SWESEMs utbildningsutskott

Rubrik

Knästatus

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Introduktion

Skador mot, smärta och svullnad i knäet är vanliga sökorsaker på akutmottagning [1]. Syftet med detta dokument är att presentera en allmän knäundersökning som kan kombineras med anamnestisk information för att generera diagnostiska hypoteser. Ytterligare, hypotesdrivna undersökningar kan därefter genomföras. Knästatus som föreslås är riktad mot tillstånd som föranleder besök på akutmottagning (dvs inte kronisk knäsmärta). I dokumentet förkortas sensitivitet med SN, specificitet SP, positivt sannolikhetskvot LR+ och negativt sannolikhetskvot LR-.

I specialisttentamen

Vid specialisttentamen får läkaren begränsad anamnes gällande en patient med skada mot eller smärta i knäet. Läkaren förväntas därefter genomföra den allmänna knäundersökningen följd av relevanta hypotesdrivna undersökningar och formulera en plan för vidare handläggning.

ALLMÄNT KNÄSTATUS

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- ☐ Knäledsutgjutning: patellardans / bulge sign[3]
- ☐ Patellarsena, patella, quadricepssena[4]
- ☐ Ledspringor[5]
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2-Rörelseomfång[7]
- ☐ Flexion[8]
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- ☐ Distalstatus[11]
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Fraktur
- ☐ Distalstatus[11]
- ☐ Ställningstagande till röntgen: Ottawa knee rule[13]

Ligamentskada
- ☐ Främre korsband: Lachman test[14]
- ☐ Bakre korsband: bakre draglåda[15] och tibial sag test[16]
- ☐ Medial kollateralligament: valgus stress[17, 19]
- ☐ Lateral kollateralligament: varus stress[18, 19]

Meniskskada[20]
- ☐ McMurray test[21]
- ☐ Apley grind test[22]

Utgjutning
- ☐ Artrocentes[23]

ANTECKNINGAR

1-Inspektion och palpation
Inspektion och palpation görs med fördel samtidigt. Den patologiska sidan jämförs med den friska sidan: "Always examine both knees, beginning with the unaffected knee. This approach will reassure the patient and limit any apprehension about the examination, and it will also establish a baseline against which the affected knee can be compared." [2] Vid varje moment letas efter:

- tecken på inflammation: svullnad, rodnad, ökad temperatur, ömhet vid palpation
- tecken på felställning talande för fraktur eller luxation

En källa rekommenderar att knäet palperas i 90° flexion [2].

2-Inflammation
Svullnad, rodnad, ökad värme och ömhet är de klassiska tecken på inflammation. Vid inspektion kan svullnad, missfärgning eller sår upptäckas: "It is also important to carefully assess the skin around the knee. Abnormalities such as hematoma, rash (e.g., psoriasis), abrasions or lacerations, and cellulitis provide important diagnostic clues." [2]

Vid palpation kan ökad värme upptäckas: "Using the back of the hand, assess for warmth as an indicator of inflammation." [2]

3-Knäledsutgjutning
Utgjutning i leden visar sig först ovanför och på sidan av patellan. "The absence of the normal indentations on the peripatellar grooves on either side of the patella may indicate the presence of a large intraarticular effusion." [2]. Det finns olika manövrar för att kliniskt bekräfta förekomst av utgjutning i knäleden.

Patellardans / Ballottement: "In the first maneuver, with the knee extended, use the nondominant hand to squeeze the intraarticular fluid from the suprapatellar region into the space between the patella and femur. With the dominant hand, exert pressure superiorly from the tibia while using your index finger to push the patella against the patellofemoral groove. When an effusion is present, you can easily ballot the patella." [2]

Bulge sign: "The second maneuver used to assess for an effusion should also be performed with the knee in extension. Gently milk the fluid into the suprapatellar pouch by moving your hand proximally along the medial aspect of the patella. Next milk or compress the fluid from the suprapatellar pouch to the medial knee by moving your hand from the superior lateral region to the inferior lateral region; if there is an effusion, compressing the lateral regions will cause a bulge to appear medial to the patella in the areas that are naturally concave." [2]

Ultraljud kan även användas för att identifiera knäledsutgjutning [3].

