

KNEE NOMENCLATURE

ANTERIOR CRUCIATE LIGAMENT (ACL) -- lies in the middle of the knee. It prevents the tibia from sliding out in front of the femur, and provides rotational stability to the knee.

ARTHRITIS of KNEE -- is most often osteoarthritis. In this disease, the cartilage in the joint gradually wears away. In rheumatoid arthritis, which can also affect the knees, the joint becomes inflamed and cartilage may be destroyed.* Arthritis not only affects joints; it can also affect supporting structures such as muscles, tendons, and ligaments.

BAKER'S CYST / POPLITEAL CYST - a collection of synovial fluid which has escaped from the knee joint or a bursa and formed a new synovial-lined sac in the popliteal space; seen in degenerative or other joint diseases.

BIPARTITE PATELLA -- a patella that is divided into two parts. Usually this condition is bilateral and the superolateral aspect of the patella is affected. The bipartite patella is generally diagnosed when a second centre of ossification affects the superolateral quadrant of the bone.

BURSITIS -- inflammation of a fluid-filled sac, or bursa, that lies between tendon and skin or between tendon and bone. Normally, a bursa protects the joint and helps make movement more fluid.

CHONDROMALACIA PATELLAE – Chondromalacia -- refers to softening of the articular cartilage of the knee cap. This disorder occurs most often in young adults and can be caused by injury, overuse, parts out of alignment, or muscle weakness. Instead of gliding smoothly across the lower end of the thigh bone, the knee cap rubs against it, thereby roughening the cartilage underneath the knee cap. The damage may range from a slightly abnormal surface of the cartilage to a surface that has been worn away to the bone. Chondromalacia related to injury occurs when a blow to the knee cap tears off either a small piece of cartilage or a large fragment containing a piece of bone (osteochondral fracture).

CHONDRAL DEFECT - Focal tears can occur in hyaline cartilage as a result of shearing injuries across the joint surface, and they may create mechanical symptoms mimicking meniscal pathology. These are best depicted on T2 weighted spin echo or T1 weighted gradient echo images [1], where they are seen as focal signal abnormalities along the joint surface that spare the subchondral cortex. These lesions may also be termed chondral fractures or fracture- separations of articular cartilage. In chronic cases, the MRI findings may overlap with those of chondromalacia.

CONDYLE – a rounded projection on a bone, such as those occurring on the femur, occiput and mandible.

CONTUSION – A bone bruise results from compressive forces incurred during an injury. The damaged area occurs in the medullary portion of the bone and can be accompanied by bleeding and swelling. Bruises are often caused by falls, sports injuries, car accidents, or blows received by other people or objects. Bruises can last from days to months, with the bone bruise being the most severe and painful.

CRUCIATE LIGAMENT INJURY - anterior; ACL injury; Knee injury - anterior cruciate ligament (ACL). An anterior cruciate ligament injury is extreme stretching or tearing of the anterior cruciate ligament (ACL) in the knee. A tear may be partial or complete.

CYST – an abnormal sac containing gas, fluid or a semisolid material, with a membranous lining.

DEGENERATIVE JOINT DISEASE -- pathologic alterations in articulations resulting from degeneration. Degenerative joint disease is widespread and common; in synovial joints, it is known as osteoarthritis.

DISLOCATION OF KNEE CAP -- Patellar dislocation or instability -- the triangular bone covering the knee (patella) moves or slides out of place. The displacement usually occurs toward the outside of the leg.

EDEMA – an accumulation of an excessive amount of watery fluid in cells or intercellular tissues

FEMOROTIBIAL JOINT, LATERAL COMPARTMENT – joint between the lateral condyles of femur and tibia.

FEMOROTIBIAL JOINT, MEDIAL COMPARTMENT – joint between the medial condyles of femur and tibia.

FEMUR - the long tubular bone of the upper part of the leg, which articulates with the hip at the acetabulum. The lower end of the femur, the tibia and patella form the knee joint.

