

ORTHOPAEDICS



FOR PRIMARY
HEALTH CARE



LION

LEARNING INNOVATION VIA
ORTHOPAEDIC NETWORKS

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An approach to the swollen painful knee

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Learning objectives

1. Describe the clinical findings associated with an ACL tear.
2. Understand and develop an appropriate approach to a knee effusion.

Case presentation

A 21-year-old male patient presents to your casualty unable to bear weight on his right knee a few hours after a twisting non-contact injury during a soccer game. During this injury, he felt a “pop” in his knee which showed immediate swelling. Thereafter, any attempt to put weight on the knee would cause it to “give way” and was associated with severe pain. On examination you note diffuse swelling, with no other visible trauma.



A right knee effusion. Available from: <https://commons.wikimedia.org/wiki/File:Kneeffusion.JPG> (licensed under CC BY-SA 3.0)

The joint is tender to the touch. Furthermore, you note marked decreased range of motion. You confirm this by comparing it to the unaffected leg. The patient’s regional neurovascular examination is normal. The Lachman and Anterior drawer tests show more laxity than the uninjured knee. Both are positive of an ACL injury. You consider aspirating the joint where you would see blood, but an AP radiograph of the knee shows a flake fracture around the attachment of the anterolateral capsule,

otherwise known as a Segond fracture. This is indicative of an ACL injury. The gold standard is still an MRI to confirm the diagnosis.



Anterior Drawer Test



A Segond fracture. Available from: https://commons.m.wikimedia.org/wiki/File:Segond-Fraktur_mit_Ruptur_des_vorderen_Kreuzbandes_18M_-_CR_ap_-_001_-_Annotation.jpg (Licensed under CC BY-CC BY-SA 4.0SA 4.0)

Management

Acute/supportive

Initial therapy includes analgesia, rest, ice and compression of the injured knee. In select cases patients may need intra-articular lignocaine injections to better manage their pain. This also allows more comfort during clinical examination. Moreover, elevation of the affected lower extremity will help to decrease knee swelling and crutches will allow mobilization without weight bearing.

Definitive

Most active, younger patients will benefit from ligament reconstruction with autograft to protect the meniscus and cartilage from further injury and allow to return to activities. This usually takes 9 to 12 months. Older, less active patients may be candidates for non-surgical management. Here treatment includes regular physiotherapy.

Introduction to an approach of a swollen painful knee.

One of the most important questions to ask is if the knee swelling or pain occurred acutely or is chronic. If acute pain, we establish if there trauma or not. In knee injuries an important point to understand is if the swelling was sudden (blood – hemarthrosis) or occurred delayed (effusion).

With sudden traumatic swelling, most commonly, the injury is an intra-articular ligamentous injury (for example ACL), patella dislocation or a fracture. When imaging is inconclusive or not available an aspiration can show hemarthrosis in these cases. fat globules can be seen on the surface of blood in the syringe a fracture should be suspected. If pathology can be confirmed non-invasively with available imaging, joint aspiration should be avoided. In delayed swelling, meniscus injury should be suspected. With acute atraumatic isolated knee swelling septic arthritis must be excluded. Other conditions which can mimic this is gout or tuberculosis (TB), but symptoms in these conditions are often recurring and can also involve other joints. Here, diagnosis should be confirmed with aspiration or tissue

biopsy which has a better yield. The fluid or tissue samples should be assessed for bacterial and TB microscopy, culture and sensitivities, TB PCR test, white cell count as well as crystals. More information on this is available in the chapter on septic arthritis. The most common conditions which affect multiple joints at multiple time points are osteoarthritis and inflammatory arthritis. Here a specific disease pattern in the small joints, extra-articular pathology, and specific radiologic features help narrow down the diagnosis. More information is available in the respective chapters.



Rheumatoid arthritis of the knee. There is concentric joint space narrowing, osteopenia and minimal osteophyte formation.