4-Patellarsena, patella, quadricepssena
"Start by placing your thumbs on the tibial tuberosity and move superiorly. As you move superiorly, palpate the patellar tendon and its insertion at the inferior pole of the patella; pain in this area, especially in an athlete, might indicate patellar tendonitis" [2], såkallad "hopparknä". "repetitive jumping can lead to patellar tendonitis, also called jumper’s knee" [2]

Palpera patellas kanterna och ovanpå. Isolerad ömhet vid palpation av patella kan tala för fraktur vid trauma mot knäet (se Ottawa knä regler nedan). "In a patient with focal tenderness, erythema, and warmth and swelling anterior to the patella, acute prepatellar bursitis should be considered. Patients with this condition, which can be septic and may require aspiration or drainage, typically have a history of recurrent kneeling or of direct trauma." [2]

Ömhet över quadricepssenan kan tala för quadriceps tendinit. "Pain, swelling, and a palpable defect at the insertion of the quadriceps tendon into the superior aspect of the patella suggests rupture of a quadriceps tendon. This injury may be accompanied by a "pop" when it occurs, followed by diminished or complete absence of extensor strength." [2]

5-Ledspringor
"The clinician should identify the inferior pole of the patella and move medially to examine the medial joint line. Pain along the medial joint line might represent medial compartment osteoarthritis, injury to the medial collateral ligament, or a medial meniscal tear." [2]

"The clinician should also examine the lateral joint line for tenderness, which can be caused by lateral compartment osteoarthritis, injury to the lateral collateral ligament, or a lateral meniscal tear." [2]

Ömhet över den laterala femurkondylen (circa 3 cm proximal till ledspringan) är förenligt med "löparknä," en inflammation som uppstår där tractus iliotibialis glider över laterala femurkondylen: "Focal pain at the lateral femoral condyle is suggestive of iliotibial band syndrome." [2]

6-Fossa poplitea
"Palpation of the popliteal fossa can reveal a tender, fluid-filled mass called a Baker's cyst. This results from a posterior extension of knee-joint effusions and often accompanies osteoarthritis." [2]

7-Rörelseomfång
Både aktiv och passiv rörelseomfång bör bedömas [2]. Observera hur stort rörelseomfånget är och om smärta föreligger: "Pain with active range of motion but painfree passive range of motion suggest a soft-tissue disorder such as tendonitis. Pain that is equal on both passive and active range of motion is more likely to suggest an intraarticular process." [2].

8-Flexion och extension
Normal flexionsomfång är 130 - 150° [2]
Normalt kan knäet hyperextenderas upp till -10° [2].

9-Gångförmåga
"Gait is an important element of the physical examination of the knee. The clinician should always evaluate the patient's gait and weight-bearing abilities, since the findings can help distinguish knee pathology from pain referred from the hip, lower back, or foot." [2]

10-Dislokation
"The most feared complication of a knee dislocation is severance or internal injury of the popliteal artery (Fig. 49-59). Injury to the popliteal artery may complicate both anterior and posterior knee dislocations and occurs because the artery is relatively fixed both proximally and distally. If popliteal artery injury occurs, it is often due to transection with posterior dislocations or traction (producing intimal tears) during anterior dislocations. In addition, Varnell and associates noted that vascular injury was as common in a severely unstable knee (e.g., field reduced) as in an acutely

dislocated knee. The incidence of popliteal artery injury in a dislocated knee is around 20% in most series. The seriousness of this complication is largely due to the fact that the collateral circulation about the knee is poor, and the end result of injury to the popliteal artery (or vein) may be amputation, particularly if recognition of vascular injury is delayed." [4]

"Knee dislocations are usually clinically obvious or easily visible on plain radiographs. Therefore, it is occult knee dislocations (i.e., dislocated and spontaneously reduced) that are problematic for the emergency clinician to diagnose. Internal derangement with a knee hemarthrosis (often of the size noted with a torn anterior cruciate ligament) is a common first sign that the knee had previously been dislocated and spontaneously reduced. Therefore, all knee injuries with significant swelling, hemarthrosis, or a dislocating mechanism of injury should be evaluated with the specific intent of ruling out vascular injury." [4]

11-Distalstatus
"Although neurovascular injuries are uncommon, the potential for popliteal artery injury exists, so the status of distal sensation and pulses must be checked. The space between the first and second toes, innervated by the deep peroneal nerve, should be tested for sensation." [5]

"It should also be noted that nerve injuries are more common in patients with a vascular injury." [4]