GANGLION – a cyst containing mucopolysaccharide-rich fluid within fibrous tissue or, occasionally, muscle bone or a semilunar cartilage; usually attached to a tendon sheath in the hand, wrist, or foot, or connected with the underlying joint.

HYPERTROPHY – enlargement of a part or organ as a result of increase in size of its constituent cells.

ILIOTIBIAL BAND SYNDROME - an overuse condition in which inflammation results when a band of a tendon rubs over the outer bone (lateral condyle) of the knee. Although iliotibial band syndrome may be caused by direct injury to the knee, it is most often caused by the stress of long-term overuse, such as sometimes occurs in sports training.

JOINT DISLOCATION – A dislocation is a separation of a bone where it meets a joint. (Joints are areas where two or more bones come together.) A dislocated bone is no longer in its normal position. A dislocation may also cause ligament and nerve damage.

JOINT EFFUSION – escape of synovial fluid into the joint.

KNEE – the joint between the upper and lower parts of the leg. It is the largest and most complicated in the body and it can be analyzed separately as three major areas: the medial femorotibial space, the lateral femorotibial space and the patellofemoral space. The articulating bones of the knee include the femur, tibia, and largest sesamoid bone of the body, the patella. Other important structures of the knee are the meniscus, ligaments, fat pad, bursae and recesses.

KNEE TENDON INJURIES - range from tendonitis (inflammation of a tendon) to a ruptured (torn) tendon. If a person overuses a tendon during certain activities such as dancing, cycling, or running, the tendon stretches like a worn-out rubber band and becomes inflamed. Also, trying to break a fall may cause the quadriceps muscles to contract and tear the quadriceps tendon above the patella or the patellar tendon below the patella. This type of injury is most likely to happen in older people whose tendons tend to be weaker. Tendonitis of the patellar tendon is sometimes called jumper's knee because in sports that require jumping, such as basketball, the muscle contraction and force of hitting the ground after a jump strain the tendon. After repeated stress, the tendon may become inflamed or tear.

LATERAL COLLATERAL LIGAMENT (LCL) - runs along the outer part of the knee and prevents the knee from bending outward.

MEDIAL COLLATERAL LIGAMENT (MCL) -- runs along the inner part of the knee and prevents the knee from bending inward.

MENISCAL CYST – a multiloculated collection of mucinous material occurring at the periphery of a meniscus, especially on the lateral side of the knee joint.

MENISCECTOMY – surgical excision of a meniscus of the knee

MENISCUS – a pad of connective tissue that separates the bones of the knee. The menisci (plural) are two crescent-shaped discs (the lateral and the medial) positioned between the tibia and femur on the outer and inner sides of each knee. The two menisci in each knee act as shock absorbers, cushioning the lower part of the leg from the weight of the rest of the body as well as enhancing stability.

MENISCUS TEAR -- Knee injury - meniscus; Cartilage tear -- Meniscus tears describes a tear in the shock-absorbing cartilage (meniscus) of the knee. The meniscus is easily injured by the force of rotating the knee while bearing weight. A partial or total tear may occur when a person quickly twists or rotates the upper leg while the foot stays still (for example, when dribbling a basketball around an opponent or turning to hit a tennis ball). If the tear is tiny, the meniscus stays connected to the front and back of the knee; if the tear is large, the meniscus may be left hanging by a thread of cartilage. The seriousness of a tear depends on its location and extent.

MYXOMA – a benign connective tissue tumor composed of primitive cells and stroma resembling mesenchyme. These tumors are invasive, may appear at any age and sometimes recur. Myxomas of soft tissues may be associated with fibrous dysplasia of adjacent bone. Juxta-articular myxomas are also known as meniscal cysts.

OSGOOD-SCHLATTER DISEASE -- a painful swelling of the bump on the front, upper part of the lower leg bone. This bump is called the anterior tibial tubercle. Osgood-Schlatter disease is thought to be caused by small, usually unnoticed, injuries caused by repeated overuse before growth of the area is complete. The disorder is seen most often in active, athletic adolescents, usually between ages 10 and 15. It is common in adolescents who play soccer, basketball, and volleyball, and who participate in gymnastics. Osgood-Schlatter disease affects more boys than girls.

