

Kırık Çıkık Bakımının Temel Prensipleri

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Giriş

- Kırık ve Çıkıklar
 - Trafik kazaları
 - Ev ve işyeri kazaları
 - Spor yaralanmaları
 - Düşmeler
 - Doğal afetler...



**Kırıklar ve çıkıklar
yaygın olarak ve her gün izlenebilen
acil durumlardır**

Tanım

Kırık: Kemik doku
bütünlüğünün
bozulması



Çıkık: Eklem yüzeylerinin
birbiriyle ilişkisinin
bozulması



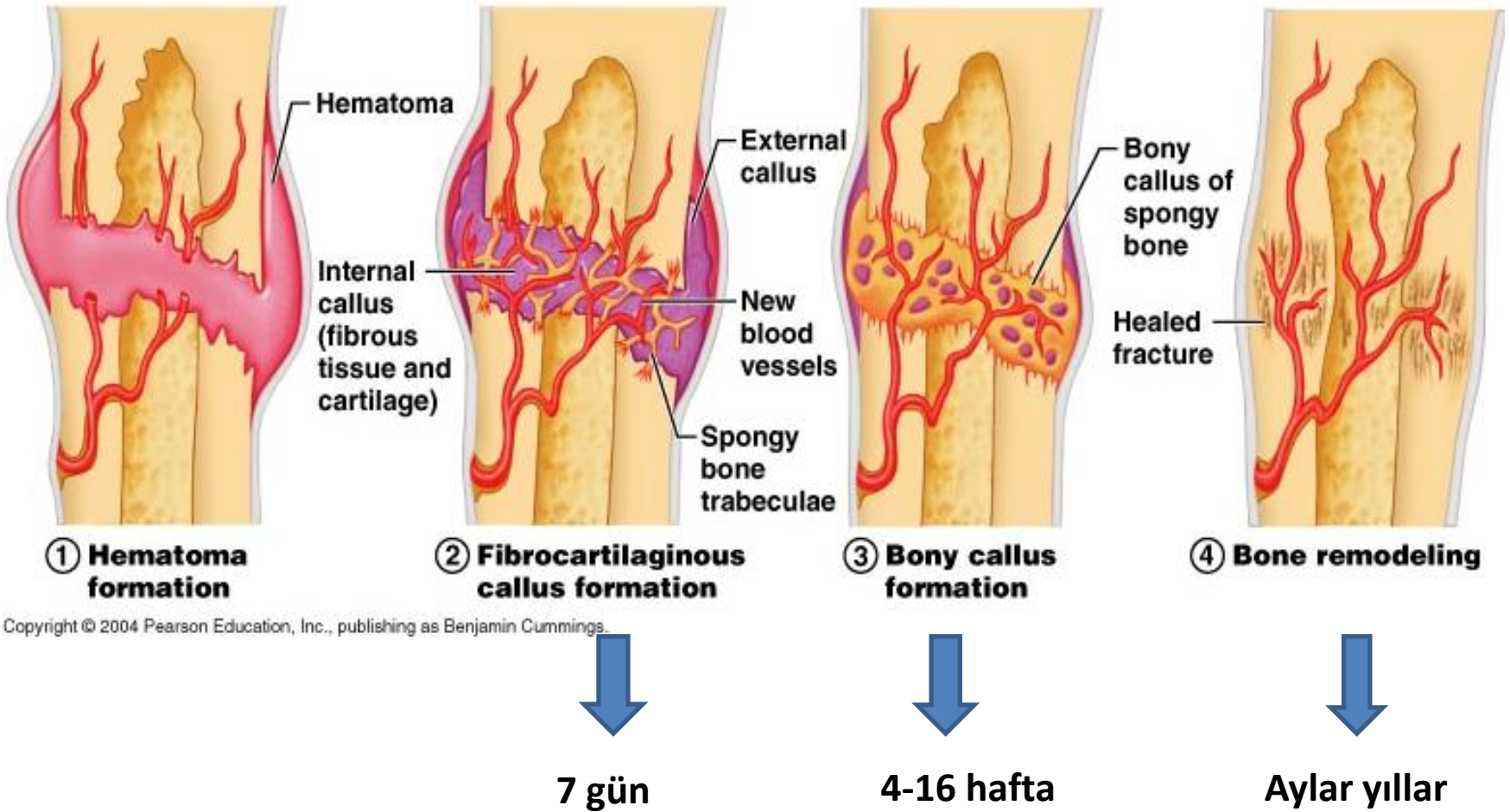
Kırık Sınıflaması



- Basit kırıklar
- Açık kırık - Kapalı kırık
- Patolojik kırıklar
- Stres kırıkları
- Salter-Harris (Epifiziyal) kırıklar

Busy bones. Ask a biologist

Kemik iyileşmesi



Kırık iyileşmesini etkileyen faktörler

Malunion, Nonunion, Osteomyelit ve Kronik ağrı?

Faktörler	Avantaj	Dezavantaj
Yaş	Genç	İleri yaş (>40)
Komorbidite	Yok	Çoklu hastalık varlığı (DM,KBY,KY...)
İlaç kullanımı	Yok	NSAİD, Steroids
Sosyal faktörler	Sigara içmiyor	Sigara içicisi
Beslenme	İyi besleniyor	Kötü besleniyor
Fraktür tipi	Kapalı fraktür	Açık fraktür
YDT	Nörovasküler yaralanma yok	Nörovasküler yaralanma var
Travma	Tek ekstremitede	Multipl travma
Lokal faktörler	Enfeksiyon yok	Enfeksiyon var

İlk bakı ve Yönetim

HIZLI VE UYGUN

İlk Yardım



Advanced Trauma Life Support



Mortalite ve Morbidite



İlk Bakı-Hikaye

- İyi bir **hikaye**
 - Yaralanma mekanizması
 - Olay yeri
 - Medikal özgeçmiş, kullandığı ilaçlar
 - Mesleği
 - Geçirilmiş travma ve/veya kırık öyküsü
 - Hangi ekstremitte dominant
 - Post Travmatik Senkop-Presenkop

İlk Bakı-Fizik Muayene

- Yaralanma yeri dikkatlice incelenmeli
 - Açık/Kapalı?
 - Kırık/Çıkık?
 - Ağrı, krepitasyon, ekimoz ve deformite?
- Yumuşak dokunun durumu?
- Nörovasküler yaralanma?
- Proksimal ve distal eklemler?
- Eklem Hareket Açıklığı?

Görüntüleme Çalışmaları

Travmatik ekstremité radyografisinde 2'ler kuralı:

- 2 yön (ön-arka ve yandan)
- 2 eklem
- 2 ekstremité simetrik
- 2 kez

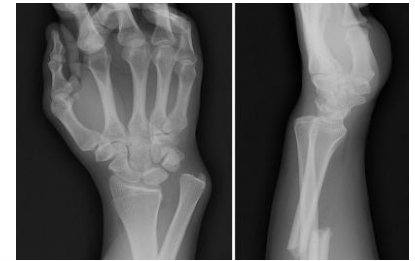
Preoperatif Akciğer Radyografisi?