12-Ankel-brakialindex
"Simple palpation of the artery may not be sensitive enough to detect a decreased pulse. An ankle-brachial arterial pressure index (ABI) should be considered to compare blood pressure in the ankle with that in the arm. Also, consider digit pulse oximetry to compare the uninjured leg with the injured one. Mills and coworkers 91reported the results of a prospective study of 38 patients with knee dislocation to evaluate the accuracy of ABI in identifying vascular injury. Patients with an ABI of less than 0.90 underwent arteriography, whereas those with an ABI of 0.90 or greater underwent serial examination and delayed arterial duplex evaluation. Eleven (29%) of the patients had an ABI of less than 0.90, and all of them had arterial injuries requiring surgical intervention. Of the remaining 27 patients with an ABI of 0.90 or greater, none had a vascular injury noted on serial examination or duplex ultrasonography. No patient in this group was found to have vascular compromise at follow-up (range, 4 to 36 months)." [4]

Tekniken för ankel-brakialindex mätning beskrivs i en artikel publicerad i Läkartidningen. [6]

13-Ställningstagande till röntgen
Vid knätrauma kan Ottawa knä regler [7-9] användas för att bedöma om röntgen är indicerad. Enligt regeln kan fraktur uteslutas kliniskt vid frånvaro av följande kriterier:

- ålder > 55 år
- ömhet vid caput fibula
- isolerad ömhet över patella
- oförmåga till 90° flexion
- oförmåga till belastning (fyra steg) både omedelbart efter skadetillfället och vid undersökningen på akuten

En metaanalys rapporterade SN 98.5%, SP 48.6%, LR- 0.05 för regeln [10]. En metaanalys har visat att regeln kan även användas hos barn > 5 år (SN 99%, SP 46%, LR- 0.07) [11].

"Radiography should also be considered if an injury to the anterior cruciate ligament is suspected;

such an injury can be associated with avulsion fractures of the lateral tibial plateau." [2]

14-Lachman
"Abrupt noncontact deceleration or twisting and pivoting with simultaneous valgus stress to the knee can cause rupture of the anterior cruciate ligament" [2] "A large hemorrhagic effusion of rapid onset frequently accompanies anterior cruciate ligament tears." [2]

"The Lachman test is a more sensitive and specific test for assessment of the anterior cruciate ligament" än främre draglådatestet[2] "The most popular variation of the Lachman test requires that the patient be relaxed in a supine position. The examiner places one hand on the outside of the thigh, just above the knee, stabilizing the femur in slight external rotation and elevated off the bed to produce a knee flexion angle of 20 to 30 degrees. The second hand is placed on the anteromedial tibia with the thumb on the flat, bony border of the tibia. Once the patient is relaxed, the hand on the tibia attempts to displace the tibia anteriorly in relation to the stabilized femur. First, the normal knee is examined as a control, with a positive test on the injured knee categorized as the absence of sensation of a solid stop (“end point”) to anterior displacement of the tibia (called “soft end point”). Additional supporting information is an increased displacement of the tibia anteriorly, as compared with the contralateral normal knee." [12]

"If there is more than 6 to 8 mm of laxity, more laxity than in the unaffected knee, or a soft end point, the ligament may be torn.9 If you are unable to firmly grasp and stabilize the femur, you can modify the Lachman maneuver by placing your knee under the patient’s knee, firmly pressing down on the distal femur with one hand, and pulling the tibia anteriorly with your other hand." [2]

15-Bakre draglåda
"abrupt posterior translation of the tibia can result in rupture of the posterior cruciate ligament." [2]

"the patient should be supine and the knee flexed to 90 degrees. The foot should be flat on the table. Stabilize the foot (you can sit on the end of the patient’s foot) and place your thumbs on the tibial tubercle and your fingers around the calf, then briskly push the tibia posteriorly to test the posterior cruciate ligament. If the ligament is intact, there should be a solid end point and little posterior translation of the tibia." [2]

16-Tibial sag test
"Have the patient flex both knees at 90 degrees and place both feet flat on the table; then observe the alignment of the tibial plateau. Normally, the tibial plateau extends 1 cm beyond the femoral condyle. If the affected tibia is displaced posteriorly on the femur, or sags, as compared with the unaffected tibial plateau, the posterior cruciate ligament may be ruptured." [2]

17-Medial kollateralligament
"An injury caused by valgus stress to the knee can result in medial collateral ligament strain or rupture" [2]