OSTEOARTHRITIS -- the most common joint disorder. The chronic disease causes the cushioning (cartilage) between the bone joints to wear away, leading to pain and stiffness. It can also cause new pieces of bone, called bone spurs, to grow around the joints.

OSTEOCHONDRITIS DISSECANS - results from a loss of the blood supply to an area of bone underneath a joint surface and usually involves the knee. The affected bone and its covering of cartilage gradually loosen and cause pain. This problem usually arises spontaneously in an active adolescent or young adult. It may be due to a slight blockage of a small artery or to an unrecognized injury or tiny fracture that damages the overlying cartilage. A person with this condition may eventually develop osteoarthritis. Lack of a blood supply can cause bone to break down (avascular necrosis). The involvement of several joints or the appearance of osteochondritis dissecans in several family members may indicate that the disorder is inherited..

OSTEOMYELITIS -- an acute or chronic bone infection, usually caused by bacteria.

OSTEOPHYTE – An outgrowth or excrescence of a bone.

PATELLA - the triangular sesamoid bone embedded within the tendon of the quadriceps femoris muscle at the knee. The patella articulates with the femur.

PATELLA ALTA - an abnormality elevated position of the patella. Patella alta may occur in patients with chondromalacia patellae, it is possible that the abnormally high position of the bone could cause damage to the articular cartilage as a consequence of increased patellofemoral incongruence. Other consequences may be recurrent dislocation of the patella and progressive patellofemoral osteoarthritis. Similarly, delay in distal displacement of the tibial tuberosity during development, as occurs in Osgood Schlatter disease likewise can result in patella alta. Among the other mechanisms that may produce patella alta are the hypermobility or laxity of joints in Marfans syndrome and homocystinuria and flexion contractures of the knee in cerebral palsy.

PATELLAR TENDINOSIS - Tendinosis is a general rubric which includes a spectrum of disease, including acute and chronic tendonitis and partial tendon ruptures. Findings in tendinosis include hyperintensity within the tendon on short TE > long TE images, and thickening of the tendon. The medial aspect of tendon is predilected. Acute or symptomatic lesions ('tendinitis') are more likely associated with prominent findings on long TE images. Patellar tendinosis is frequently subclinical, and is almost always managed conservatively.

PATELLOFEMORAL JOINT – one of the three spaces (or compartments) about the knee between the patella and femur.

PATELOFEMORAL SYNDROME -- Anterior knee pain - Chondromalacia patellae is the softening and degeneration of the cartilage underneath the kneecap (patella).

PERI-ARTICULAR CYST – GANGLION CYST - A synovial cyst is synovial lined and arises in locations where synovium ordinarily resides (periarticular or peribursal). A ganglion is non-synovial lined and contains thick gelatinous material. Location rather than any specific MRI features occasionally serves to distinguish these lesions. Numerous bursa also reside about the knee joint and may become visible when inflamed or fluid filled. The term 'peri-articular cyst' is loosely applied to encompass all of these fluid signal masses.

PLICAE -- synovial remnants found in the knee that divide the joint into three compartments. Suprapatellar, medial patellar and infrapatellar plicae are commonly encountered and can be identified by various means, such as arthrography, computed tomography, MRI or arthroscopy.

POPLITEAL CYST / BAKER'S CYST - a collection of synovial fluid which has escaped from the knee joint or a bursa and formed a new synovial-lined sac in the popliteal space; seen in degenerative or other joint diseases.

POSTERIOR CRUCIATELIGAMENT (PCL) -- works in concert with the ACL. It prevents the tibia from sliding backwards under the femur. **SPRAIN** – a stretch and/or tear of a ligament (a band of fibrous tissue that connects two or more bones at a joint). One or more ligaments can be injured at the same time. The severity of the injury will depend on the extent of injury (whether a tear is partial or complete) and the number of ligaments involved.

SPRAIN – a stretch and/or tear of a ligament (a band of fibrous tissue that connects two or more bones at a joint). One or more ligaments can be injured at the same time. The severity of the injury will depend on the extent of injury (whether a tear is partial or complete) and the number of ligaments involved.