Lezyonu tarif et

- Kırık - Çıkık yeri?
- Açık - Kapalı?
- Deplase - Nondeplase?
- Kısalık?
- Açılanma?
- Fragmantasyon?
- Yumuşak doku?
- Nörovasküler yaralanma?



Ortopedik tuzaklar



High-Risk Pediatric Orthopedic Pitfalls

Jennifer C. Laine, MD, Scott P. Kaiser, MD, Mohammad Diab, MD*

KEYWORDS

- Pediatric fracture • Limp • Septic arthritis • Abuse
- Compartment syndrome • Slipped capital femoral epiphysis

Key points

- For pediatric fractures, intra-articular injury, which can lead to osteoarthritis, is of even greater concern than physeal involvement, which can lead to growth disturbance but is correctable.
- For type I open fractures, in which the bone pokes through the skin creating a puncture from inside outward, treatment includes cleaning the wound, oral antibiotics, splinting and referral to an orthopedic surgeon within 24 hours.
- With supracondylar fractures, loss of pulse is not always an emergency as long as the hand is acceptably perfused, which is defined as warm and pink with less than 2 second capillary refill. In consultation with an orthopedist, such a fracture may be splinted in place and referred the next office day for evaluation and management.
- With supracondylar fractures, neural injury occurs in approximately 10% to 15% of cases. The outcome of such neurapraxia is recovery, which may take up to 6 months and therefore does not require immediate surgery.

The authors have no disclosures to declare.

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Tedavi - Genel Prensip

- **P**rotection
- **R**est
- **I**mmobilisation
- **C**old
- **E**levasyon
- **S**upport
 - Tetanoz, Analjezi, Antibiyoterapi...



Kapalı Redüksiyon

- Alçı veya fiberglass kullanılabilir
 - Acil uzmanının tercihi
 - Hastanın ihtiyaçları
 - Hastanenin kaynakları



Paris Alçısı



Fiberglass Atel

Atel Yapma Prensipleri

1. İrritasyon ve basıyı en aza indirmek için "yastıklama malzemesi" kullan
2. Atelin uzunluğu hasar gören yeri ve komşuluğundaki eklemleri kapsayacak uzunlukta olmalı
3. Erişkinde 15 kat
Çocukta 15-20 kat
4. Ateli düz bir zeminde hazırla (Kat olmasın!!)
5. Alçı sonrası nörovasküler değerlendirme!!!

Alçı-Splint ile ilgili komplikasyonlar

- Termal yanıklar
- Dolaşım bozukluğu
- Bası yaraları
- Tromboflebit
- Enfeksiyon
- Yumuşak doku atrofisi ve eklem sertliği

Alçı sonrası tekrar değerlendirmeyi unutma!!!

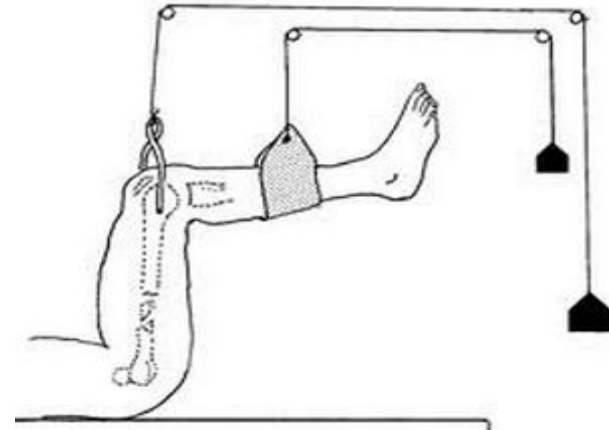
Kapalı Redüksiyon Kontraendikasyonları



1. Düzeltilemeyecek deplase fraktürler
2. Fonksiyonel durumun düzeltilemediği fraktürler
3. Uygulama sonrası stabilizasyon sağlanamayan fraktürler

Traksiyon

- Cilt traksiyonu
 - Kullanılacak ağırlık hastanın %10'nu oranında
 - Maksimum 10 pound aşmamalı (1 Pound= 454 gr)
- İskelet traksiyonu



Açık kırıkların yönetimi

- **ATLS unutma!!!**
 - ABC
 - Sıvı replasmanı
 - Endotrakeal entübasyon



Açık Kırık Gustillo Sınıflaması



Tip	Yara genişliği	Kontaminasyon	Travma enerjisi	Yumuşak doku yaralanması
1	< 1 cm	Yok	Düşük	Kemik fragmanı cildi delmiş
2	> 1 cm	Minimal	Düşük-Orta	Major YD defekti yok
3	> 1 cm	Kontamine	Yüksek	Major YD efekti var
3A	Yara yerini kapatacak yeterli sağlıklı doku var			
3B	Yara yerini kapatacak yeterli sağlıklı doku yok. Greft lazım			
3C	Ek olarak nörovasküler yaralanma mevcut			

Açık kırık yönetimi - İrrigasyon



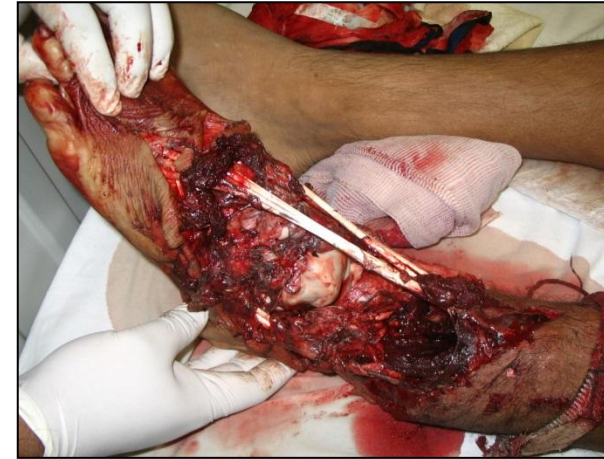
Tip I

Minimum 3L normal salin
Yavaş basınçlı irrigasyon



Tip II


Minimum 6L normal salin
Yavaş basınçlı irrigasyon



Tip III

Minimum 9L normal salin
Yavaş basınçlı irrigasyon

Açık kırık yönetimi - Antibiyoterapi?

