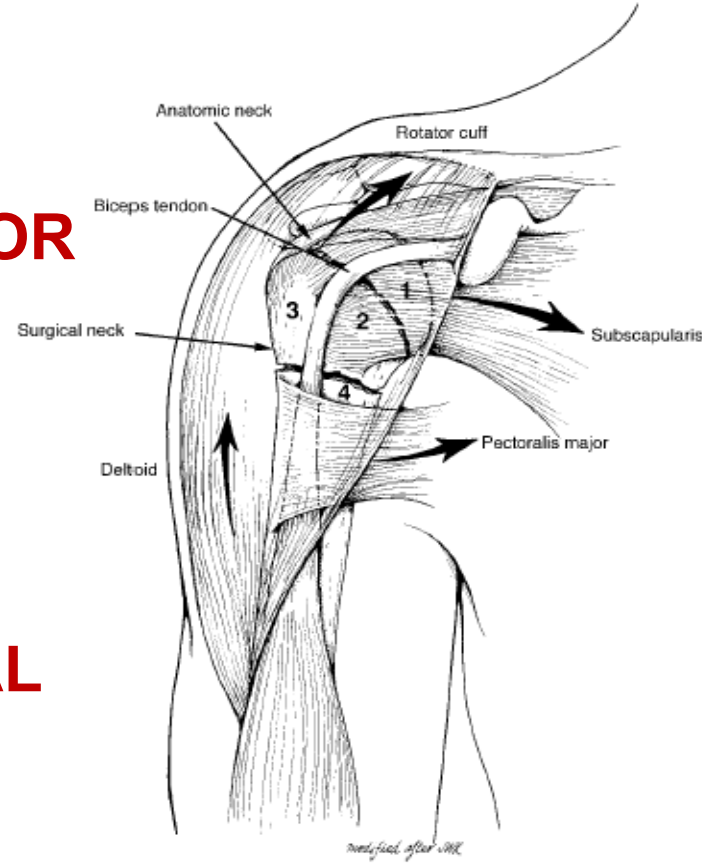
Kas güçleri ve çekimleri “deplasmanı” belirler

TUBERCULUM MAJUS
supra/infraspinatus

POSTERIOR/ SUPERIOR

CERRAHİ BOYUN/ ŞAFT:
deltoid/pektoralis major

SUPERIOR/ MEDIAL



HUMERUS BAŞI:
Kanlanma riskli
AVN !

TUBERCULUM MINUS:
subskapularis

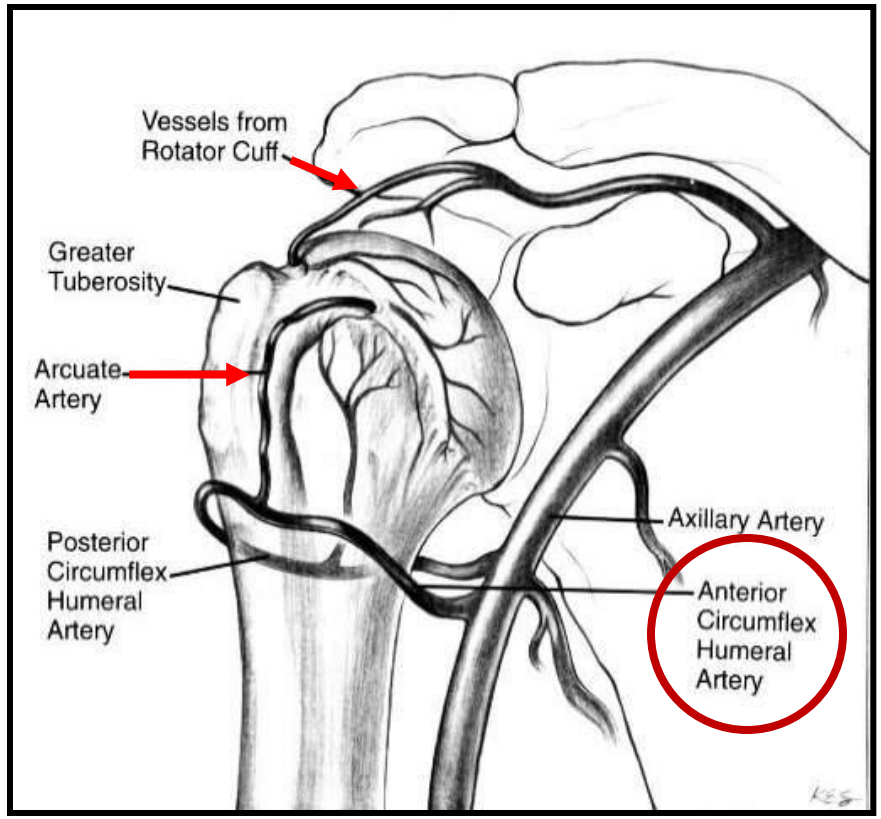
ANTERIOR/ MEDIAL

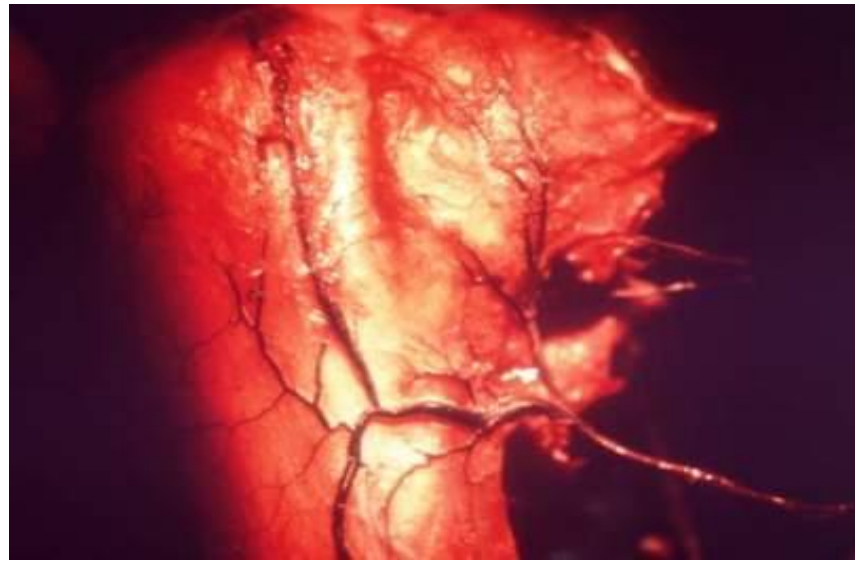
KANLANMA

- **anterior humeral circumflex arter** – lateral çıkan dalı (arkuat arter)
- **posterior humeral circumflex arter**

(Yeni yayınlarda daha dominant!)

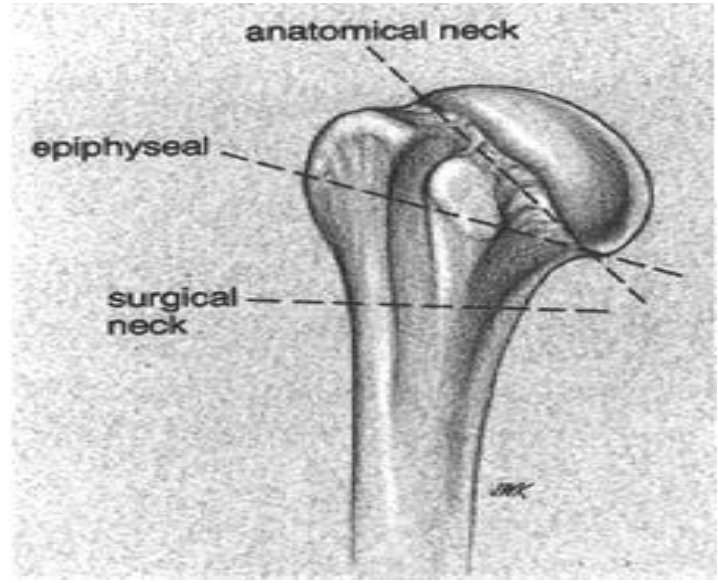
- RC damarları



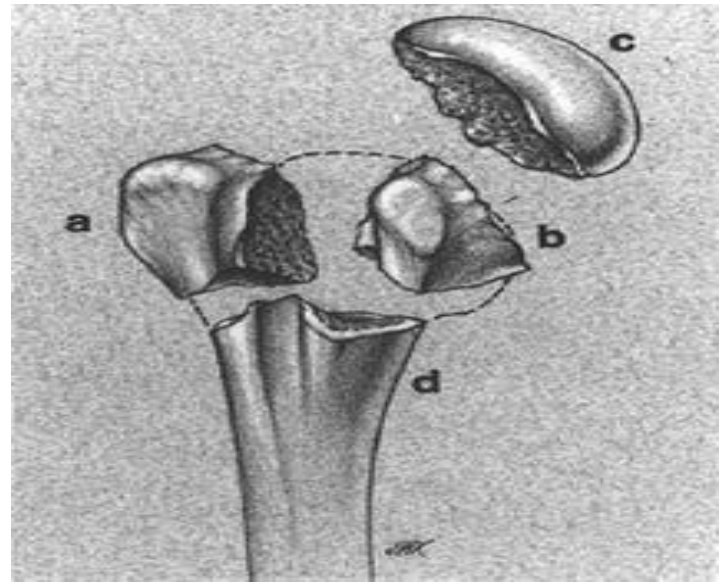


Sınıflama

- **Kocher** (1896)
  - anatomik seviyeler



- **Codman** (1934)
  - 4 parça
  - eski fiz skarları



Sınıflama

- **Neer** (1970)



The Journal of
Bone and Joint Surgery
American Volume

VOLUME 52-A, No. 6 SEPTEMBER 1970

Displaced Proximal Humeral Fractures

Part I. Classification and Evaluation*

BY CHARLES S. NEER, II, M.D.†, NEW YORK, N. Y.

Tedavi ve prognoz açısından Güvenilirliği halen ☺ !