Sidovacklingstest: "To assess the medial collateral ligament, apply valgus stress to the knee. With the knee flexed to 25 degrees, place one hand on the outer aspect of the knee to apply medial pressure, and the other hand on the inner aspect of the distal tibia to apply lateral pressure; you are testing for tenderness or laxity along the medial collateral ligament." [2]

18-Lateral kollateralligament

"an injury caused by varus stress can result in lateral collateral ligament strain or rupture" [2]

Sidovacklingstest: med knäet flekterad i 25°, "the lateral collateral ligament can be tested by applying lateral pressure to the inner knee and medial pressure to the outer ankle or lower leg, which causes varus stress to the knee." [2]

19-Sidovacklingstest tolkning
"When assessing the medial or lateral collateral ligaments, tenderness along the ligament, but less than 5 mm of laxity and a solid end point, indicates a first-degree sprain. In a second-degree sprain, a solid end point is maintained but there is increased laxity when the knee is tested at 25 degrees of flexion and no laxity in full extension. In a third-degree sprain or a complete tear of the ligament, there will be a soft end point and more than 10 mm of laxity when the knee is at 25 degrees of flexion; if there is also laxity with full extension, there may be additional damage to the cruciate ligament." [2]

20-Meniskskada
"Twisting and pivoting of the knee while it is bearing weight can cause a meniscal tear" [2]

"Patients with meniscal injuries may report clicking, catching, or locking of the knee. In addition, they frequently have an effusion of delayed onset, appearing hours or even days after the injury." [2]

21-McMurray test
"With the patient *supine* on the table, grasp his knee with one hand so your fingers press the medial and lateral aspects of the joint, and grasp his heel with your other hand so the plantar surface of the foot rests along your wrist and forearm. First, *flex the knee* until the heel nearly *touches the buttock*. Next, rotate the foot *laterally* to test the posterior half of the medial meniscus. With the foot in continual lateral rotation, *bring the leg up* so the knee makes a right angle. If a *click* is felt or heard during the *extending* motion, and the patient recognizes it as the sensation preceding pain or locking, the medial meniscus is torn." [13]

"In the McMurray test, the patient is supine. To test the medial meniscus, place one hand over the anterior aspect of the knee, with fingers and thumb on the medial and lateral joint lines. Grasp the patient's heel with the other hand and externally rotate the tibia, using the first hand to apply valgus force at the knee during passive flexion and extension. The maneuver is repeated when applying internal rotation and varus stress to test the lateral meniscus. Clicking, catching, or popping at the joint line during early extension or midextension may indicate a meniscal tear." [2]

"In the acute setting, limitation of range of motion may not allow sufficient hyperflexion to perform McMurray's test, and the test result may be falsely negative." [1]

22-Apley Grind Test
"Have the patient lie *prone* on a low couch, about 2 ft (60 cm) high, with his affected limb next to the examining side. Grasp the foot with both your hands and *flex* the knee to 90˚. Then rotate the foot laterally; this should cause little discomfort. Next, rest your knee on the patient's hamstrings to *fix* the femur, and pull the leg to *further flexion* while the foot is held in lateral rotation. *Pain* on this further flexion indicates a lesion of the *tibial collateral ligament*. Then compress the tibial condyles onto the femoral condyles by forcing your body weight onto the plantar surface of the foot, still in lateral rotation. Pain from this maneuver indicates tear of the *medial meniscus*." [13]

"In the Apley compression test, or grind test, the patient lies prone and the knee is flexed to 90 degrees. Stabilize the thigh by placing your knee or hand firmly on top of the patient's posterior thigh. Grasp the foot and apply a downward compressive force while rotating the tibia internally and externally. Pain on compression is considered positive for a meniscal tear." [2]

23-Artrocentes
Vid knäledsutgjutning är artrocentes indicerad av diagnostisk och/eller terapeutisk anledning.

Det finns olika tekniker. En källa rekommenderar följande:

- Nålingång ett fingerbredd ovanpå och ett fingerbredd lateralt till patellan ("The superior lateral aspect of the patella is palpated.The skin is marked with a pen, one fingerbreadth above and one fingerbreadth lateral to this site. This location provides the most direct access to the synovium.")
- Rikta nålen 45° distalt och 45° posteriort ("The needle is directed at a 45-degree angle distally and 45 degrees into the knee, tilted below the patella") [14]

I övrigt se kompetensdokument artrocentes.

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