- Enfeksiyon riski  = Bir an önce antibiyotik-Etken?
 - Stafilococcus Aureous**,
 - Grup A streptokoklar,
 - Enterokoklar
- Bu amaçla:
 - Tip 1 ve 2 açık kırıklarda: I. KSS → Sefazolin 1-2 gr IV
 - Tip 3 kırıklarla AG → Gentamisin veya Tobramisin
 - Pis su veya toprak içeren ortamda olmuşsa Penisilin (C. Perfringens ve Anaeroblar) eklenmeli
 - *Kinolonların proflaktik kullanımı önerilmez (Özellikle stafilokokların hızlı direnç gelişimi sebebiyle)*

Cerrahi Tedavi (ARİF)

1. Kapalı Redüksiyon ile sağlanamayan

- Angulasyonun
- Rotasyonun
- Uzun kırık hattının düzeltilmesi

2. Diafiz ve büyüme hattının korunması

3. Anatomik redüksiyonun sağlanamadığı açık kırık varsa (Özellikle parçalanmış kemik fragmanlarının redüksiyonu)

Hasar Kontrol Cerrahisi

- Erken immobilizasyon → Mortalite/Morbidite ↓
 - Özellikle femur gibi uzun kemik fraktürleri
- Erken fiksasyon
 - Erken mobilizasyonu
 - Eklem hareket açıklığının korunması
 - Ekstremit fonksiyonlarının kazanılması
 - Yoğun bakım ihtiyacının azaltılması

Kesin cerrahi müdahale

- Ne zaman

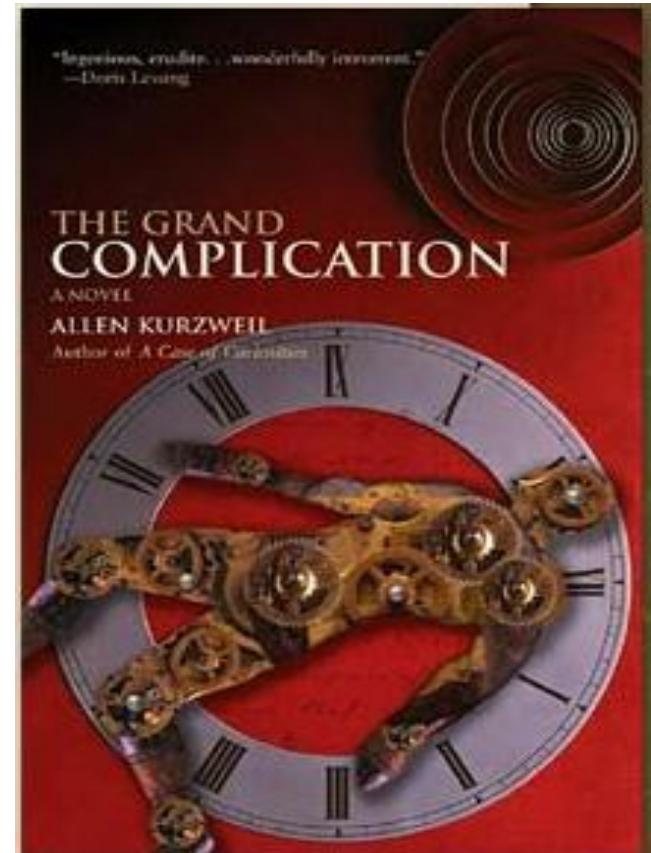


“Unstabil hastalarda kesinlikle diğer prosedürlerin önüne geçmemeli”

“Stabil hastalarda ise bir an önce düşünülmesi gerekmekte”

Cerrahi Komplikasyonları

- Nörovasküler yaralanma
- Avasküler nekroz
- Kompartman sendromu
- Enfeksiyon
- Tromboembolik olaylar
- Posttravmatik artrit
- Nonunion/Malunion



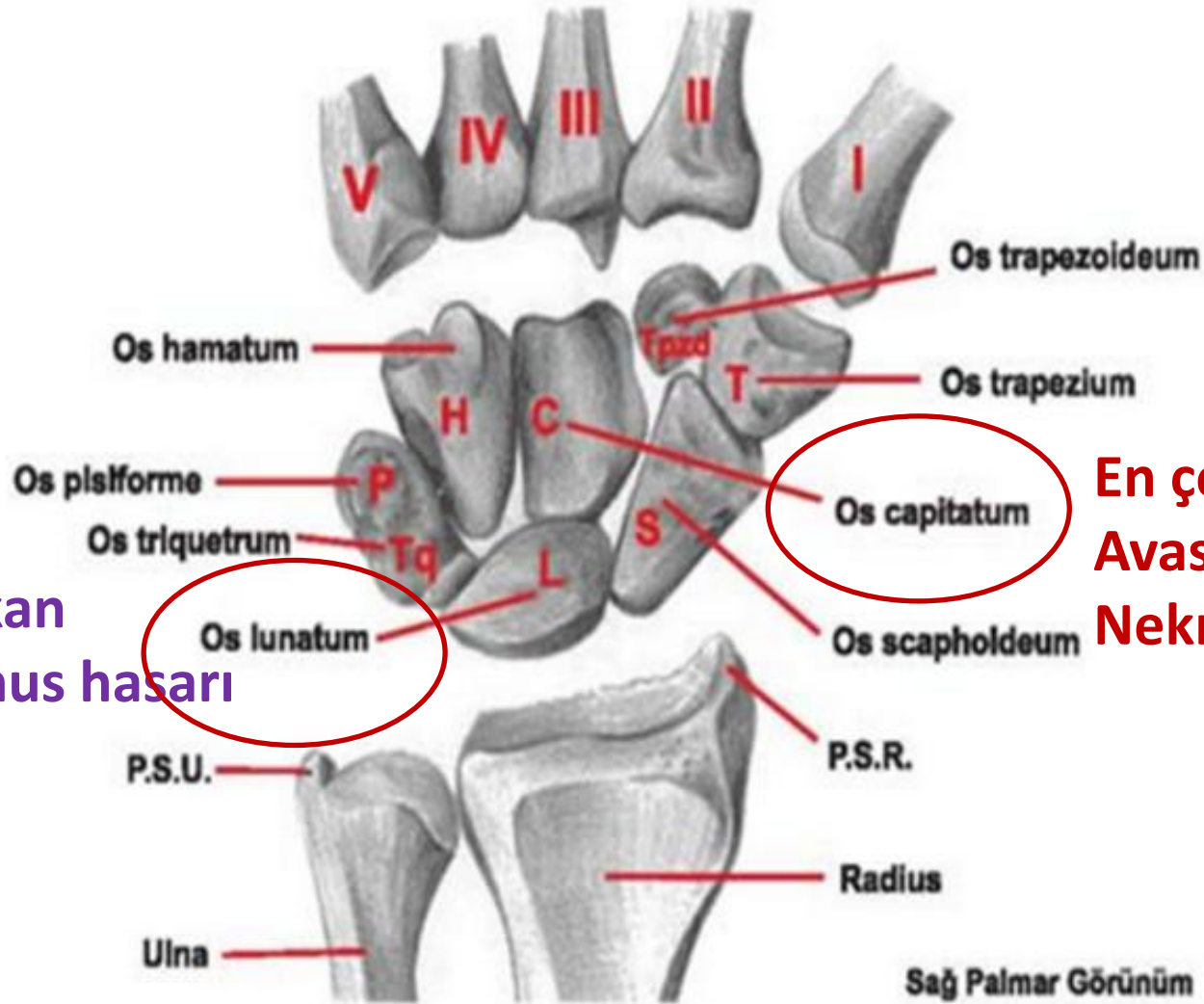
Nörovasküler yaralanma-Çıkık

Eklem	Sıklık	Yön deęiřtirme (En sık)	Eřlik eden yaralanma
Omuz çıkığı	En sık	Anterior	A. N. Axillaris
		(Subkorakoid tip)	Plex. Brachialis (C ₄ -T ₁)
Patella çıkığı	2	Transvers tip	Ligament yaralanması
Dirsek çıkığı	3	Posterolateral	A. Brachialis
			N. Ulnaris*
			N. Medianus
			N. Radialis
Diz çıkığı		Anterior	A. Poplitea*
			N. Peroneus Profundus
Kalça		Posterior	Acetabulum kırığı
			Avasküler Nekroz riski*

