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Chapter 1 : PPT - BASICS OF ORTHOPEDIC RADIOLOGY PowerPoint Presentation - ID

A-Z of Orthopaedic Radiology is an illustrated handbook-style book that covers in brief outline format more than nontraumatic musculoskeletal conditions. The intended audience of the book is orthopedic and radiology residents.

Teaching This course is delivered part-time and offers a flexible approach. The course is delivered by a blend of lectures, tutorials and practical laboratory based session. Attendance is required on four days over the semester. The remainder is online study and support, including live sessions with tutors. Student directed e-learning tasks, and formative assessments will be delivered in a variety of formats. A number of strategies have been designed to integrate this into your practice for those taking the programme part-time. Both part-time and full-time students will be assigned a clinical tutor who will assist in guiding students through complex cases. Intended Learning Outcomes Critically appraise and debate the role of differing imaging modalities in the practice of orthopaedic radiology. Gain an understanding of the diagnostic tests available and their relation to basic science in the role in imaging. Critically analyse the patient clinical information and produce an informed clinically reasoned pathway for investigation. Critically reflect on their own performance to develop self and practice in orthopaedic radiology. Develop clear communication strategies when presenting analysis of imaging in relation to a wide range of patients with different ages and cultural backgrounds. Synthesise information in relation to clinical governance and legal and ethical issues in relation to imaging in a wide range of patients in orthopaedics. Assessment Students will be assessed by a series of multiple choice questions 20mins and an Objective Structured Clinical Examination 40 mins. This module will assist orthopaedic doctors and other specialists in image interpretation. These are valuable skills that are required to assess and manage patients effectively in practice. Contact with a range of specialists including radiologists, consultant orthopaedic surgeons and physiotherapists. Links with Industry The module offers strong links with the NHS partners and consultants and experts within their field. On appointment as a consultant to the University Hospital of South Manchester he developed the first comprehensive musculoskeletal ultrasound and arthrography service in Manchester in and has a busy practise in latest musculoskeletal interventional procedures such a s platelet rich plasma therapy and high volume saline therapy for Tendon disorders. He is one of the first to be practising shoulder hydrodistension in the management of the frozen shoulder with excellent audited results. Waqar is one the named radiologists for leading premiership and European cup winning football teams and provides radiological support to a number of Rugby clubs locally in Manchester and other teams in the North West. He provided also ultrasound support for the Olympic teams and events based in Manchester. Waqar is a regular presenter internationally and has received CUM Laude awards and two certificates of merit for presentations at the Radiological Society of North America Annual meeting Chicago â€" , and Further Study Opportunity to combine the module with other specialist modules to exit with a Postgraduate Certificate 2 x 30 credit modules or Postgraduate Diploma 4 x 30 credit modules in addition to completing a full MSc in your chosen area of orthopaedics.

Chapter 2 : Orthopedic Radiology: A Practical Approach by Adam Greenspan

Orthopaedic Imaging Charter Radiology is the premier musculoskeletal imaging center of excellence. Charter Radiology uses the most advanced technology and state-of-the-art wide bore 3T MRI scanners and slice CT scanners to diagnose and evaluate all muscular soft tissue and bone conditions.

