Wali Sabuhi
Benjamin Gill, DO, MBA
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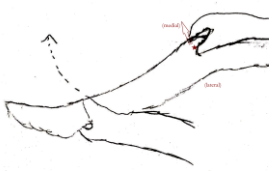
AAP BRS podcast: Anterior Knee

Structure	Pathologies	Presentation	Etiology/Risks	Diagnosis	Treatment
Patella	Patellar subluxation	Discomfort and instability; knee gives way, popping sensation. Excessive lateral movement of patella.	Patella misaligned but tracks w/in trochlear groove. RFs: lateral femoral condyle hypoplasia, genu valgum, VMO weakness/injury	PE: laterally displaced patella, adductor tubercle tenderness, patellar facet tenderness, positive patellar apprehension test	Quadriceps and hip abductor strengthening, patellar stabilizing orthosis.
	Patellar dislocation	Sudden pain and swelling, inability to bear weight. Most commonly lateral displacement.	Patella dislocates from trochlear groove	PE: Acutely swollen knee, hemarthrosis, tenderness to palpation	Immediate reduction if recent occurrence (ex. on playing field), otherwise sedation before reduction in hospital 
Patello-femoral joint	Patellofemoral pain syndrome	Poorly localized pain. "Runner's knee" or "biker's knee."	Extensor overuse +/- genu valgum, genu varum, genu recurvatum, patella alta. Hamstring tightness may also increase patellofemoral loading	PE: increased Q angle, foot pronation, coronal plane knee misalignment, pain with squatting, foot pronation	Balance VMO, ITB, hamstring, vastus lateralis, hip adductor forces with stretching, strengthening, and patellar tracking exercises Check bicycle height
	Osteochondral lesions/arthritis	Intermittent or persistent pain affecting function	RFs include increasing age, prior joint injury, repeated mechanical stress	Clinical presentation + joint space narrowing, osteophyte formation, subchondral sclerosis on imaging	Exercise, weight loss, NSAIDs, viscosupplements, corticosteroids, TKA
Patellar tendon	Patellar tendinitis	Pain inferior to kneecap. "Jumper's knee." Pain may be worse after activity (jumping, climbing, stairs, squats, kneeling)	Repeated stress remodeling w/ fibroblasts, vascular granulation tissue IGF-1, NOS → COX-2, IL-6	PE: pain with flexion & resisted extension. US: tendon thickening w/ hypoechoic areas*; neovascularity on color doppler *nl tendon architecture on US: hyperechoic w/ fibrillar pattern	1. ↓ pain: isometric exercises 2. Strengthen: eccentric exercises 3. Build function: activity-specific drills 4. Resume sport NSAIDs, cryotherapy, taping
Tibial tubercle	Apophysitis (Osgood Schlatter's)	Pain & swelling at tibial tubercle (patellar tendon insertion)	Repetitive quadriceps contraction stresses tubercle	PE: tenderness, bony prominence, pain w/ resisted extension or squatting XR may show partial avulsion/fragmentation of apophysis	Pain control + activity continuation until growth plate ossifies
Hoffa's fat pad	Infrapatellar fat pad impingement (Hoffa's syndrome)	Pain and swelling locally at site of fat pad	Fat pad pinched between kneecap and femur; caused by trauma, overuse, or chronic injury.		Ice, NSAIDs, soft tissue treatment, joint mobilization, taping, strengthening, therapeutic US

Helpful Resources:

1) https://www.uptodate.com/contents/recognition-and-initial-management-of-patellar-dislocations
2) https://now.aapmr.org/tendinopathy/
3) https://now.aapmr.org/patellofemoral-syndrome/