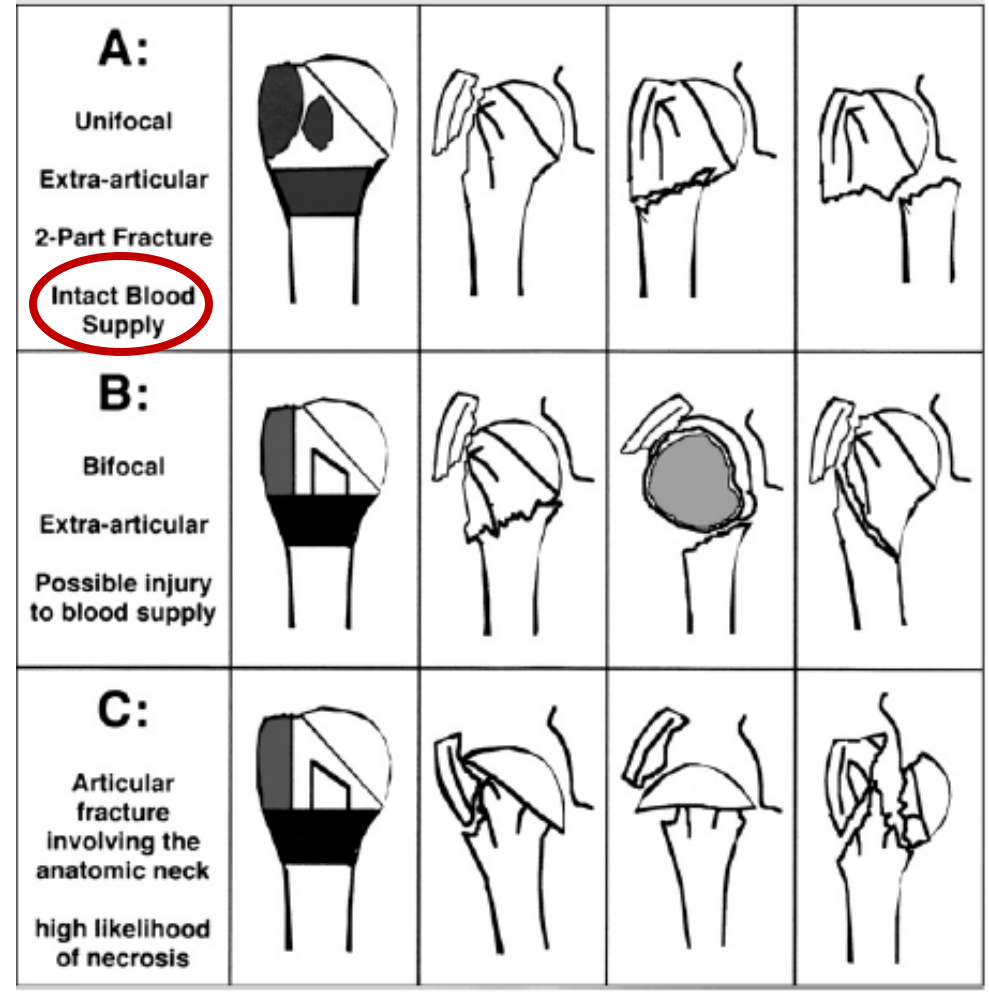
Sınıflama

- **AO** (1996/ 2007)

  -Tip A (unifokal-2)

  - Tip B (bifokal-3)

  - Tip C(artikuler-4)



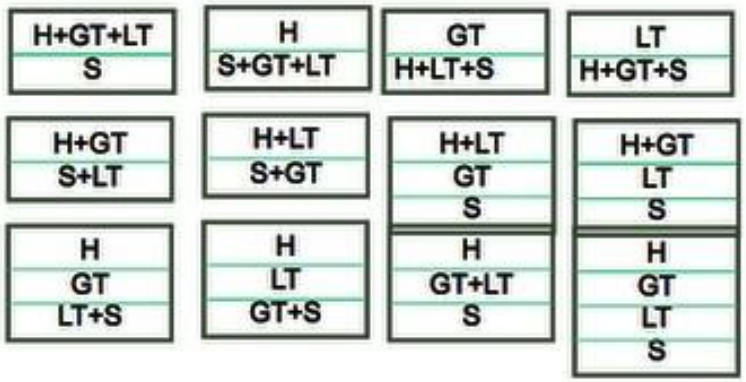
JOT 2007 Marsh JL et al

Sınıflama

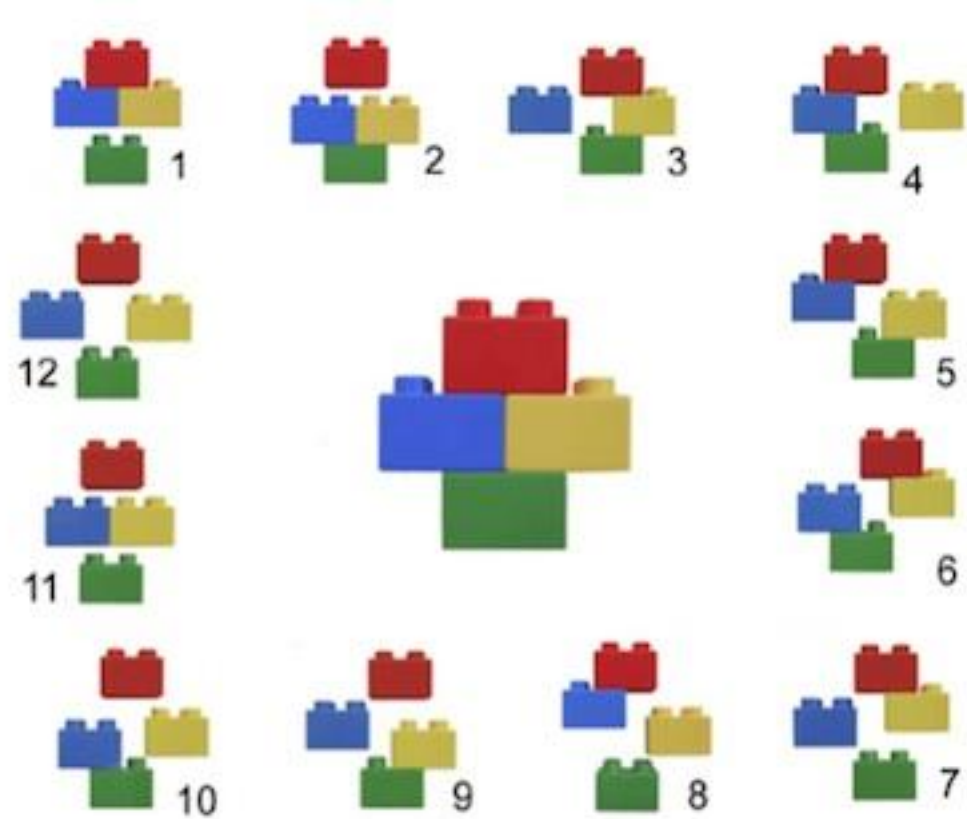
- **Hertel** (2004)

  - Binary veya Lego sistemi

  - 12 subtip



H= HEAD HUMERUS, GT=GREATER TUBEROSITY,
LT= LESSER TUBEROSITY, S=SHAFT HUMERUS

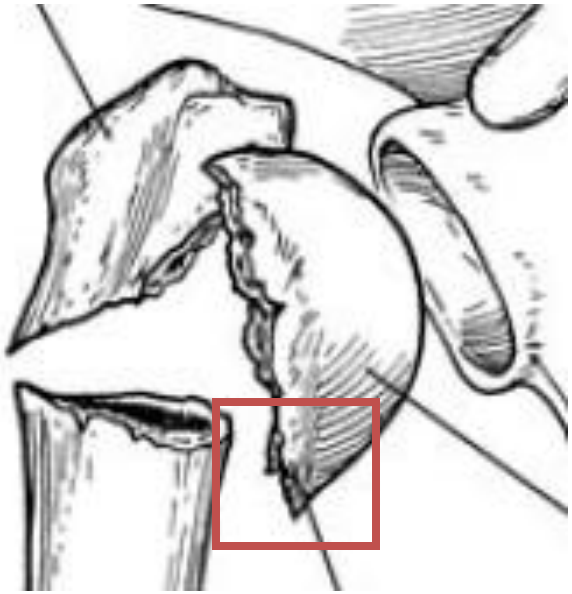


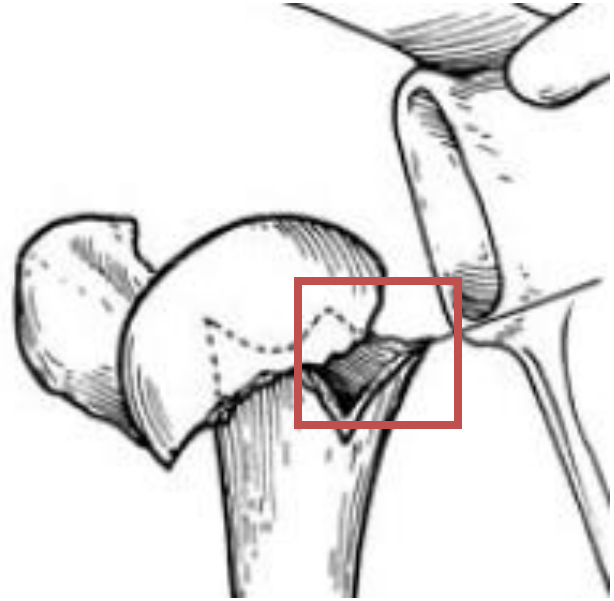
İskemi öngörüsü:

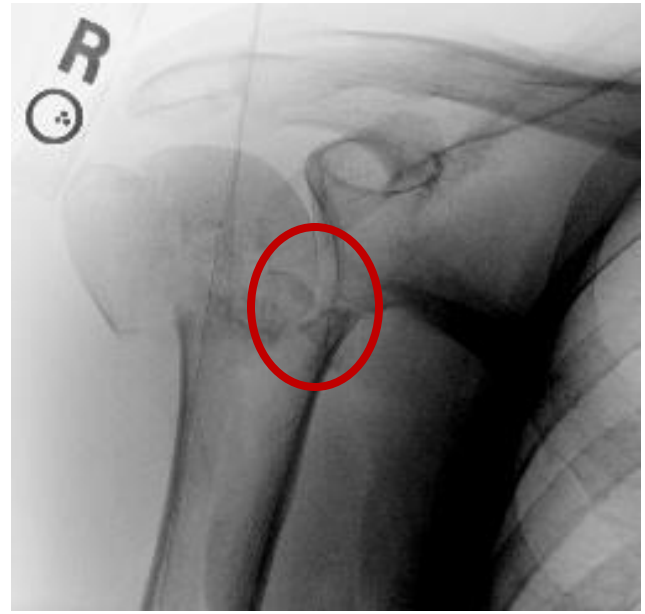
Metaphyseal head extension (**kalkar**) < 8 mm.