Separates meniscus into superior femoral and inferior tibial fragments Primarily horizontal signal on sagittal images Vertical radial Splits central margin of meniscus Vertical signal oriented perpendicular to the curvature of the meniscus Vertical longitudinal Extends along length of meniscus; separates meniscus into inner and outer fragments Vertical signal oriented parallel to the curvature of the meniscus. Magnetic resonance imaging of the knee: J Bone Joint Surg Am ; MRI of the Musculoskeletal System. Sagittal T1-weighted A and fat-suppressed proton-density B images showing a horizontal tear arrow on each communicating with the undersurface of the meniscus. Note the small meniscal cyst posterior to the meniscus on the fat-suppressed proton-density image. A A sagittal T1-weighted image shows a horizontal tear arrow of the posterior horn of the medial meniscus. B A coronal fat-suppressed T2-weighted image shows a large meniscal cyst arrows extending medial to the medial compartment. C An axial T2-weighted image shows a multiloculated meniscal cyst arrow. The tear often communicates with the inferior meniscal surface; sometimes a concomitant meniscal cyst is identified, involving the perimeniscal soft tissue Fig. A A coronal fat-suppressed T2-weighted image shows a vertical defect arrow involving the posterior horn of the medial meniscus. B A sagittal fat-suppressed proton-density image, obtained in the plane of the tear, shows truncation arrow and abnormal signal intensity involving the posterior horn. Note the normal anterior horn. A A sagittal fat-suppressed proton-density image shows a vertical tear arrow of the central edge of the lateral meniscus, oriented perpendicular to the curvature of the meniscus. Note the superimposed horizontal tear of the anterior horn. B A coronal fat-suppressed T2-weighted image shows the same tear with truncation of the central meniscal margin arrow. A A coronal fat-suppressed T2-weighted image shows a vertical radial defect arrow at the meniscal root. B A sagittal fat-suppressed proton-density image, obtained just medial to the tear, shows normal posterior horn morphology. C A sagittal fat-suppressed proton-density image, obtained in the plane of the tear, shows abrupt transition to markedly abnormal posterior meniscal morphology, corresponding to the meniscal root tear. Vertical longitudinal tears also exhibit a vertical signal orientation on MRI, but because the tear is oriented parallel to the axis of meniscal curvature, it is identified as a vertical linear signal intensity interfacing with the superior and inferior meniscal articular surfaces on sagittal and coronal imaging planes. Peripheral vertical longitudinal tears of the posterior horn of the medial meniscus and vertical longitudinal tears of the posterior horn of the lateral meniscus at the attachment of the meniscofemoral ligament are commonly associated with ACL tears Fig. Displacement of a meniscal flap associated with a vertical longitudinal tear may occur, and unstable meniscal tears are more likely to be symptomatic and impair biomechanics; in such circumstances, surgical intervention usually is necessary to restore function. A typical bucket-handle tear represents a vertical longitudinal tear with central displacement of meniscal tissue. Bucket-handle tears of the lateral meniscus often exhibit anterior central displacement of a flap arising from the posterior horn of the meniscus Fig. Displaced bucket-handle tears are a common cause of locked knee in an athlete. Posterior central flap displacement may also occur with a flap arising from the posterior horn of the medial meniscus and the displaced meniscal tissue positioned in the recess between the distal PCL and the medial meniscus Fig. Meniscal tissue may also displace peripherally into the recess between the capsule and the femoral condyle Fig. Although peripherally displaced tears are less likely than centrally displaced tears to result in locking, they tend to cause adjacent capsular inflammation and osseous stress reaction, contributing to pain related to the meniscal tear. Preoperative identi fication and localization of the displaced meniscal flap with MRI contribute to a more expeditious operative procedure. A A sagittal fat-suppressed proton-density image shows a peripheral vertical longitudinal tear arrow of the posterior horn of the medial meniscus. Note the effusion and Baker cyst. B A coronal fat-suppressed T2-weighted image shows the vertical longitudinal tear arrow , propagating parallel to the meniscal curvature. Note the tear of the posterior horn of the lateral meniscus arrowhead with an adjacent lateral tibial plateau bone bruise in this patient with an acute ACL tear. A A sagittal fat-suppressed proton-density image shows a meniscal flap arrow , arising from the medial meniscus and displaced inferior to the PCL arrowhead , exhibiting the double-PCL sign. B A coronal fat-suppressed T2-weighted image shows a centrally displaced meniscal flap arrow inferior to the PCL. Note the abnormal morphology of the nondis-placed medial meniscal remnant. Coronal fat-suppressed T2-weighted A and sagittal fat-suppressed proton-density B images show the posterior central displacement of a medial meniscal flap arrow on each.

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Chapter 3 : Orthopedic Imaging: A Practical Approach - Adam Greenspan - Google Books

The Institute for Orthopaedic Imaging (IOI) offers patients a comprehensive range of musculoskeletal imaging services. The IOI provides state-of-the-art imaging for all muscular soft-tissue and bone conditions by our dedicated team of imaging and patient care specialists.

Find a Clinic Radiology at the Orthopaedic Institute Radiology at the Orthopaedic Institute provides musculoskeletal imaging techniques, such as MRI and bone mineral density measurements, as well as image-guided procedures for the treatment of osteoarthritis. In addition, we offer same-day X-ray services for your convenience during your orthopedic appointment. The close collaboration between orthopedic surgery and diagnostic radiology allows better management and treatment of patients. Our dedicated radiologists and technologists have many years of expertise in the imaging of bones, joints and soft tissues. Some of the innovative techniques and technologies available at the Orthopaedic Institute include: MR arthrography for better evaluation of shoulder, wrist, elbow and hip joints to find the cause of pain and limited function. This technique improves analysis of cartilage and the shoulder and hip labrum. Newly developed MRI techniques to analyze cartilage quality before cartilage is lost, which allows us to assess the risk for osteoarthritis. These techniques include T1rho and T2 relaxation time mapping. Novel metal suppression techniques to image patients with joint replacements, implants and other hardware using MRI. MR technologies to suppress motion in patients with pain and claustrophobia, which allows us to obtain better image quality. Joint injection for osteoarthritis pain treatment including local anesthetics, corticosteroids and viscosupplements to lubricate the joints hyaluronate, Synvisc. Tomosynthesis for better detection of fractures and fracture healing. MRI and Claustrophobia While open scanners are helpful for patients with claustrophobia, their image quality is generally worse than that of our 3 Tesla scanner. Poor image quality may limit interpretation of the images. Keep in mind that: Our staff understands claustrophobia. Imaging of the lower extremities â€” knee, foot and leg exams â€" do not require entering the tube completely. Only the leg is in the tube. Imaging of the shoulders or spine require entering the tube, and sedation should be considered. After being sedated, you should not drive a car or operate machinery. Our super-fast motion correction imaging allows for shorter exam times and less time spent in the scanner.

Chapter 4 : The Knee | Radiology Key

He pursued orthopedic residency training at the Mayo Clinic in Rochester, MN. Dr. Smith's growing research interests in MRI and hand & wrist imaging lead him to pursue radiology residency training at the Mallinckrodt Institute at Washington University in St. Louis, where he continued his research and publishing and served as Chief Resident.

