PLEASE CLICK ON THE FOLLOWING LINK TO WATCH THE LECTURE ONLINE:-

https://www.youtube.com/watch?v=5FpXhigaSv4&list=PLuBRb5B7fa_eLlhgRt2DFNKetmQ5nDLZJ&index=6

Approach to acute knee injury

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Q1: what do you do for Acute Knee Trauma Patient at ED?

Introduction

Acute knee injury **represent approximately 2.5% of the patients seen in EDs** every year for injuries, and **account for up to 33% of all musculoskeletal complaints** in the primary care setting.1

Clinical Presentation. When a patient presents with acute knee pain, certain **historical features** should be sought as they can be indicative of specific injury patterns or diseases, and may help the emergency physician arrive at the correct diagnosis.

SUGGESTED DIAGNOSIS	FINDING OR COMPLAINT
Fracture	• Contact injury with "pop" • Immediate inability to bear weight • High velocity mechanism • Elderly patient with minor fall (femur, tibial plateau)
Quadricep/Patellar Tendon Rupture	• Inability to climb stairs • Patient > 40 years of age • Non-contact injury with loud "pop" felt or heard
ACL Rupture	• Contact injury with "pop" felt or heard • Cut or pivot mechanism of injury • Acute effusion (in < 4 hours) • Knee "gave way" • Tibial spine fracture
PCL Rupture	• No "pop" felt or heard • Blow to anterior proximal tibia (dashboard injury) • Less instability than with ACL tear
Collateral ligament injury	• Direct blow to lateral knee in flexion (MCL) • Pain localized to lateral edge of knee (MCL) • Direct blow to medial knee in extension (LCL) • Pain localized to medial edge of knee (LCL)
Meniscal injury	• Pain with knee rotation • Clicking or locking of knee • Effusion develops in 12–24 hours
Knee dislocation spontaneously reduced	• Significant knee swelling with gross instability • Evidence of popliteal artery injury
Septic arthritis	• History of fever, IV drug abuse • Atraumatic, progressive knee swelling • Previous knee joint replacement • Rheumatoid arthritis or other joint disease

knee examination

Look: to Identify deformity or effusion
Feel: to localize tenderness.
ROM: determine the range of motion (passive and active)
stability testing: However, there are many cases where one should not perform stability testing without **initial imaging** and/or pain management first. When a fracture is suspected **(obvious deformity) or pain is great**, one should have plain films taken and pain addressed before attempting to manipulate the knee.
*** **Not to forget Neurovascular Examination** ***

Imaging:
Plain X-ray

OTTAWA KNEE CRITERIA—OBTAIN X-RAY IF ANY OF THE FOLLOWING ARE TRUE:

- Inability to walk 4 weight-bearing steps at the time of the injury and in the ED
- Inability to flex knee to 90 degrees
- Tenderness over head of fibula
- Isolated patellar tenderness
- Age > 55 years

PITTSBURGH KNEE CRITERIA—OBTAIN X-RAY IF BLUNT TRAUMA MECHANISM OR FALL AND EITHER:

- Inability to walk four weight-bearing steps in the ED
- Age < 12 years or > 50 years

The Ottawa 2 and Pittsburgh 3 criteria are the two most familiar and well studied of these decision aids. Both have been shown to detect nearly 100% of fractures.4,5,6 Likewise, they have been shown to reduce the number of knee films taken in the ED by at least 23% (Ottawa) and 53% (Pittsburgh).7 However accurate, both criteria may miss about 1% of fractures on average.7 The most commonly missed fractures include fractures of the patella, non-displaced tibial plateau, and fibular head, especially in elderly patients.

CT Scan.

For preparation for surgical repair of knee fractures, most often for distal femur or tibial plateau fractures.

CT scan also may be used to detect subtle tibial plateau fractures when suspicion is high and plain films are non-diagnostic.