STRAIN – an injury to either a muscle or a tendon (Fibrous cords of tissue that connect muscle to bone). Depending on the severity of the injury, a strain may be a simple overstretch of the muscle or tendon, or it can result from a partial or complete tear.

SYNOVITIS – inflammation of the synovial membrane of a joint.

SYNOVIAL FLUID – fluid secreted by the synovial membrane; lubricates joint surfaces and nourishes articular cartilages.

SYNOVIAL MEMBRANE -- a delicate, thin inner layer that constitutes part of the articular capsule of a synovial joint. The synovial membrane, also known as the synovium, is highly vascular and lines the nonarticular portion of the synovial joint, any intra-articular ligaments or tendons, and the intracapsular bone surfaces, which are clothed by periosteum or perichondrium but are without cartilaginous surfaces (the "marginal" or "bare" areas of the joint). Small finger-like projections, termed synovial villi may be present on its inner surface.

The synovial membrane varies in structure in different parts of the joint. Although in general, the membrane exists in two synovial layers (a thin cellular surface layer or intima and a deeper vascular underlying layer or

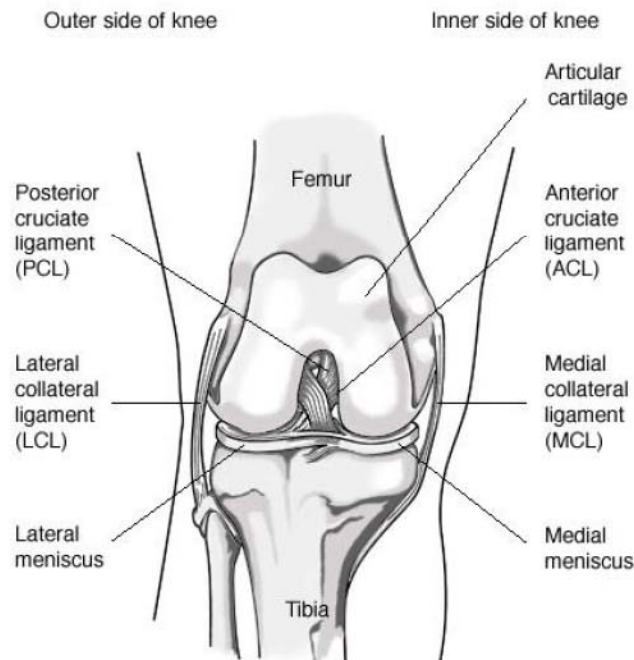
SYNOVIAL MEMBRANE (continued) subintima), in some locations membrane is attenuated and two distinct layers cannot be differentiated. In the knee joint, the synovial membrane is especially elaborate and can be divided into a central portion, a suprapatellar synovial pouch, a posterior femoral recess and a subpopliteal recess. Among the functions of this membrane are the secretion of a sticky mucoid substance into the synovial fluid; facilitation of and accommodation to the changing shape of the articular cavity required for normal joint motion; and assistance in the removal of substances from the articular cavity

TENDONITIS -- inflammation, irritation, and swelling of a tendon, which is the fibrous structure that joins muscle to bone. In many cases, **TENDINOSIS** (tendon degeneration) is also present.

TENDONOPATHY – any disease or dysfunction of a tendon. The form of tendonopathy is named for the affected tendon, as in Achilles tendonopathy or rotator cuff tendonopathy. Patellar tendonopathy is an overuse syndrome of the patellar tendon and it is also called patellar tendonitis or jumper's knee.

TENOSYNOVITIS -- inflammation of a tendon and its enveloping sheath

TIBIAL PLATEAU – the smooth bony surface of either the lateral condyle or the medial condyle of the tibia that articulates with the corresponding condylar surface of the femur



SOURCES: www.acr.org; www.asnr.org/spine_nomenclature ; www.radiologyinfo.org; www.nlm.nih.gov; Stedman's Medical Dictionary 27th edition; Dorland's Illustrated Medical Dictionary 31st ed.



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