- **Medial hinge devamsızlık**
- **Kırık Paterni (anatomik boyun)**

%97
PPV





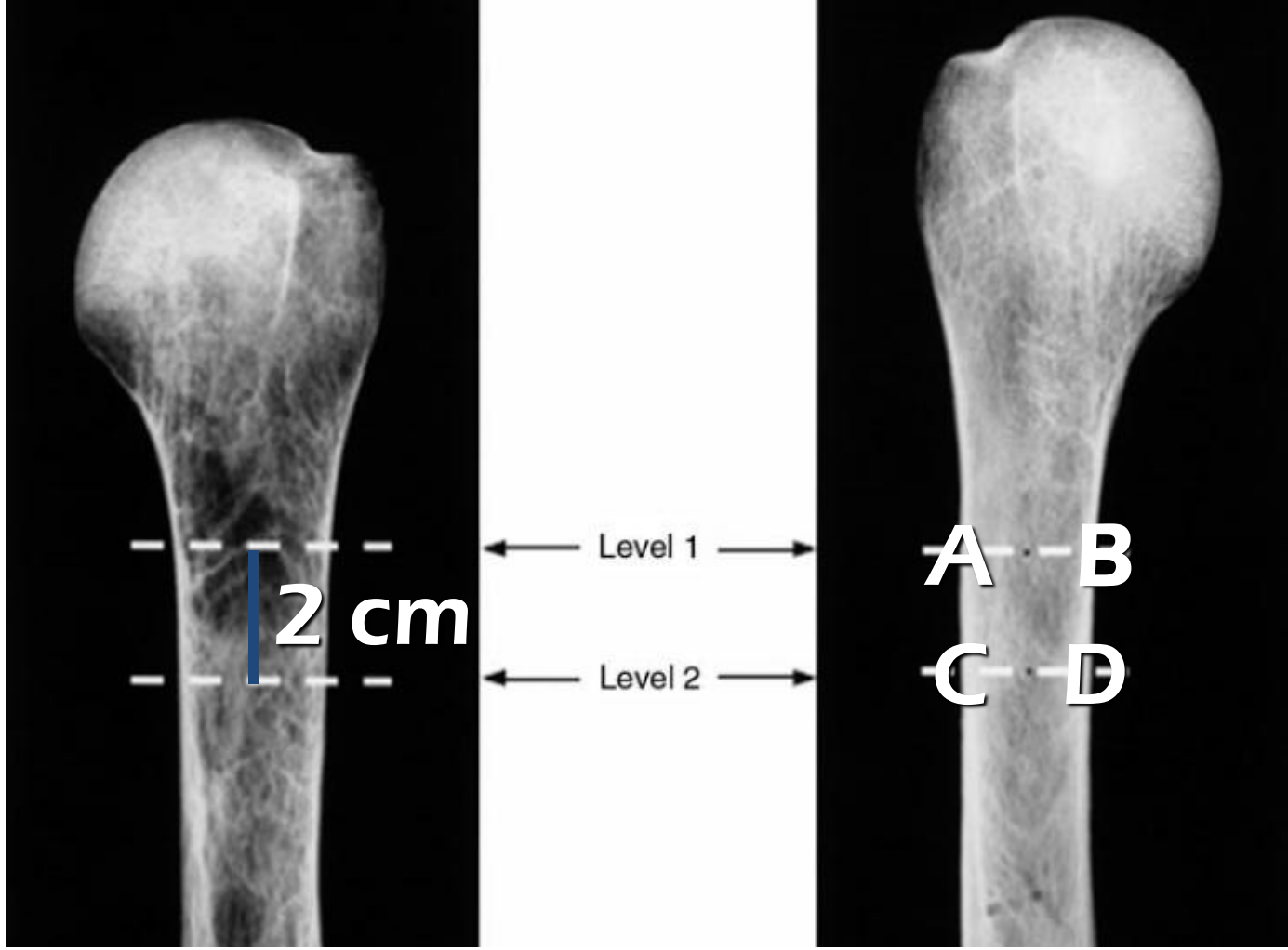


Hertel et al, J Shoulder Elbow Surg 2004;13:427

Kemik kalitesi

“Ortalama Kortikal Kalınlık”

$$\frac{A + B + C + D}{4}$$



“Ortalama Kortikal Kalınlık **< 4 mm** → Osteopeni”

Fiksasyon failure riski ?

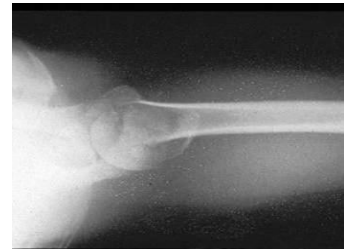
Tingert et al, JBJS(B), 2003

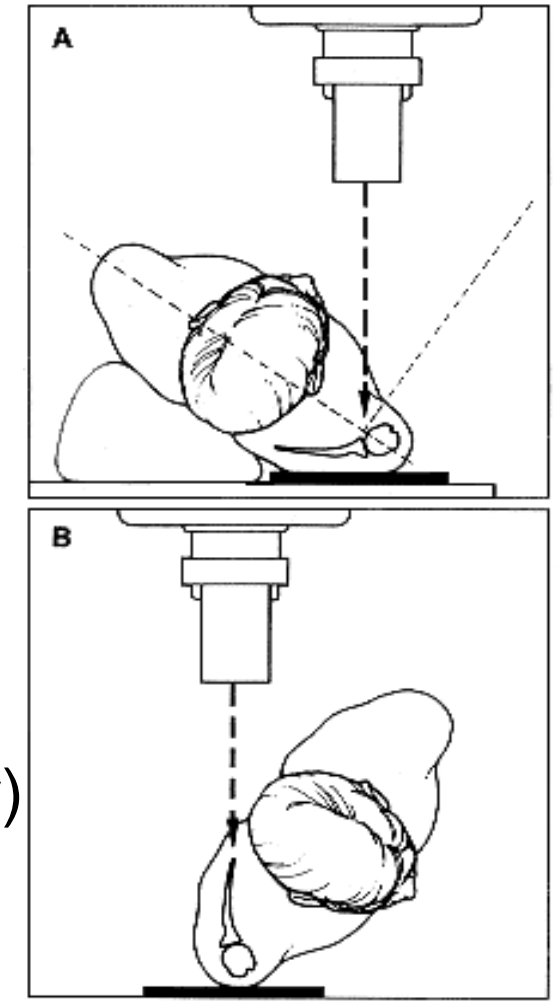
Radyoloji

- **Omuz Travma Serisi**
  - **Gerçek AP**
  - **Skapula Y**
  - **Aksiller**(veya Velpeau aksiller)



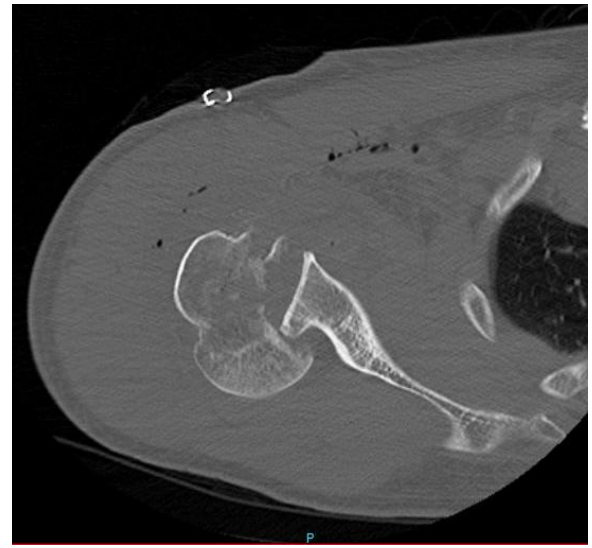


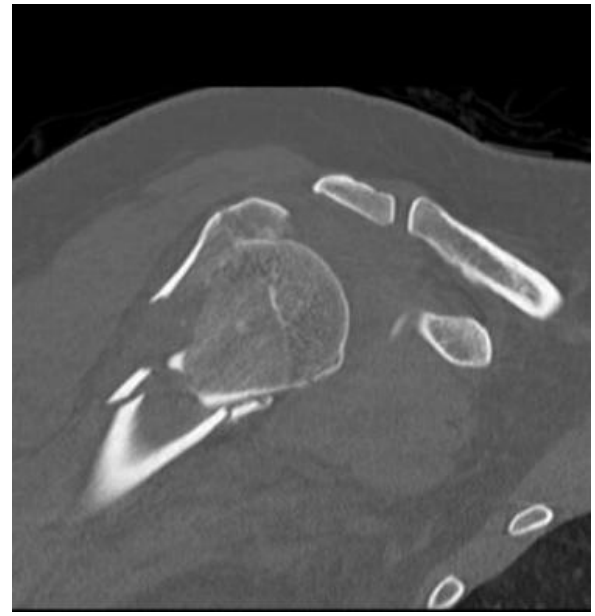




Radyoloji

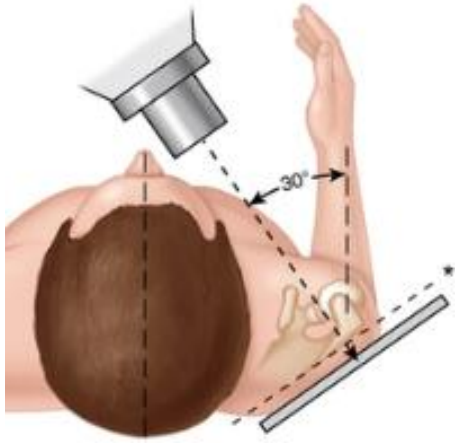
- **<u>Bilgisayarlı tomografi (BT)</u>**
  - Fraktür-dislokasyon
  - Glenoid fx
  - Tuberkulum majus deplasmanı
  - Head-splitting/ artiküler impaksiyon





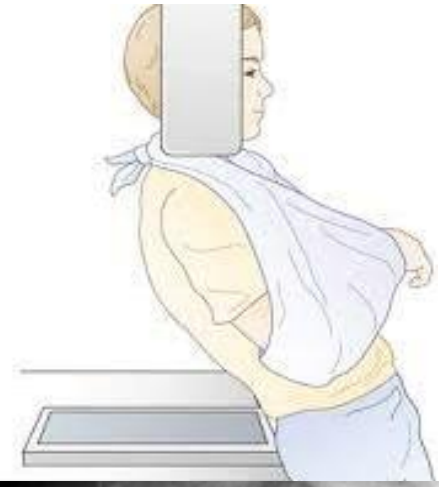
görüntüleme

HAYALLER





Gerçek AP
‘Grashey’