Nörovasküler yaralanma-Kırık

Lokalizasyon	Eşlik eden yaralanma
Humerus kırıkları	
• Boyun kırığı	A. Circumflexi Humeri Posterior N. Axillaris
• Şaft kırığı*	A. Profunda Brachii* N. Radialis*
• Medial Epikondil	N. Ulnaris
• Lateral Epikondil	N. Radialis
• Kondil	N. Medianus (Ant. İnterosseoz dal) A. Brachialis
Dirsek kırıkları	
• Suprakondil humerus*	N. Radialis (Posterolateral ise) N. Medianus (Posteromedial ise)
• Olecranon	N. Ulnaris
Ön kol kırıkları	Volkmann iskemik kontraktürü*
• Colles fraktürü	N. Medianus
• Radius stiloid	Lunatum çıkığı birlikteliği
• Monteggia Fraktürü (Radius Prok.çıkığı+Ulna prok. Kırığı)	N. Radialis (Post. İnterosseoz dal)
• Galeazzi Fraktürü (Radius distal uç kırığı+Prok.Radioulnar çıkık)	N. Ulnaris ve N. Medianus

En çok çıkan
N.Medianus hasarı



En çok kırılan
Avasküler
Nekroz Riski

Nörovasküler yaralanma-Kırık

Femur fraktörü	N. İschadicus
Femur başı	Kalça dislokasyonu birlikteliği
Femur boynu	Avasküler nekroz riski*
Femur torakanter	Aşırı kan kaybı riski*
Femur alt uç kondil	A. Poplitea
	N. Perenous Profundus
Diz fraktörü	A. Poplitea*
	N. Perenous Profundus
Bacak fraktörü	
Tibia Plato	A. Poplitea
Fibula	N. Perenous Profundus
Ayak - Ayak bileği fraktörü	A. Tibialis Post-Ant
	A. Dorsalis Pedis
Scapula fraktörü	Akciğer
	Trakea
Yüksek Enerjili Travma!!	Özefagus
	Major Vasküler Yaralanma
Klavikula fraktörü	Akciğer
	Plex. Brachialis
	A. V. Subclavia

Kompartman sendromu

>30 mmHg
FASİYOTOMİ

- Bir ekstremitede doku basıncının perfüzyon basıncını aşmasına bağlı dolaşımın bozulması
 - El, ön kol, üst kol, karın, kalça, uyluk ve bacak
 - Aşırı doku nekrozu
 - Uzuv kaybı
 - Rabdomyoliz
 - Böbrek yetmezliği
 - Tromboemboli
 - Ölüm



Tromboembolik olaylar

- Uzun süreli immobilizasyon veya travmanın kendisi
- Uzun kemik fraktörü → 10 gün veya üzeri süreli immobil → Tromboz %67
- Alt ekstremitte fraktürlerinde daha sık
- DMAH (Enoksoparin...)

Tromboembolik olaylar

- Tromboembolik ajanlar DVT'yi azaltmada etkili, ancak Pulmoner emboli sıklığını etkilemiyor
- Proflaktik antikoagülan tedavi ➔ Kanama!!

Tromboembolik olaylar

Comparative Effectiveness of Low-Molecular-Weight Heparins versus Other Anticoagulants in Major Orthopedic Surgery: A Systematic Review and

Tromboemboli Proflaksisinde

Chen, Pharm.D., Jennifer Colby, Pharm.D., Soyon Lee, Pharm.D., Jeffrey Kruger, M.D., Sagar Nankani, Pharm.D., Ajibade Ashaye, M.B.B.S., M.P.H., and C. Michael White, Pharm.D., FCP, FCCP

Study Objective. To evaluate the comparative efficacy and safety of low-molecular-weight heparins (LMWHs) versus other anticoagulants as venous thromboembolism prophylaxis in major orthopedic

Design. Systematic review with meta-analysis of 57 random trials.

Patients. Patients undergoing total hip replacement, total knee or hip fracture surgery who received prophylaxis with another anticoagulant.

Interventions and Main Results. We conducted a systematic review of the MEDLINE, Cochrane Central Register of Controlled Trials, and Scopus databases (1980–July 2011) to identify random trials. Trials were included if they directly compared LMWHs with another anticoagulant class and reported outcomes of venous thromboembolism with patients who received unfractionated heparin.

DMAH

UFH
ve
VKA

According to moderate-to-high strength of evidence, LMWH prophylaxis provided substantial benefits with less harm compared with UFH. With predominantly moderate strength of evidence, the balance of benefits to harms for factor Xa inhibitors or DTIs compared with LMWHs seems favorable. With predominantly low-to-moderate strength of evidence, the known benefits of LMWHs for proximal and distal DVT with LMWHs versus VKAs may not be sufficient to counteract the increased risk of bleeding.

Key Words: orthopedic surgery, total hip replacement, total knee replacement, hip fracture surgery, venous thromboembolism, anticoagulant prophylaxis.

(Pharmacotherapy 2012;32(9):799–808)

Avasküler Nekroz

- Kan akımının bozulmasına bağlı
- Malunion, nonunion veya dejeneratif değişiklikler
 - Femur başı ve boynu (En sık)**
 - Skafoid*
 - Talus boynu ve gövdesi
 - Proksimal humerus kırıkları



Gelecekte neler var?



MIPPO nedir?

Minimal Invasive Percutaneous Plate Osteosynthesis
yeni indirek redüksiyon tekniđi