Similarly, sports-related injuries are no longer confined to professional athletes; increasing numbers of weekend warriors, young adults and even children are hobbling into hospital emergency departments. Add osteoporosis-related injuries, orthopedic complications from auto-immune disorders such as rheumatoid arthritis and lupus, as well as congenital defects, and the result is a plethora of musculoskeletal disorders affecting all ages of the population. Musculoskeletal disorders are on the rise not only in the U. The American Academy of Orthopaedic Surgeons AAOS estimates that over half of all chronic conditions in the elderly can be attributed to joint diseases. Recognizing the burden this places on society and healthcare, 50 nations from around the world have designated the year span from to as the Bone and Joint Decade. Driven in part by this increased awareness â€" including better-informed patients â€" the tools and techniques used to diagnose and treat orthopedic conditions are evolving. Better Diagnostics for Better Outcomes One technology garnering much attention in orthopedic circles is magnetic resonance imaging MRI , which for the purposes of orthopedic imaging can include whole-body scanners, extremity-specific coils and extremity-dedicated units. These devices allow physicians to view in detail cartilage, tendons and ligaments as well as bony structure. The result is very robust, miniature coils, available in both 1. Potter, who is chief, Magnetic Resonance Imaging, Hospital for Special Surgery, professor of Radiology, Weill Medical College of Cornell University, indicated that MRI allows for the quantification and precise localization of particle disease, and that it can detect compression of adjacent nerves and vessels. In the future, Potter believes, MRI will be helpful in the serial evaluation of painful arthroplasty and allowing for detection of the joint lining at the origin of the biologic reaction. PACS in the OR When their job brings them into the OR, orthopedic surgeons today have a legion of tools at their disposal to aid in surgical planning and execution. For instance, no longer confined to the relatively simple task of displaying and storing images, PACS has matured and moved beyond radiology to other areas within the hospital, including the OR. For the orthopedic surgeon, this means that patient images needed to digitally plan surgeries are just a mouse-click away. TraumaCad enables advanced orthopedic surgical planning through precise manipulation of soft-copy images and application of fixation and prosthetic systems. It also includes advanced modular deformity correction and pediatric packages. Now physicians simply log in to the integrated solution, access patient images through the PACS and drag and drop them into the TraumaCad workspace. Completed surgical plans are then saved to the Synapse archive along with other patient files. Extending beyond basic orthopedic planning, OrthoWorks ProPlanner provides support for deformity corrections, trauma and customized planning methodologies that mimic orthopedic workflow. In challenging deformity and trauma corrective cases, for example, image cutting allows surgeons to cut and reposition fractured bone fragments to visualize potential surgical changes. In converse circumstances, Image stitching allows users to stitch together two or more images using a number of methods to ensure that cases requiring long film X-rays can still be digitally planned without the need for expensive stitching hardware. Computer-Assisted Surgery Another information technology solution finding its way into the orthopedic surgical suite is computer-assisted surgery. The use of computers in the OR is pretty much used the same way. The VectorVision allows for smaller incisions, more precise cuts, balancing soft tissue, individualized patient plans and elimination of long rods for bone alignment, which, as clinically documented, all add up to less pain, faster recoveries and better patient outcomes. Currently, only about 10 percent of all joint replacement surgeries utilize computer assistance. In about five years, says Dr.

Chapter 5 : Orthopedic Imaging: Orthopedics Navigates via MRI, PACS | Imaging Technology News

The Orthopaedic Institute allows experienced sports medicine and orthopaedic physicians, therapists and radiologists, *who are experts in musculoskeletal and orthopaedic imaging, to serve patient needs and physician consultations in an integrated fashion, under one roof.*

Chapter 6 : Orthopedic Imaging | Imaging Technology News

Orthopaedic or MSK MRI focuses on the imaging of abnormalities of the bones, joints, muscles, tendons and articular cartilage. Charter Radiology has expertise in 3 Tesla, high resolution MR imaging, evaluating the fine detail of articular cartilage, ligament and tendon pathology, and other soft tissue structures.

Chapter 7 : Home | Musculoskeletal Institute

BASICS OF ORTHOPEDIC RADIOLOGY Nilesh Patel, DO November St. Joseph's Regional Medical Center Paterson, NJ Slideshare uses cookies to improve functionality and performance, and to provide you with relevant advertising.

Chapter 8 : Radiology at the Orthopaedic Institute | UCSF Medical Center

Orthopedic & Sports Imaging. Our orthopedic and sports imaging radiologists are committed to helping our patients stay active and involved. When a sports-related injury or joint pain slows you down, our team works hard to help get you back to living life at its fullest as quickly as possible.

Chapter 9 : Applied Orthopaedic Radiology - Single module | University of Salford, Manchester

Radiology Services (Diagnostic Imaging) The Crystal Clinic Orthopedic Center offers imaging services for your convenience. On-site X-ray equipment helps our physicians to immediately diagnose and plan treatment, and it eliminates the need to schedule an appointment at an outside facility.