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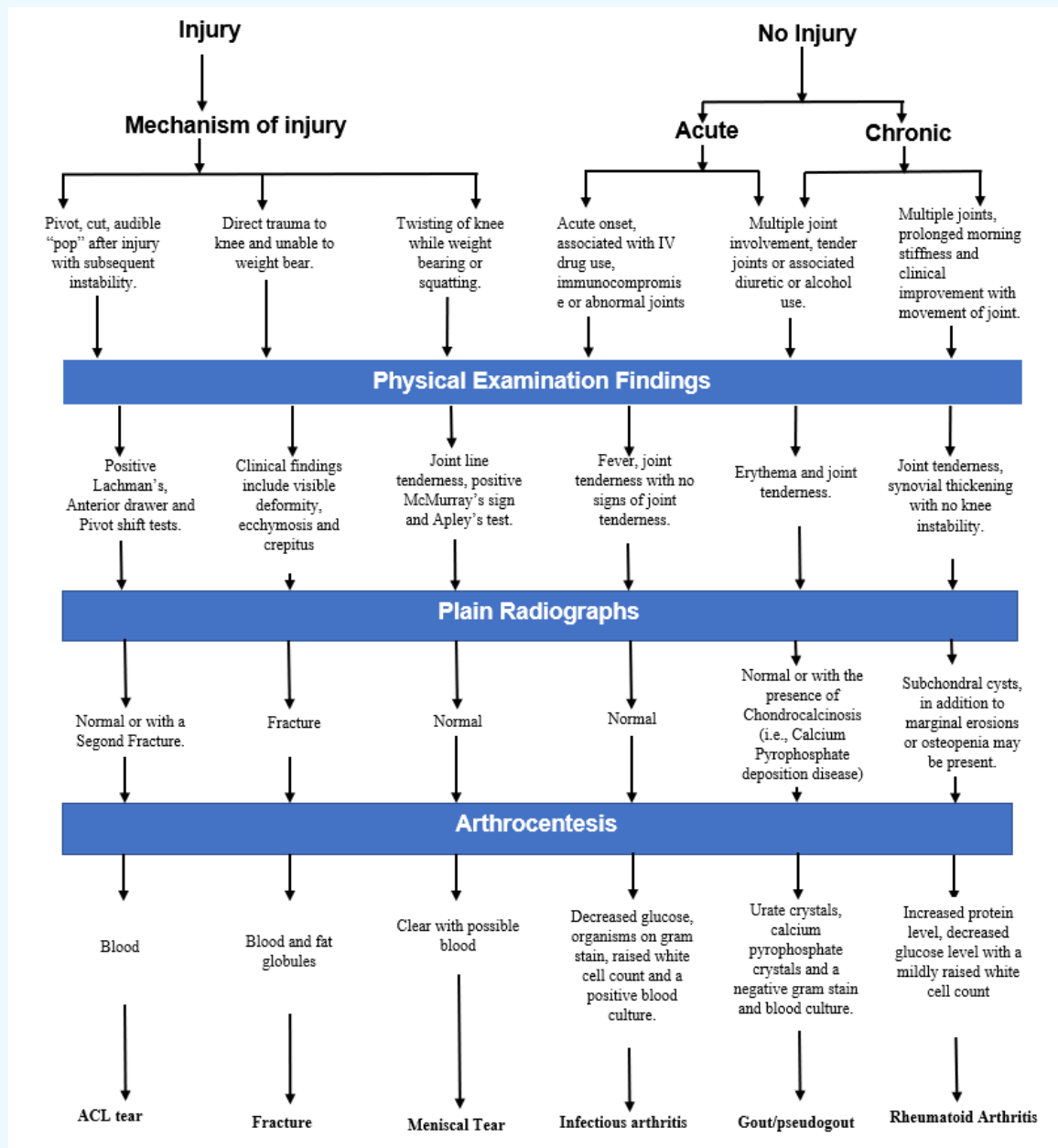
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Examination of the swollen knee

Below is an approach one can employ when assessing a swollen knee in clinical practice.



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About the book

Informed by experts: Most patients with orthopaedic pathology in low to middle-income countries are treated by non-specialists. This book was based on a modified Delphi consensus study* with experts from Africa, Europe, and North America to provide guidance to these health care workers. Knowledge topics, skills, and cases concerning orthopaedic trauma and infection were prioritised. Acute primary care for fractures and dislocations ranked high. Furthermore, the diagnosis and the treatment of conditions not requiring specialist referral were prioritised.

** Held et al. Topics, Skills, and Cases for an Undergraduate Musculoskeletal Curriculum in Southern Africa: A Consensus from Local and International Experts. JBJS. 2020 Feb 5;102(3):e10.*

The Lion

The Learning Innovation via Orthopaedic Network (LION) aims to improve learning and teaching in orthopaedics in Southern Africa and around the world. These authors have contributed the individual chapters and are mostly orthopaedic surgeons and trainees in Southern Africa who have experience with local orthopaedic pathology and treatment modalities but also in medical education of undergraduate students and primary care physicians. To centre this book around our students, iterative rounds of revising and updating the individual chapters are ongoing, to eliminate expert blind spots and create transformation of knowledge.

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