Amaç



AR-IF



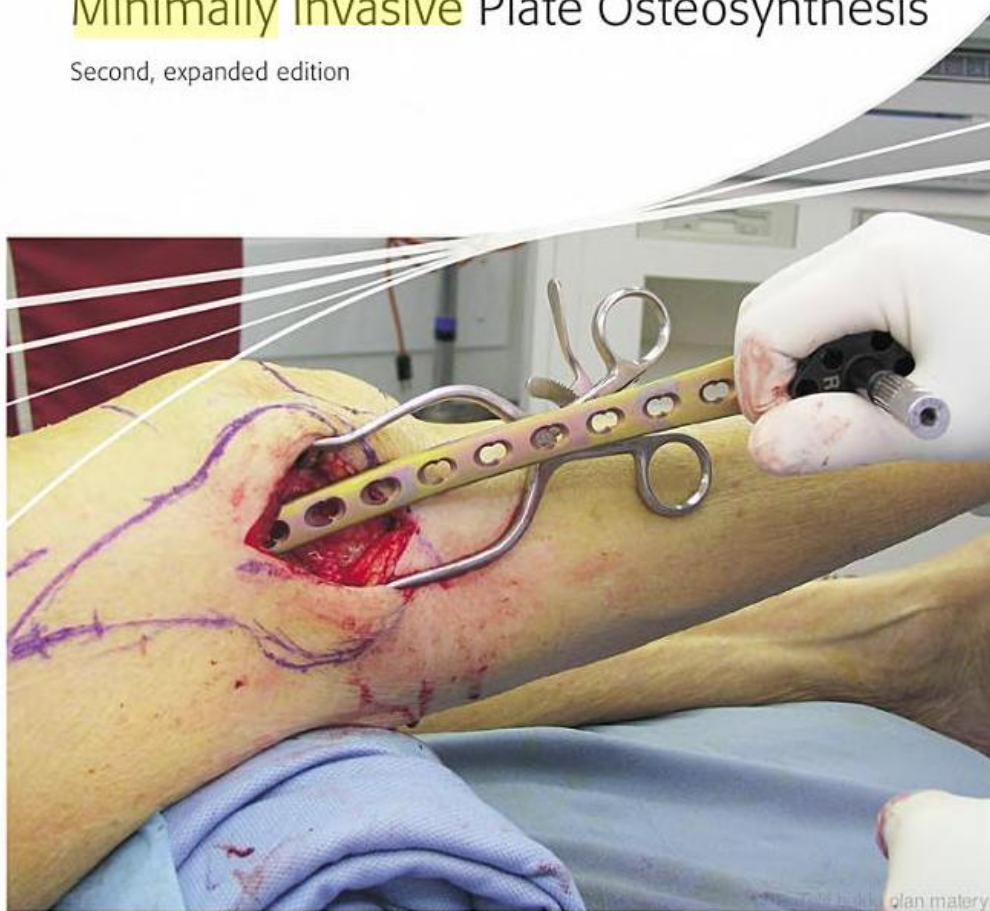
MIPPO



MIPPO

Minimally Invasive Plate Osteosynthesis

Second, expanded edition



MIPPO

- Anatomik yapılarda daha az hasar
 - Daha hızlı kemik iyileşmesi
 - Enfeksiyon riski ↓
 - Greft ihtiyacını ↓
 - Daha az ağrı ve daha çabuk mobilizasyon
 - Major cerrahiye bağlı mortalite-morbidite ↓
- Dezavantajı
 - Zor teknik
 - Skopi ihtiyacı ↑
 - Dizilim bozukluğu (Nonunion-Malunion ve Psödoartroz)



ELSEVIER

2001

Injury, Int. J. Care Injured 32 (2001) S-A4–13

INJURY

INTERNATIONAL JOURNAL OF THE CARE OF THE INJURED

www.elsevier.com/locate/injury

A minimally invasive medial approach for proximal tibial fractures

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Summary

Numerous techniques have been described for MIPPO (minimally invasive percutaneous plate osteosynthesis) for metaphyseal or combined metaphyseal-articular fractures of the proximal tibia. Surgical management is often complicated by the initial soft tissue damage, malalignment, remaining instability, or infection. In this prospective cohort study, we describe the diagnostic procedures vital for preoperative planning. These include plain radiographs and CT scans in case of articular fracture components. The techniques for temporary stabilization and definitive fracture care using 4.5 mm DCP, LC-DCP, and LISS (Less Invasive Stabilization System) by limited medial incisions are described in a step-wise protocol.

From 1996 to 1998, six fractures in six patients were studied. According to the AO classification, there were four type 41 fractures and two type 42 fractures. One

range of motion of 0/10/110, was back at work, and able to participate in recreational sports. The average time to healing was between 12 and 20 weeks postoperatively. There was no delayed healing, pseudarthrosis, recurrent fracture or late infection. None of the cases needed bone grafting. At the most recent follow-up, all patients were bearing full weight without walking aids. All cases achieved a neutral alignment and satisfactory range of movement. Though further data are needed we have sound reason to propagate a single medial approach and minimally invasive osteosynthesis as a sufficient and subtle technique for stabilization of these complicated fractures.

Keywords: fracture, tibia, LISS, MIPPO, percutaneous plate, metaphyseal fracture, articular fracture
Injury 2001, Vol. 32, Suppl. 1

Zhongguo Gu Shang. 2014 Apr;27(4):311-5.

[Case-control study on close manipulative reduction combined with minimally invasive percutaneous plate fixation for the treatment of proximal humeral fractures].

[Article in Chinese]

Liu YW, Wei XE, Gao NY, Li ZQ, Kuang Y, Zhan HS, Shi YY, Zheng YX.

Abstract

OBJECTIVE: To compare the clinical effects of close manipulative reduction combined with minimally invasive percutaneous plate fixation(MIPPO) and conventional open reduction and internal fixation (ORIF) for the treatment of proximal humerus fractures.

METHODS: From April 2008 to March 2013, among the 75 patients with fractures of proximal humerus, 26 patients were male and 49 patients were female, ranging in age from 22 to 80 years; 18 patients had injuries caused by traffic accident and 57 patients had injuries caused by falling down. According to Neer classification, there were 49 cases of two-part fractures and 26 cases of three-part fractures. All the patients were divided into two groups: MIPPO group and ORIF group. There were 12 males and 21 females in the MIPPO group, including 22 cases of Neer two parts and 11 cases of Neer three parts, who were treated with close manipulative reduction combined with MIPPO. While the other 42 patients were in the ORIF group, including 16 males and 26 females. Among those patients, 27 cases belonged to Neer two parts and 15 cases of Neer three parts, who were treated with ORIF. Length of the incision, blood loss, operating time, early postoperative pain(recorded by VAS), neck-shaft angle of proximal humerus and postoperative function of shoulder(recorded by Constant-Murley score, including pain, function, ROM and muscle length) were compared.

RESULTS: The mean lengths of incision were (6.74 +/- 0.38) cm in MIPPO group and (16.82 +/- 1.74) cm in ORIF group; blood losses were (110.15 +/- 29.49) ml in MIPPO group and (326.19 +/- 59.71) ml in ORIF group; operation times were (48.60 +/- 10.18) min in MIPPO group and (68.84-16.22) min in ORIF group. VAS of patients in MIPPO group on the 1st and 3rd days postoperatively were lower than those of patients in the ORIF group. The postoperative radiographs verified good position of all screws and satisfactory reduction of bone fracture reduction in both groups. All the patients were followed up, and the durig ranged from 8 to 24 months (mean 14.2 months). In the MIPPO group, there was no humeral head necrosis and all patients gained bone union; while in the ORIF group, 3 patients sustained nonunion and received reoperation for bone grafting, and 2 patients sustained

CONCLUSION: The close manipulative reduction combined with MIPPO is a better choice for fixation of proximal humerus fractures, compared with conventional plate. This method possesses such advantages as a shorter incision, less disturbance of the blood supply and stable fixation of the fracture, allowing early exercise so that the function of shoulder recovers rapidly.

Gelecekte başka neler var?