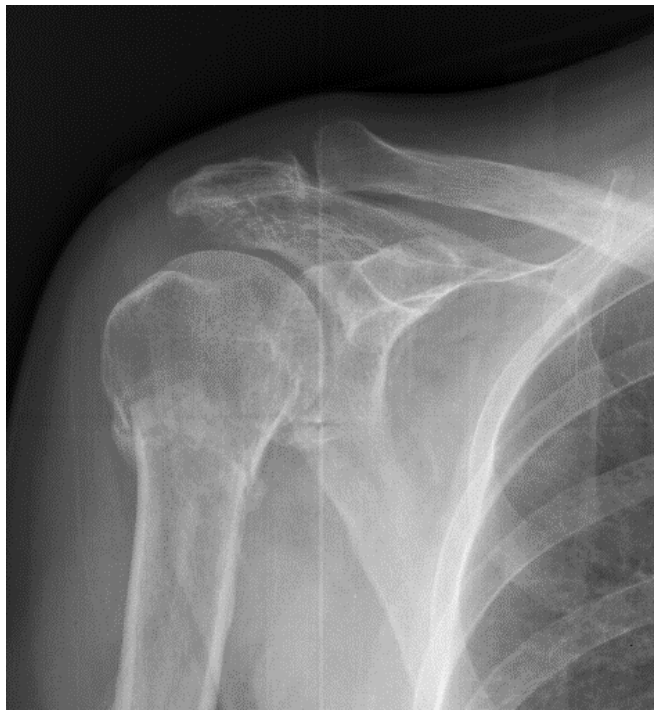


Velpeau aksiller

GERÇEKLER

Velpolu iç rotasyon

Valgus





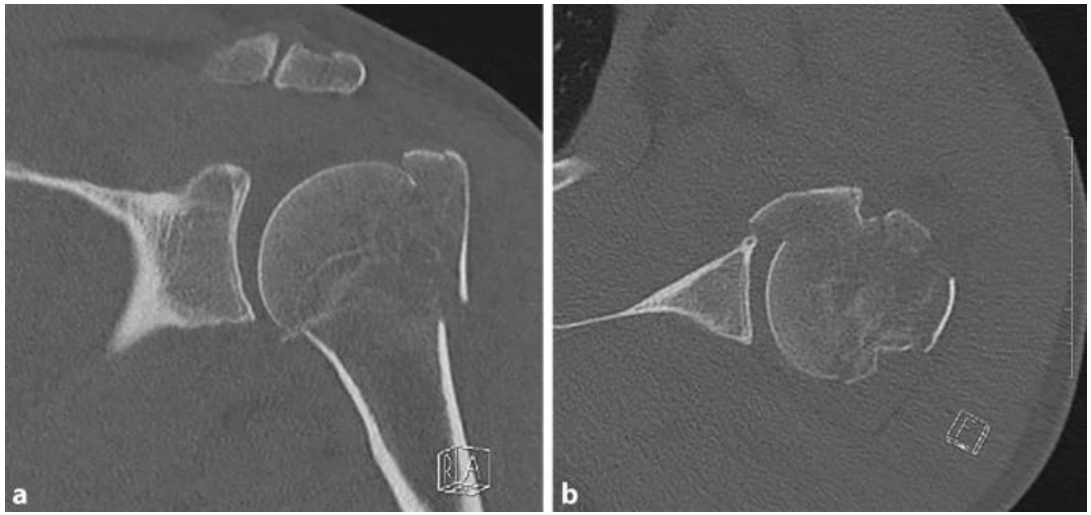
Varus



görüntüleme

Bilgisayarlı Tomografi

- ❖ Preop planlama
- ❖ Intra-artiküler parçalanma



- ❖ Parçaların pozisyonu
  3D rekon



TEDAVİ

- **%80** kırık **NON-DEPLASE** ve **NON-OPERATİF** ☺

- **%20 DEPLASE**

Operatif **?** **Non-operatif**

Kırık paterni

Baş kanlanması

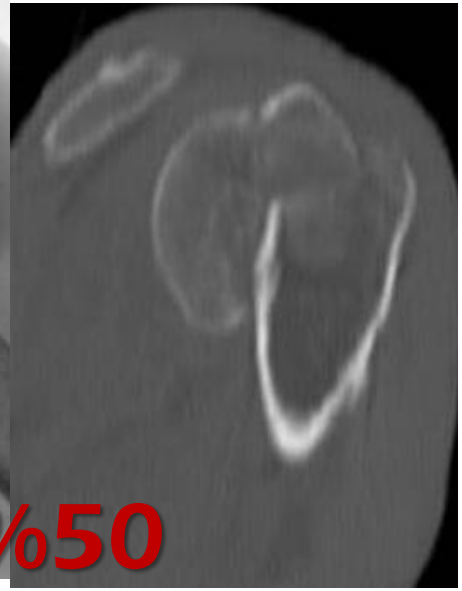
Kemik kalitesi

Fiksasyon problemleri

Hasta yaşı & ko-morbiditesi

70 y E - ASA IV **cerrahi boyun**





+3ay



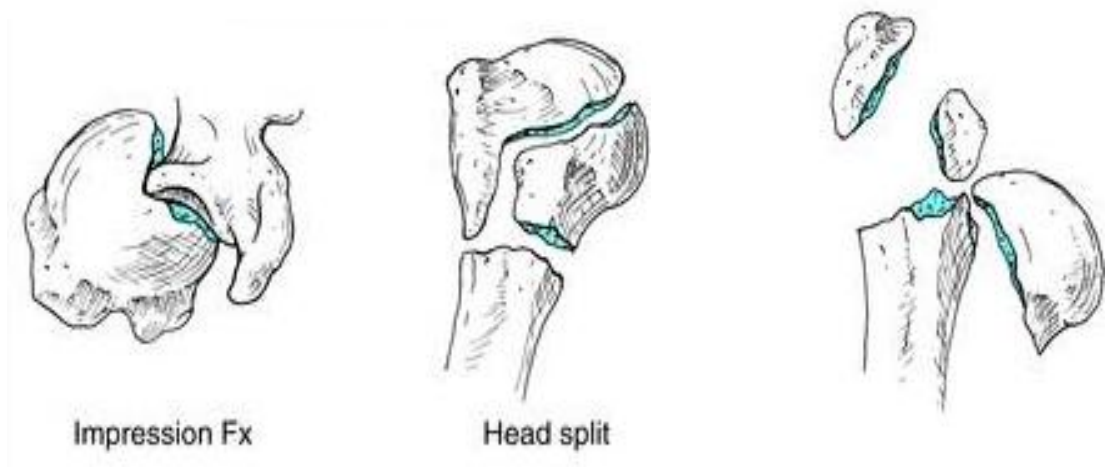


Deplase→fonksiyonel sonuç ☹





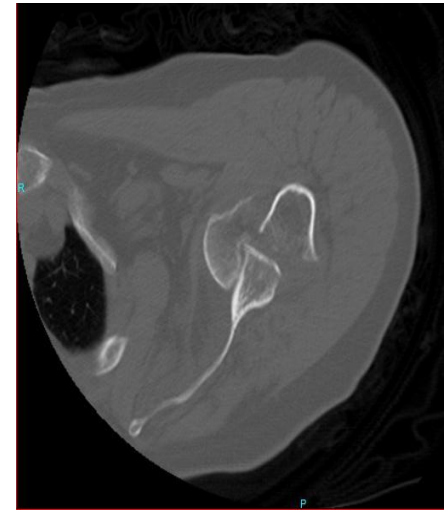
- **3- 4 parça deplase porotik kırık**
- **Fx dislokasyon**
- **Anatomik boyun, ARTİKÜLER (Baş split, impresyon)**



Tedavi halen tartışmalı ☹ !!!



KOMPLEKS PROKSİMAL HUMERUS KIRIKLARI



Kompleks HUK **Tedavi seçenekleri**

- **Konservatif** (Komorbidite (+) cerrahi riskli yaşlı →fonksiyonel sonuç ☹)






- **Kapalı red pin- çivi** (teknik olarak zor! pin migrasyonu☹)



Kompleks HUK **Tedavi seçenekleri**

- **ARİF** (**kilitli plak !** osteoporoz

  AVN- varus kollaps-

  vida penetrasyonu! ☹



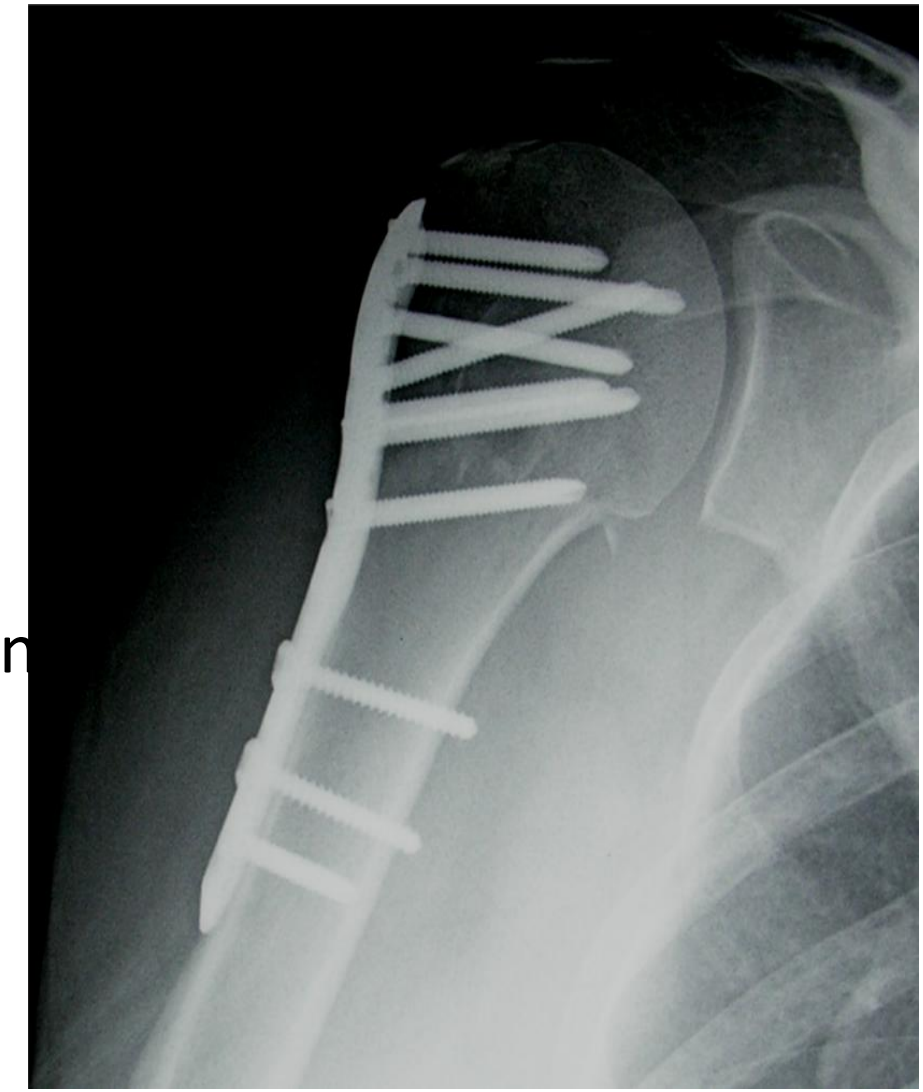
- **Artroplasti** zor ve teknik cerrahi→ **multifaktoriyel**: protez yüksekliği- retroversiyon- **tüberkül fiksasyonu**