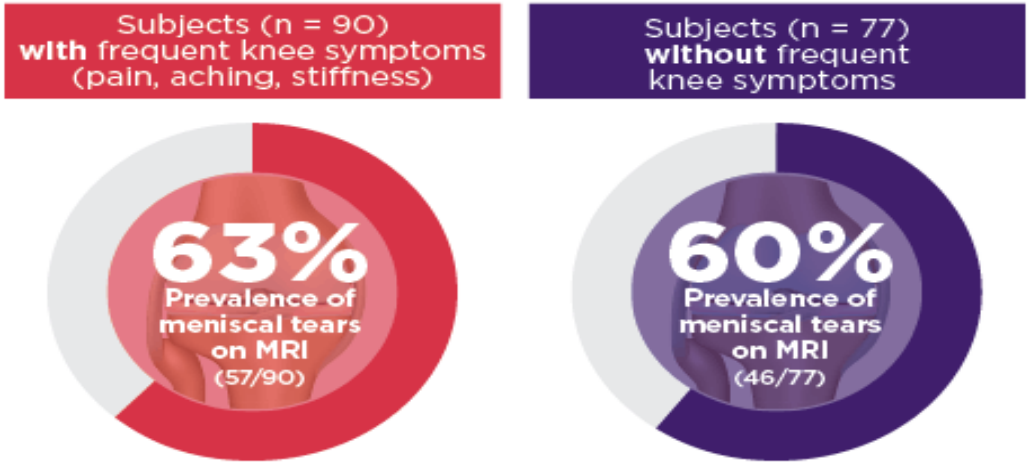
MRI:

Australian Medicare Benefits Schedule criteria for knee magnetic resonance imaging 8

The Medicare Benefits Schedule allows patients to be referred by general practitioners for magnetic resonance imaging:

- following acute knee trauma for patients aged 16–49 years with ***inability to extend the knee suggesting the possibility of acute meniscal tear*** or clinical findings ***suggesting acute anterior cruciate ligament tear***
- for a scan of the knee for a patient ***aged <16 years*** for internal joint derangement.

Prevalence of meniscal tears among middle-aged and elderly people with radiographic osteoarthritis



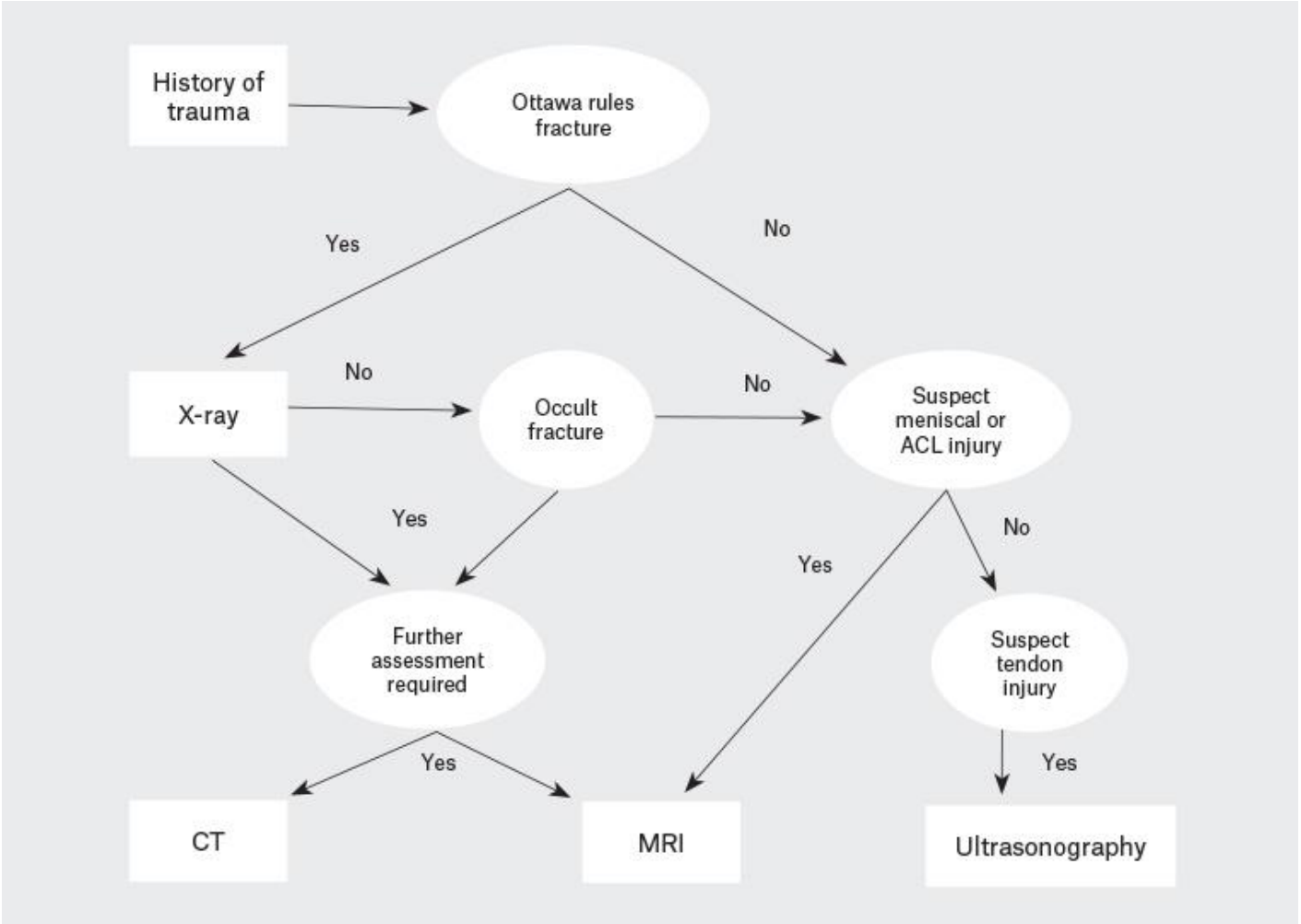
Arthrocentesis:

Diagnostic:

a) bloody fluid will confirm **intra-articular injury** from **ligament tears**, or confirm **joint penetration from gunshot wounds** that may not appear to have entered the joint space.
b) The presence of **fat droplets** (presence of bone marrow) will also confirm **subtle intra-articular fractures.**
c) In the case of **septic arthritis**, joint fluid **WBC count** and **cultures** are essential to accurately identify bacteria and guide antibiotic therapy.

Therapeutic:

to **relieve the pain of a large, tense joint effusion**, or to provide pain relief from the **intra-articular injection of analgesic compounds**. Traditionally bupivacaine (10 mL of 0.25%) was injected for pain relief, but morphine (1-5 mg in 30 mL normal saline) has been shown to provide relief for up to 24 hours 9. More recently ketorolac (Toradol 60 mg in 10 mL normal saline) has been shown to be more effective than either bupivacaine or morphine alone in postoperative cases 10.


History of trauma
Ottawa rules fracture
Yes
No
X-ray
No
Occult fracture
No
Suspect meniscal or ACL injury
Yes
Yes
No
Further assessment required
Suspect tendon injury
Yes
Yes
CT
MRI
Ultrasonography

تحويل المرضى إلى عيادة جراحة تنظير المفاصل والطب الرياضي

أولا الحالات الطارئة

الحالات التي تحتاج إلى تدخل جراحي مباشر

أ. خمج مفصلي ما بعد عملية تنظير مفصل

ب. وجود جسم غريب داخل المفصل

ج. مضاعفات مهددة للحياة أو الطرف ما بعد عملية تنظير مفصل

د. كسر بحاجة للتثبيت بواسطة المنظار

ه. خلع غير معاد في أحد المفاصل

يتم في هذه الحالات التنصيق مع أخصائي الطب الرياضي المناوب في مستشفى الملكة علياء من قبل الأخصائي المناوب في المستشفى المعني

تحويل المرضى إلى عيادة جراحة تنظير المفاصل والطب الرياضي

ثانيا الحالات شبه الطارئة

الحالات التي يتم جدولتها مبكرا على جدول عمليات الطب الرياضي وهي

أ. وجود محدودية في حركة المفصل ما بعد إصابة حادة نتيجة وجود عائق من غير وجود كسر

ب. وجود خلع في أحد المفاصل ما بعد إصابة وتم إرجاعه بالطوارئ

ج. إصابة حادة بالرباط الصليبي بعد تأكيد الاصابة بواسطة الرنين المغناطيسي

د. إصابات الأربطة المتعددة

يتم تحويل هذه الحالات من قبل الأخصائي المعني الى أقرب عيادة للطب الرياضي يوم أحد

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