Hidrojel

- Kemik iyileşmesini stimule eden biyolojik ajanlar
 - Hidroksiapatit
 - Trifosfat
 - Kalsiyum sülfat

Biyolojik ajanlar

- Otolog veya kadavradan
- Sentetik
- Amaç → Diafizyel boşlukların doldurulması ve desteklenmesi




Fracture Repair

Biyolojik ajanlar

- Sentetik

- Peptid sinyal uyarıcıları
- Kemik morfojen proteini
- Transforme edici büyüme faktörü
- Gen ailesi büyüme faktörü
- Trombosit türevli büyüme faktörü
- Bağışıklık düzenleyici proteinler ...

IN	OUT
	

- Bunlar şu anda popülerler ve **özellikle omurga cerrahisinde**

Biyolojik ajanlar

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The influence of collagen and hyaluronan matrices on the delivery and bioactivity of bone morphogenetic protein-2 and ectopic bone formation

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ABSTRACT

Bone morphogenetic protein-2 (BMP-2) is known to enhance fracture healing, promote collagen synthesis. However, collagen rapidly releases BMP-2 with a high burst followed by a low sustained phase. As a result, supra-physiological doses of BMP-2 essentially treat bone defects. High BMP-2 dosing can introduce serious side effects: bone overgrowth, cyst-like bone formation and significant inflammation. As BMP-2 carriers significantly affect the efficacy of fracture healing, we sought to develop two BMP-2 delivery matrices with contrasting release profiles on BMP-2 bioactivity. We compared a thiol-modified hyaluronan (Glycosil™) hydrogel that showed a sustained release of BMP-2 to a collagen sponge for the delivery of BMP-2, the bioactivities of released BMP-2 and ectopic bone formation. Analytical micro-computed tomography revealed that low burst followed by sustained release of BMP-2 from the hydrogel induced up to 45% more bone compared to a BMP-2 dose that has a high burst and sustained release. This study demonstrates that the burst followed by a sustained release of BMP-2 is more desirable for bone healing. The therapeutic potential of hydrogels, particularly hyaluronan-based, for the treatment of bone defects and may help alleviate the adverse clinical effects of growth factor use.

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Synthetic hydrogel scaffold is an effective vehicle for delivery of INFUSE (rhBMP2) to critical-sized calvaria bone defects in rats

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Abstract

Medtronic's INFUSE Bone Graft provides surgeons with a current delivery vehicle that rely on excessive quantities of the active ingredient in INFUSE (rhBMP2), to achieve physiologically relevant levels of the product and increasing the cost of the product and increasing the cost of neighboring tissues. We demonstrate that a simple to create an effective polymer delivery vehicle for rhBMP2 materials and reducing the dose of rhBMP2 required entirely of synthetic components, this system enters the scaffold that is degraded by naturally occurring rat tissue formation. When tested side-by-side with a polymeric delivery system significantly increased

Acılı ve Riskli Kırık Tedavisine Son

TÜBİTAK destekli projeye kırık tedavisinde riskli ameliyat teknikleri yerine daha acsız, riskli ve ucuz bir yöntem kullanılacak.

UV İşçileri

Sağlık kurumları ve çevre örgütleri uçucu organik ve dumanlı maddelerin sağlığını ve çevreye verdiği zararları önlemek için çalışmalarını sürdürüyor. Bu çalışmaların bir sonucu olarak, UV ışınları kullanılarak, bu maddelerin havadan temizlenmesi sağlanıyor. UV ışınları, havadaki uçucu organik ve dumanlı maddeleri parçalayarak, bunları suya karıştırarak, suya atarak, suyu arıtarak, suyu temizleyerek, suyu kullanıma uygun hale getiriyor. UV ışınları, suyu arıtarak, suyu kullanıma uygun hale getiriyor. UV ışınları, suyu arıtarak, suyu kullanıma uygun hale getiriyor.

Proje hakkında bilgi veren Aslıhan Güneş, "Ortopedi kolları için bir uygulama, kırık oluşturma, UV ışınları ile sterilizasyon ve enjekte edilebilir yeni polimerik biyomateriallerin sentezi, karakterizasyonu ve uygulanması amaçlanıyor. Geliştirilen biyomateriallerin araştırılması için hem in vitro hem in vivo çalışmalar yapıldı. Elde edilen hidrojel biyoyumuşu davranış gösterdi ve fare bu kemiklerine yerleştirildikten sonra herhangi bir ağrıye etkisi seğıp olmadı. Bu, ay boyunca fare kemiklerinde tutulan hidrojel için kemik kütlesi arttı ve kemik dokusu oluştuğu ve hidrojel için 90 g'a kadar bir oranla rezorbe olmaksızın yerli yeni kemik kütlesi ürettiği görüldü. Bu, projeye ek olarak, kırık tedavisinde riskli ameliyat teknikleri yerine daha acsız, riskli ve ucuz bir yöntem kullanılacak" diye konuştu.

ARDE tarafından desteklenen projenin daha da geliştirilmesi gerektiğini dile getiren Güneş, "Tıp bu çalışmalar sonucunda bu bu uygulamayı hastanelerde uygulamaya başlamak kırık tedavisinde çok önemli bir buluş olacak. Daha sonra bu riskli ameliyat teknikleri yerine daha acsız, riskli ve ucuz bir yöntem kullanılacak" diye konuştu.

Çıkık tanısında USG kullanımı?

- Çıkık tanısında USG → Çocuklarda Gelişimsel Kalça Displazisi
- Acil serviste "çıkık tanısında" kullanımı ise sınırlı?



Çıkık tanısında USG kullanımı?



<http://dx.doi.org/10.1016/j.ajem.2014.04.001>

Visual Diagnosis in Emergency Medicine

ULTRASOUND DIAGNOSIS OF TRAUMATIC ECTOPIA LENTIS

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CASE REPORT

A 49-year-old woman presented to the Emergency Department (ED) with an almost complete loss of vision after blunt trauma to her left eye. There was unilateral mydriasis in the left eye, along with lack of either indirect or direct pupil response. There was also a 2-mm hyphema in the inferior part of the vitreous and edema in the optic disk. The right eye was normal (Figure 1). Ultrasonography (US), performed by an Emergency Physician, revealed a lens located in different positions in the left eye, indicating a freely floating lens inside the eye globe (Figure 2A-C). The patient was diagnosed with ectopia lentis. Although the initial intraocular pressure, measured in the Ophthalmology Department after the patient was admitted to the hospital, was 18 mm Hg, the second measurement was 22 mm Hg, and increased to 40 mm Hg 5 days later. The patient underwent surgery in the Ophthalmology Department.

DISCUSSION

Ectopia lentis is dislocation or malposition of the crystalline lens of the eye. The most common cause of a lens dislocation is trauma (1). If the lens completely dislocates outside the lens patellar fossa, it can be located in the anterior chamber, free-floating in the vitreous or over the retina. Systemic hereditary disease or associated ocular disorders should be considered in the absence of trauma. Patients with a lens dislocation may present with a red

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UROLOGY - ORIGINAL PAPER

Traumatic testicular dislocation

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Abstract

Introduction Traumatic testicular dislocation is a rare entity. It occurs after a direct blunt scrotal trauma causing the testicle to migrate outside the scrotum, most frequently to the superficial inguinal region.