  (tüberkül non/malunion ☹)



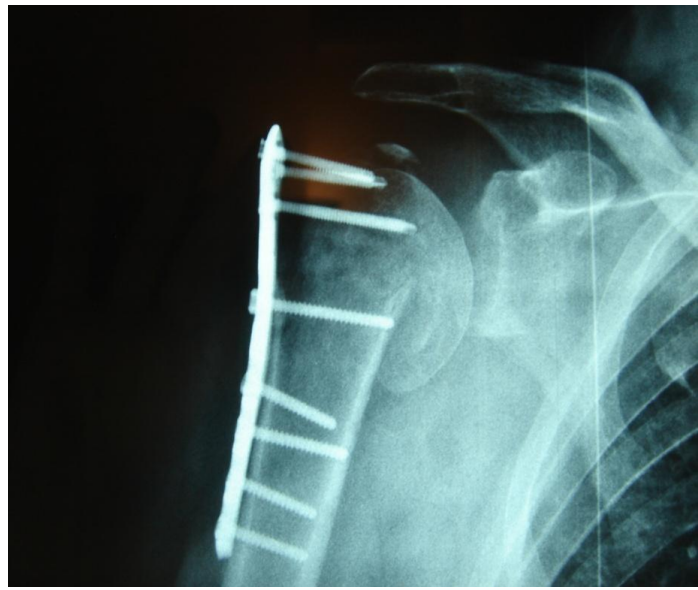
Kilitli plakların avantajı nedir?

- Baş fragmanı daha sağlam tespiti
- Açısal stabilite ile varus kuvvetlerine daha yüksek direnç
- Vidanın plaktan gevşemesin önlenmesi



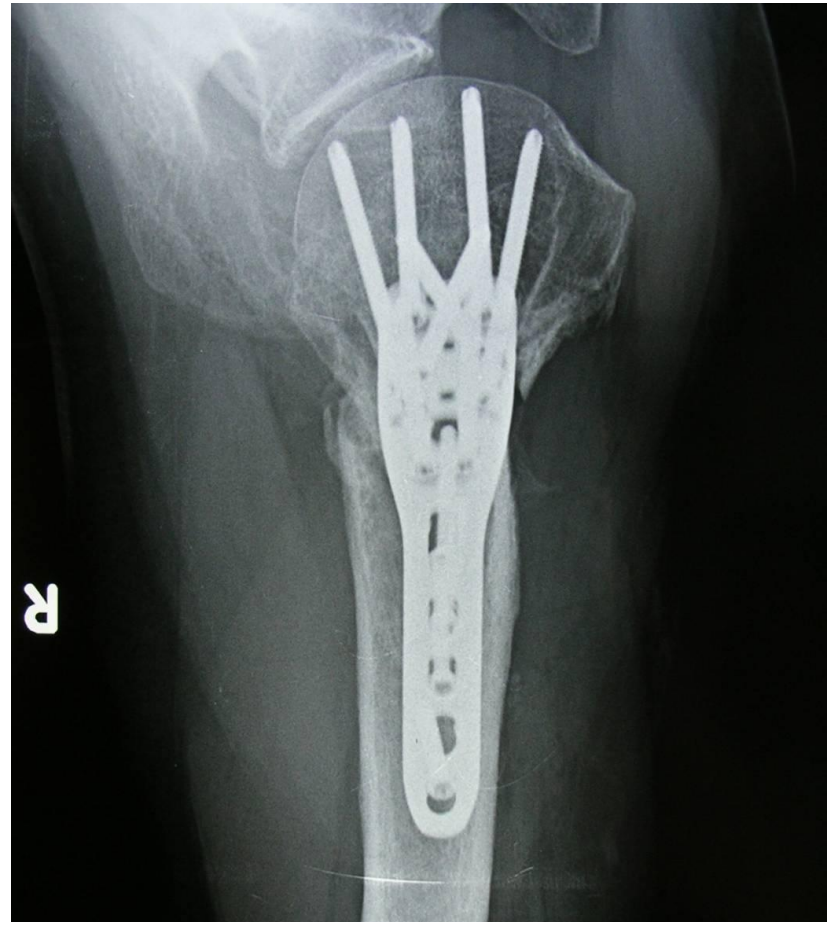
Komplikasyonlar

- **Redüksiyon kaybı** (Medial kalkar desteği !!)
- **Vidanın ekleme penetrasyonu** (%13-16)
- **Avasküler nekroz (% 4 – 16)**
- İmplant kırığı
- Kaynamama
- Hareket kıstlılığı
- Nörovasküler yaralanma



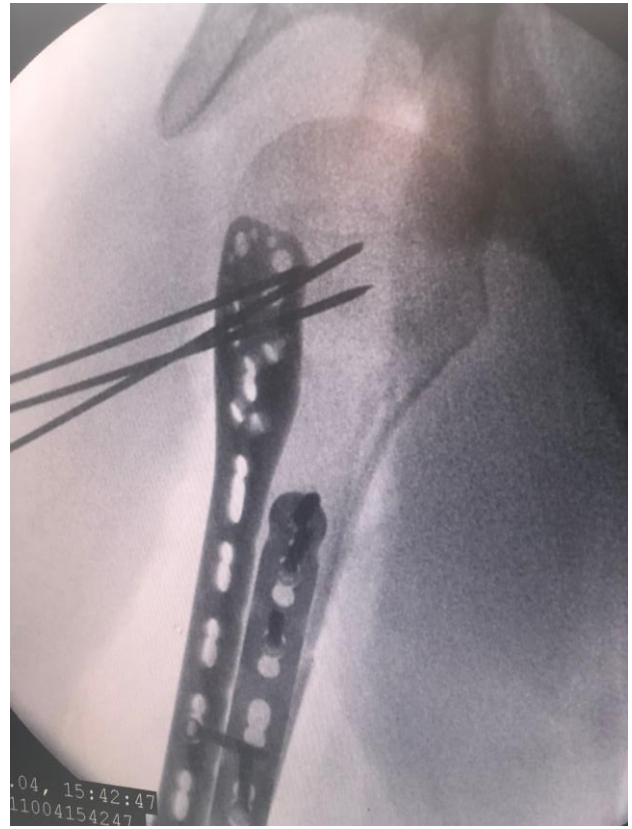
Başın tespiti

- Değişik yönlerde
- Subkondral kemiğin 5 mm altına kadar
- Özellikle orta ve posterior tespit önemli