Materials and methods A review of the diagnostic database of our two institutions was performed searching for complex genital trauma between 1990 and 2012.

Results Seven cases of traumatic testicular dislocation were identified (four on the left side; one on the right side and two bilateral) for a total of nine testicles. Six were motorcycle accidents, and the other case suffered a pelvic crush injury. All victims had significant associated injuries, one case had an open dislocation and two were killed by the accident. The testicle was located at the inguinal region in four cases at the suprapubic area in four, and the other was an open dislocation. Diagnosis was suspected with the physical examination and confirmed by Doppler ultrasound; however, in one case, the diagnosis was missed during several weeks. In one case, the testicle was reduced into the scrotum immediately at the emergency department. Two cases were operated shortly after admission, performing testicular reduction into the scrotum and standard orchidopexy. Two other cases underwent delayed intervention, and both needed release of peri-testicular adhesions. Two cases (both bilateral) died at the accident site and were diagnosed by autopsy. In all surviving cases, it

was possible to gonadal preservation. **Conclusions** Traumatic testicular dislocation can be diagnosed by physical examination and high-resolution ultrasound. Early diagnosis and management, proper

Keywords Blunt trauma · Testicular dislocation

Introduction

Traumatic testicular dislocation is a rare entity. It occurs after a direct blunt scrotal trauma causing the testicle to migrate outside the scrotum, most frequently to the superficial inguinal region [1, 2]. Since its first description by Case [3], in a recent review, 181 cases have been reported [4].

Its most common cause is a direct blunt trauma to the scrotum [2, 15, 16]. In most cases, the dislocation is associated with an injury to the inguinal region, the direction of anatomic abnormality, and the cremaster muscle is often torn.

Because of its rare occurrence, the trauma team

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Original Contribution

A comparison of suprascapular nerve block and procedural sedation analgesia in shoulder dislocation reduction

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ABSTRACT

Objectives: Dislocation of the shoulder joint is one of the most common dislocations. The reduction procedure is a painful procedure. In this study, 2 different treatment groups were compared for pain control during shoulder dislocation reduction. It was aimed to evaluate the differences between the groups in reduction, success, length of hospital stay, complications, side effects, patient-physician satisfaction, and ease of application.

Methods: The study was planned to be prospective and randomized. As procedural sedation analgesia (SA), titration of ketamine 1 to 2 mg/kg was administered intravenously to group 1. Suprascapular nerve block (SNB) was applied under ultrasound guidance (USG) to group 2. Conformity to normal distribution of variables was examined with the Kolmogorov-Smirnov test. The χ^2 test and Fisher test were used to evaluate differences between the groups in categorical variables and the Mann-Whitney U test, and a value of $P < .05$ was accepted as statistically significant.

Results: The study comprised a total of 41 patients; 20 in the group 1 and 21 in the group 2. No statistically significant difference was determined between the groups in terms of age ($P = .916$), sex ($P = .972$), reduction success ($P = .540$), and patient-physician satisfaction ($P = .198$). The time spent in the emergency department (ED) by patients in the SA group was significantly longer compared with the SNB group. No side effects were observed in the SNB group.

Conclusions: Suprascapular nerve block, which can be easily applied under USG in the ED, can be evaluated as a good alternative to SA in the reduction of shoulder dislocations.

Çıkık tanısında USG kullanımı?

Pictorial essay

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Point-of-care ultrasound in the diagnosis of upper extremity fracture-dislocation. A pictorial essay.

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Abstract

Patients commonly present with orthopedic injuries to the emergency department (ED). Although radiographs are the standard of care for evaluating these injuries, point-of-care ultrasound is being increasingly used to make the diagnosis. This modality can be useful in patients who are too clinically unstable to leave the acute care ED and in nonverbal pediatric or geriatric patients who are unable to isolate their injuries. Published case series and prospective studies highlight the emergency physician's (EP) ability to detect fractures with point-of-care ultrasound with good accuracy. The American College of Emergency Physicians ultrasound guidelines advocate fracture identification as within the EP's scope of practice. This pictorial essay reviews how to use point-of-care ultrasound to diagnose fractures and dislocations of the upper extremity.

Keywords: ultrasonography, point-of-care ultrasound, orthopedic trauma, upper extremity, fracture, dislocation

Introduction

Patients commonly present with orthopedic injuries to the emergency department (ED). Although radiographs are the standard of care for evaluating these injuries, point-of-care ultrasound is being increasingly used to make the diagnosis. The literature to date highlights certain advantages of musculoskeletal point-of-care ultrasound, particularly in radiation sensitive pediatric populations, in the pre-hospital environment, in austere environments, in the pregnant patient, and to reduce serial radiograph utilization in fracture reduction. Musculoskeletal sonographic evaluation can be useful in identifying fractures in patients who are too clinically unstable to leave the acute care ED and in nonverbal pediatric or

geriatric patients who are unable to isolate their injuries. Published case series and prospective studies highlight the emergency physician's (EP) ability to detect fractures with point-of-care ultrasound with good accuracy [1,2]. The American College of Emergency Physicians (ACEP) ultrasound guidelines advocate fracture identification as within the EP's scope of practice [3].

Normal sonographic anatomy

When visualized with ultrasound, bone cortex appears as a bright white echogenic line with posterior shadowing as the bone reflects the sound waves back to the transducer and blocks further transmission. This property, however, makes the superficial cortex of the bone easily imaged. Disruption of the typically smooth, linear bony cortex can be demonstrated when a fracture

Çıkık tanısında USG kullanımı?

Original Articles

Ultrasonography as a Diagnostic Modality in Acromioclavicular Joint Pathologies

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Key words: acromioclavicular joint, anterior shoulder pain, irregularities, dislocation, joint swelling

Abstract

Background: Ultrasound is useful in detecting acromioclavicular pathologies in cases of trauma, inflammations and degenerative changes.

Objectives: To describe the sonographic findings of acromioclavicular joint pathology in patients with anterior shoulder pain.

Methods: Sonographic examination of the ACJ was used to examine 30 adults with anterior shoulder pain. As a control group we studied 30 asymptomatic patients and compared the findings to plain radiographs of the symptomatic group.

Results: The pathologic findings consisted of swelling of the joints, bone irregularities, widening and/or narrowing of the ACJ, soft tissue cyst formation, excessive fluid collection, and calcification. All these signs represent degenerative changes compatible with early osteoarthritis. We encountered one case of septic arthritis that required joint aspiration and antibiotic treatment.

Conclusions: It is our belief that ultrasonography should be used routinely in cases of anterior shoulder pain since it demonstrates various pathologies undetected by plain radiographs.

IMAJ 2005;7:28-30

measurement of the coraco-acromial distance. Ultrasonography has been proven to be as accurate as radiographic assessment and can be used to follow the reduction maneuver in cases of ACJ dislocation.

Patients and Methods

During 2003 we assessed 30 consecutive patients for anterior shoulder pain unrelated to trauma. The age range of the 18 male and 12 female patients with anterior shoulder pain ranged between 17 and 66 years. A group of 30 symptomless patients were chosen as a control group. The findings were compared to those of plain radiography of the symptomatic patients. Post-surgical cases were excluded. History-taking and physical examination were followed by conventional radiography of the affected shoulder and by ultrasound examination of both shoulders. Sonograms were obtained with Siemens G-50 and Toshiba 8000 Power-Vision with 5-13 MHz linear transducers. The opposite asymptomatic side was used as a control. The acromioclavicular joints were evaluated with ultrasound in coronal and sagittal plans.

Çıkık tanısında USG kullanımı?

Confirmed Specific Ultrasonographic Findings of Pulled Elbow

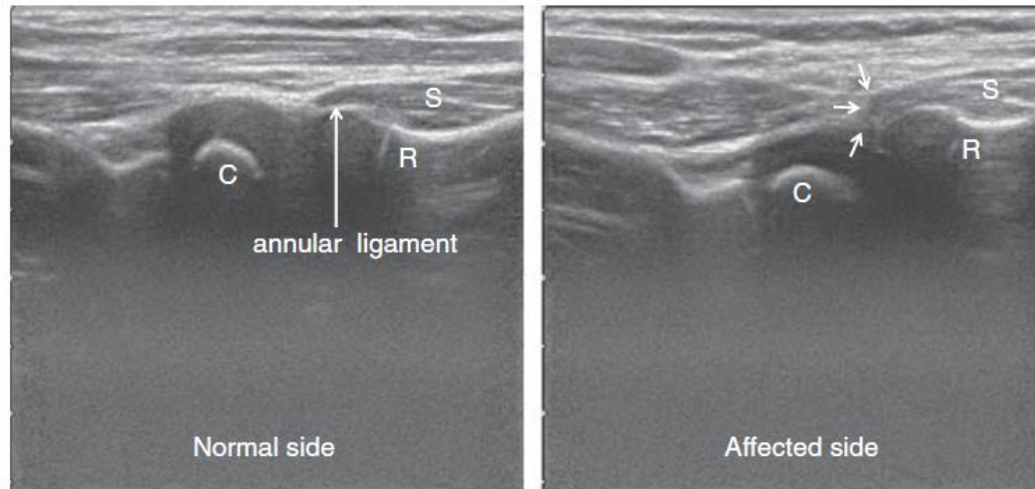


FIGURE 2. Ultrasonography of the pulled elbow. Anterior long-axis view of the radiohumeral joint. The small arrows indicate J-shaped hypoechoic image. C indicates capitellum; R, radius; S, supinator muscle.

Key Words: pulled elbow, ultrasonography, diagnostic image, J-sign
(*J Pediatr Orthop* 2013;33:829–831)

Without prior plain radiology. In all cases of ultrasonography, a comparative study could be conducted on

Pulled elbow is a disorder commonly observed in children in routine medical practice; however, when the circumstances of injury are unknown, difficulty has been experienced in the differential diagnosis whether it is a fracture or pulled elbow. Even when the disorder is proposed as a pulled elbow and manipulation is performed, there are some cases in which click is not audible,



Çıkık tanısında USG kullanımı?



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Ultrasound in Emergency Medicine

POINT-OF-CARE ULTRASOUND FACILITATES DIAGNOSING A POSTERIOR SHOULDER DISLOCATION

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Abstract—Background: Posterior shoulder dislocation is an uncommon disruption of the glenohumeral joint. Risk factors include seizure, electric shock, and underlying instabilities of the shoulder joint. **Case Report:** A 27-year-old man with a history of recurrent posterior shoulder dislocation presented to the Emergency Department with sudden shoulder pain and reduced range of motion about the shoulder after abducting and internally rotating his arm. Radiographs did not show fracture or dislocation. The treating physician suspected an occult posterior shoulder dislocation, but wanted to avoid performing a computed tomography scan of the shoulder, as the patient had undergone numerous scans during the evaluation of similar complaints. Instead, point-of-care ultrasound was performed, demonstrating posterior displacement of the humeral head relative to the glenoid rim, confirming the presence of a posterior shoulder dislocation. The patient received procedural sedation, and the shoulder was reduced with real-time ultrasound visualization. The patient tolerated the procedure well, and had decreased pain and improved range of motion. He was discharged with a sling, swathe, and orthopedic follow-up. **Conclusion:** Point-of-care ultrasound of the shoulder may be used to demonstrate posterior shoulder dislocation. This may have particular utility in the setting of non-diagnostic radiographs. © 2013 Published by Elsevier Inc.

Keywords—shoulder dislocation; ultrasound; Emergency Department; posterior

INTRODUCTION

Musculoskeletal complaints are a common reason for patients to seek evaluation in the Emergency Department (ED). The shoulder is the most commonly dislocated large joint in the body. Dislocations are most common in young men who have sustained trauma, and the majority of these involve anterior displacement of the humerus relative to the glenoid fossa (1). The diagnosis is typically confirmed with radiographs.

We report a case of a patient with shoulder pain and clinical suspicion for dislocation despite non-diagnostic radiographs, in which point-of-care ultrasound was used to confirm posterior shoulder dislocation. This diagnostic approach avoided the need for a computed tomography (CT) scan, and facilitated prompt reduction of the joint.

CASE REPORT

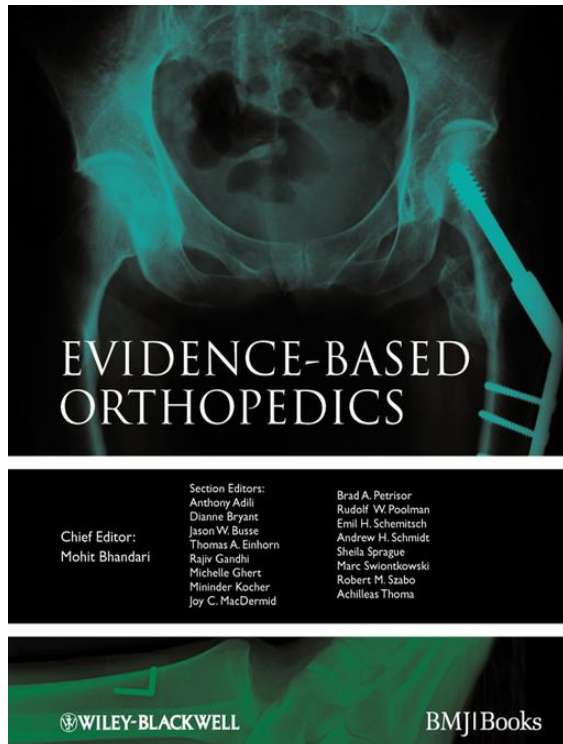
A 27-year-old man presented to the ED with left shoulder pain. He reported sudden onset of pain and loss of range of motion about the left shoulder after rolling over in bed and reaching for an alarm clock. He stated he thought his shoulder was dislocated. His medical history was significant only for multiple prior shoulder dislocations. On



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Kaynaklar



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