Ameliyat sırasında Skopi

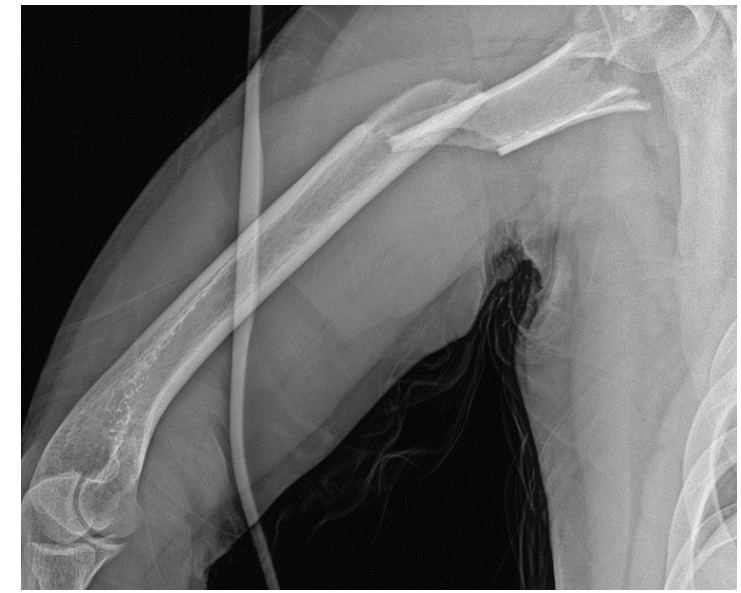


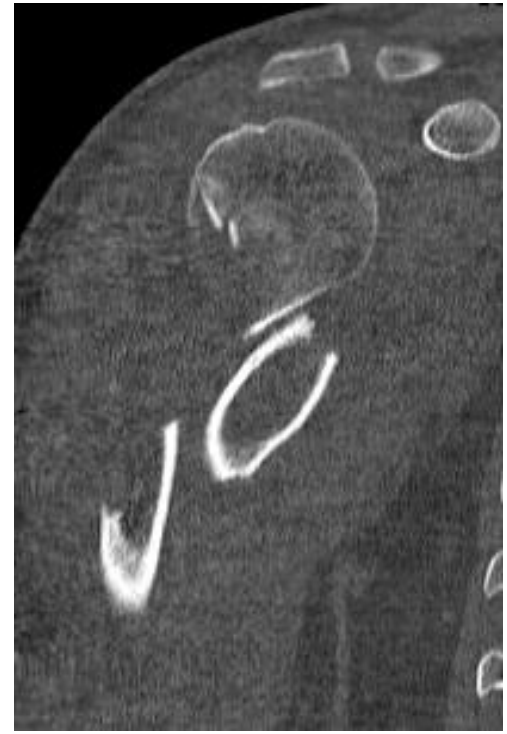


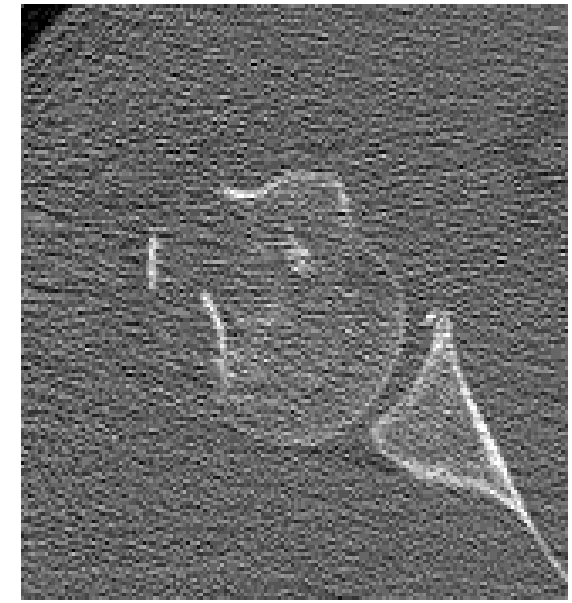
Fİ 34y/ E

- 34 yaş
- Erkek hasta
- Dominant kol
- ADTK

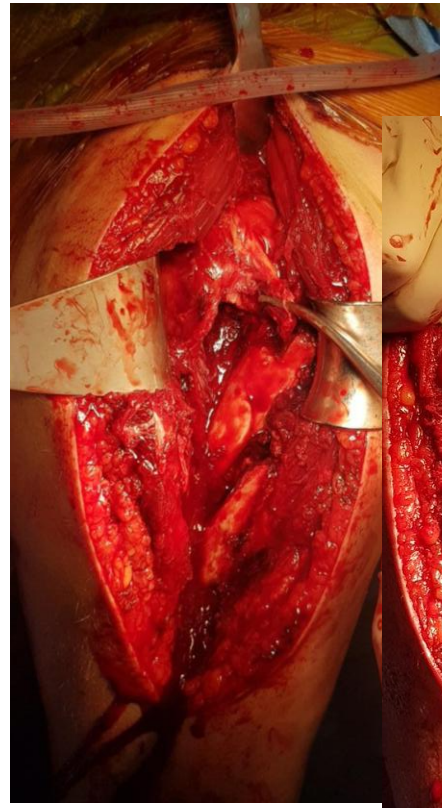


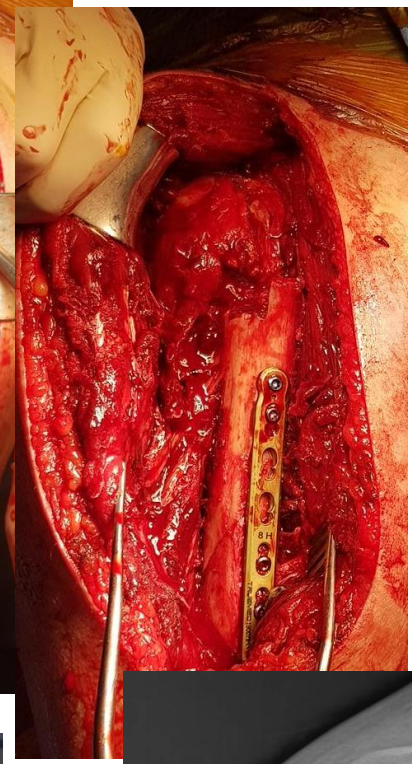


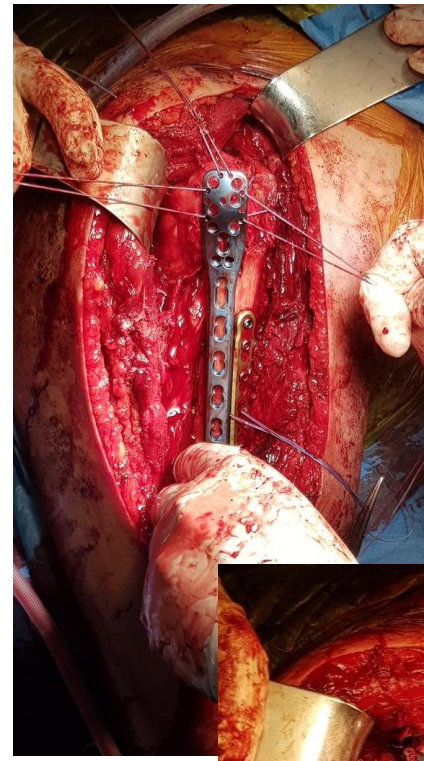


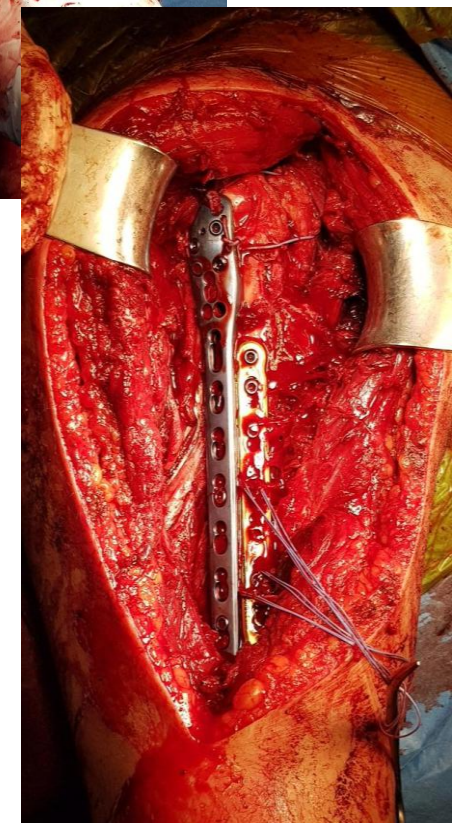












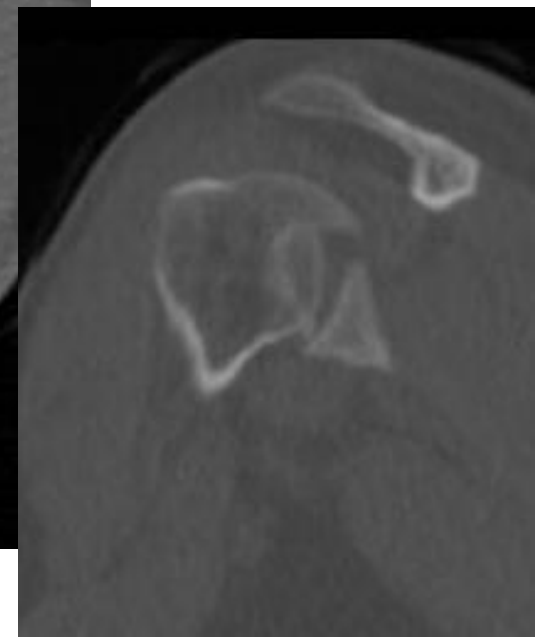

15:42:47
154247



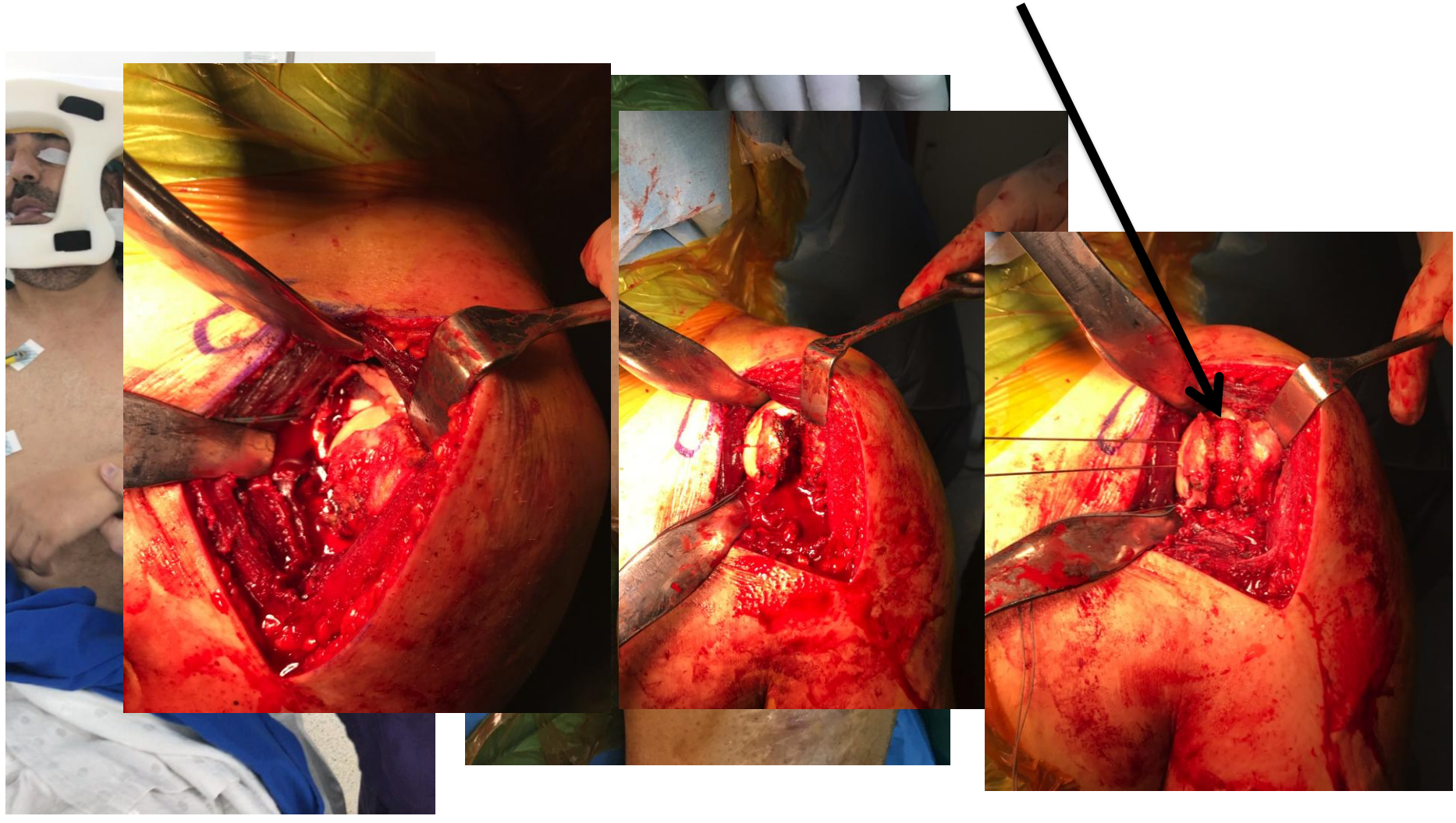
NÇ 43yaş E- Epileptik nöbet +2ay







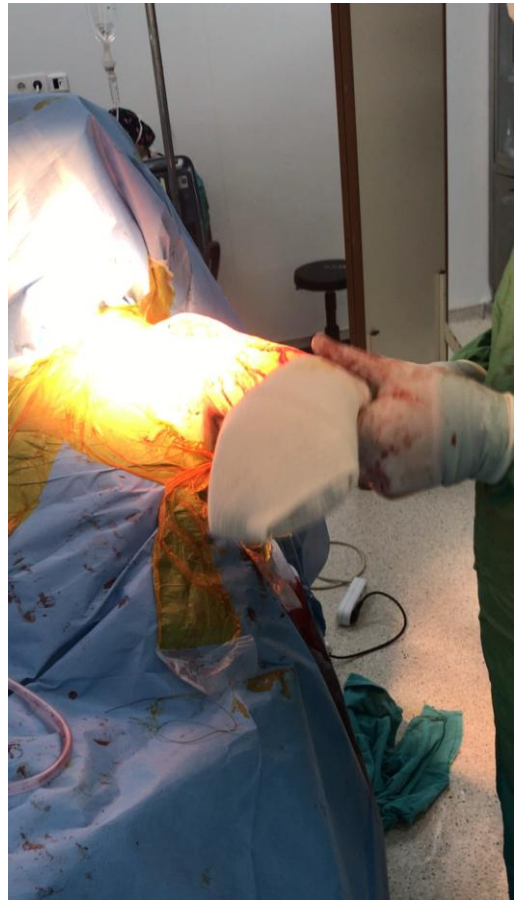
Kilitli Omuz- Açık Eklem restorasyonu+ Grefonaj+ Fiksasyon

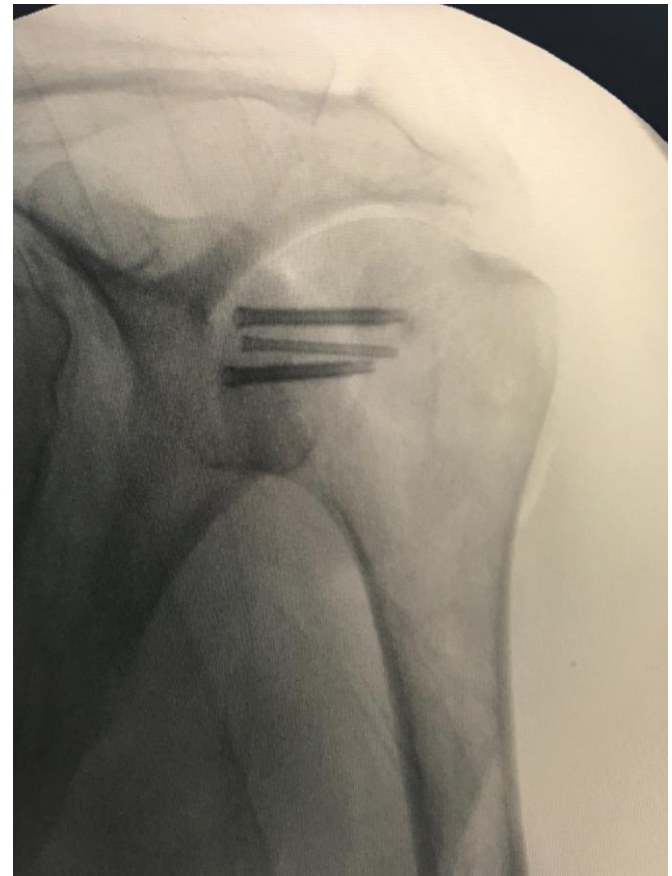


Kilitli Omuz- Açık Eklem restorasyonu+ Grefonaj+ Fiksasyon

Perop Kontrol







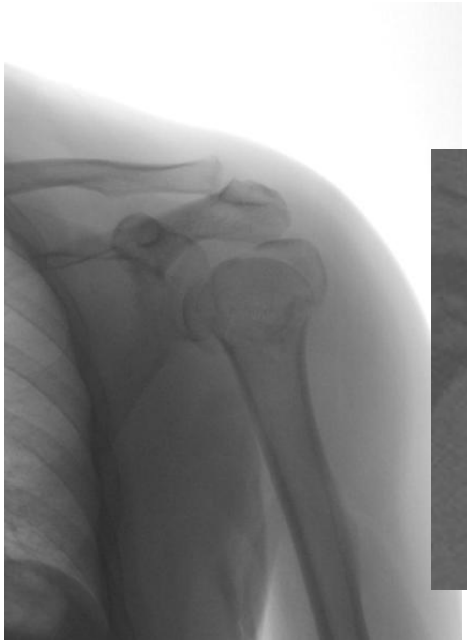
Kilitli Omuz- Açık Eklem restorasyonu+ Grefonaj+ Fiksasyon

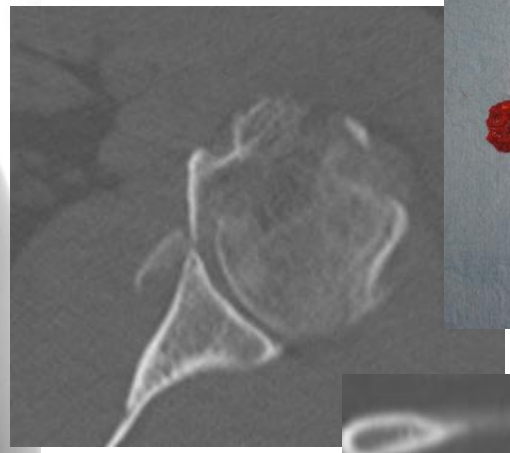
Postop 3ay x-ray/ BT

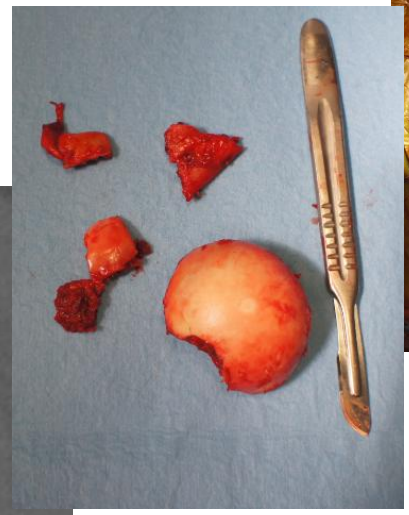


M.M **62y E** Neer Tip4

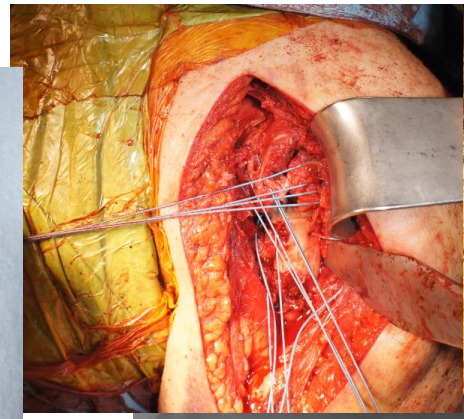
Baş Split Kırık

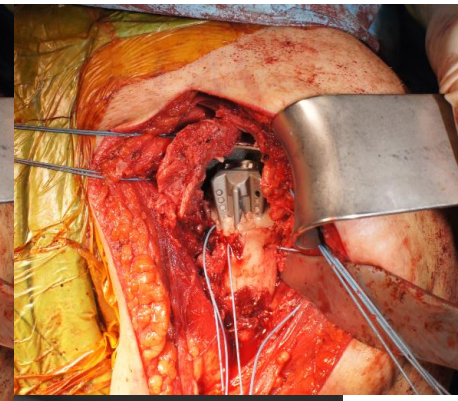


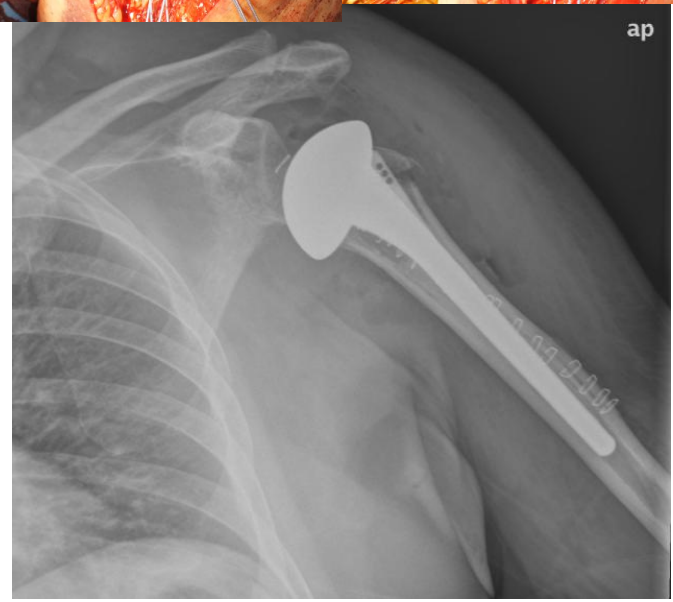














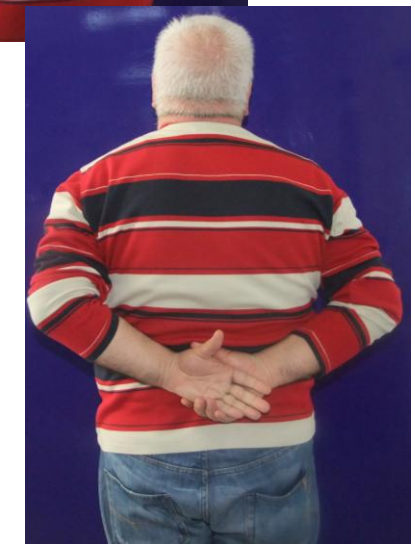


+2yıl

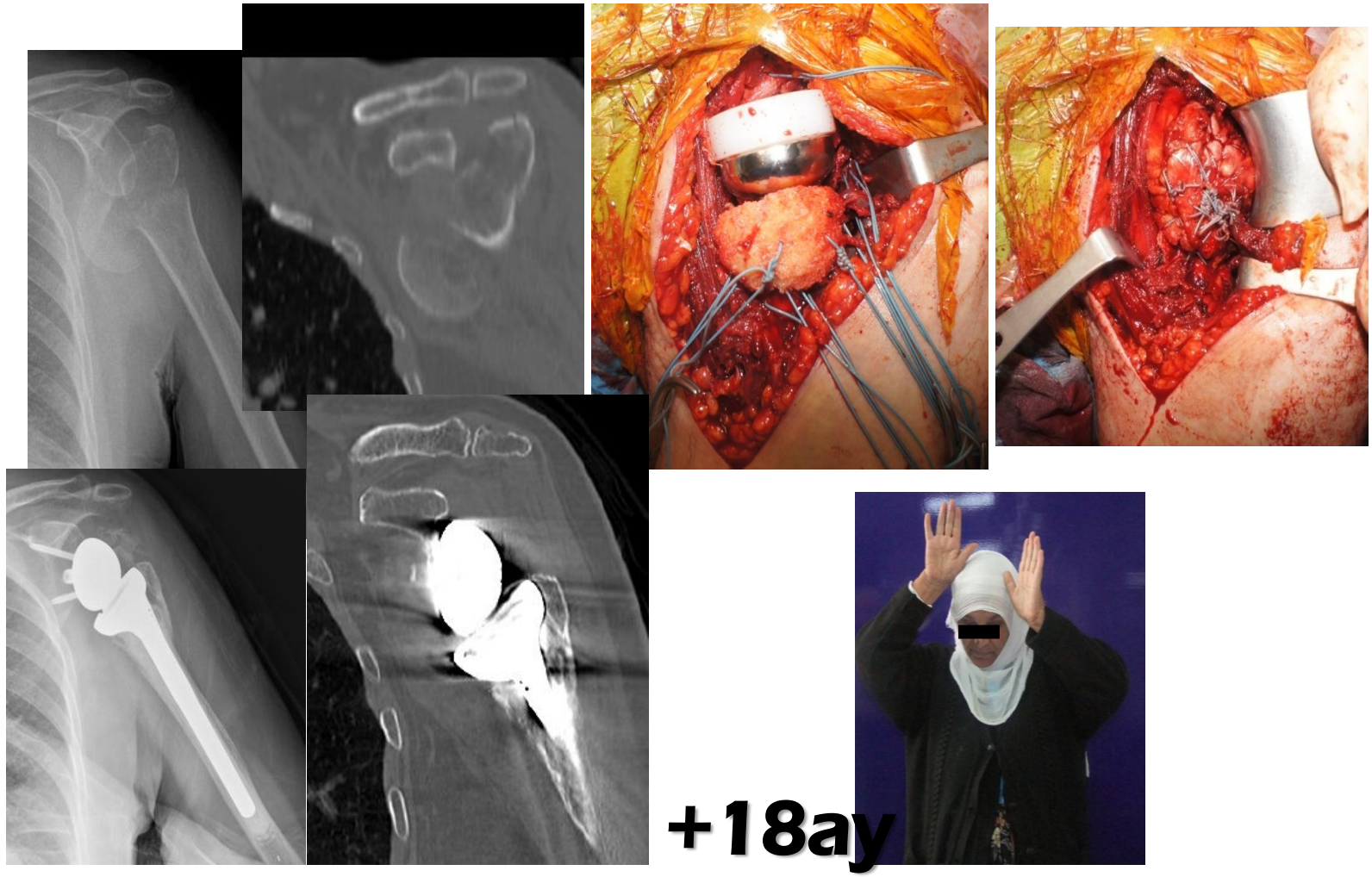




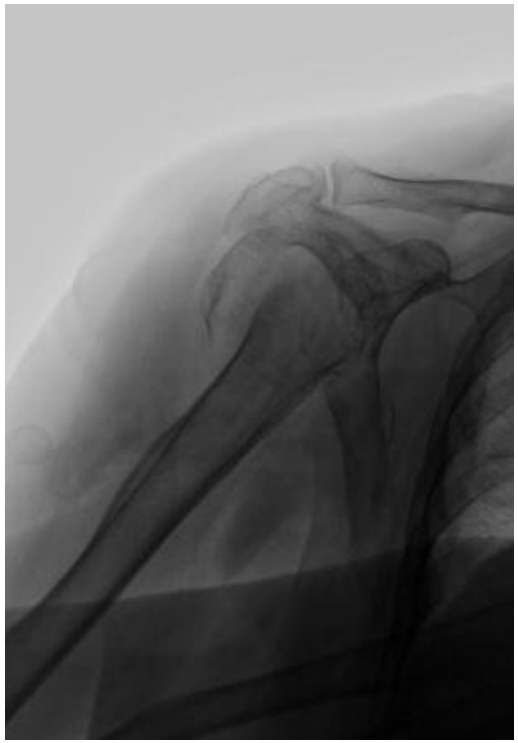


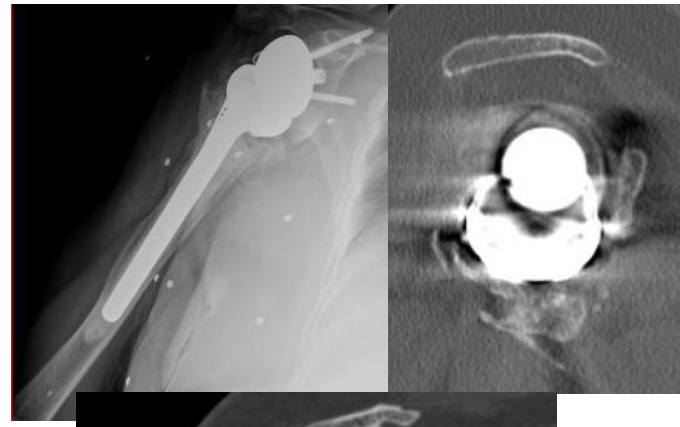


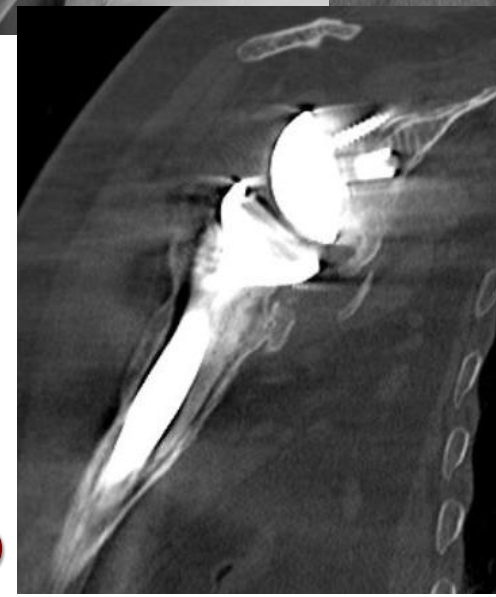
73 y fx dislokasyon- baş grefti

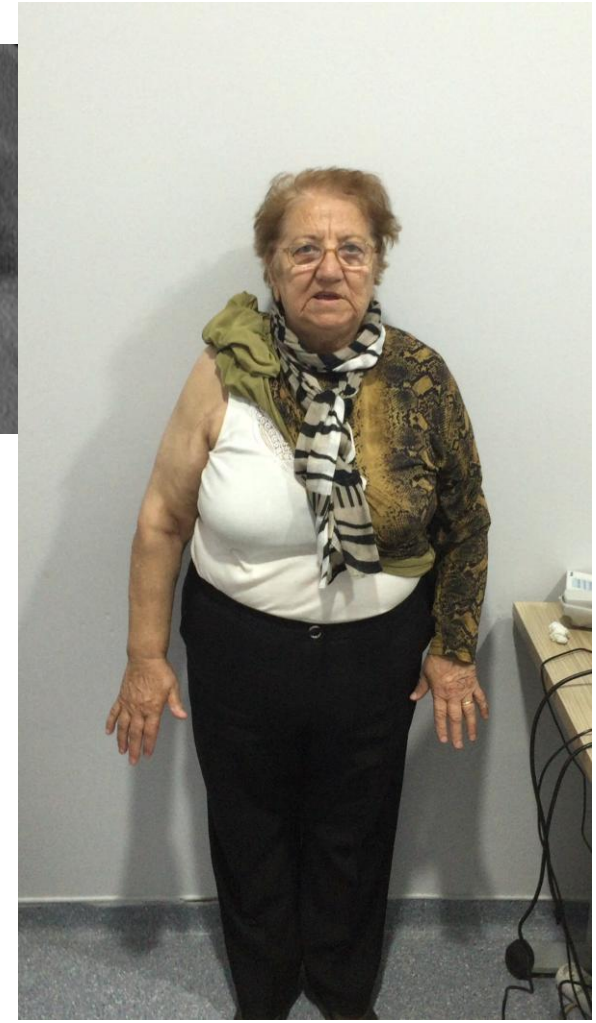


NP **80y K**





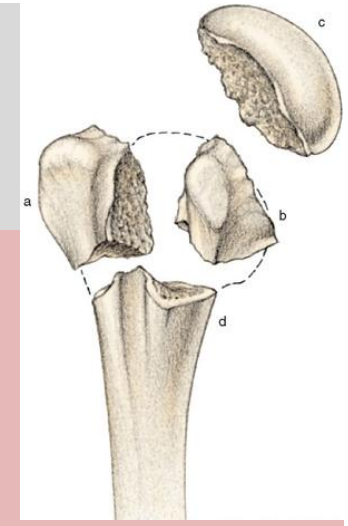




Tüberkül iyileşmesi ☺

+18 ay

Eve Götürülecek Mesaj



- Politravma da Kompleks omuz yaralanmaları!!
- Fx dislok/ Yüzen omuz/ ST disosiasyon ☹
- Epileptik nöbet- Elektrik çarpması-- > Post omuz çıkığı ! Atlanabilir☹
- NV muayene !! Aksiller sinir ve arter ! BT anjiyo
- Tedavi → Multifaktoriyel (yaş- kırık tipi- ko-morbidite)
- Konservatif- Plak vida osteosentez- Artroplasti



"Relax – it's probably just dislocated."

TEŞEKKÜR EDERİM