



Co-management Guide

Pediatric orthopedics	Knee pain
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Guidelines Referenced	Use a hyperlink when possible...
Background	<p>Knee pain is a common diagnosis in the pediatric patient accounting for a significant source of complaints and concerns. Given the rise in sports specialization musculoskeletal pain is going to remain a significant issue in the young athlete. On the other hand relative inactivity and obesity can also contribute to the development of knee pain. Anterior knee pain, also known as patellofemoral syndrome, is by far the most common cause of knee pain, but other causes need to be considered and ruled out. A systematic approach to working up and treating knee pain can help guide the primary care provider in the process of care of these pediatric patients.</p>
Initial Evaluation	<p>Initial evaluation should consist of a good history and physical exam, as well as obtaining radiographs to rule out certain conditions. It is important to distinguish chronic insidious pain from pain caused by an acute injury, even if the injury occurred in the past.</p> <p>Pain related to an acute injury needs to be worked up with the injury in mind, making sure there is no concern for intraarticular structural pathology. The history and exact mechanism of injury can give clues to what structure was at risk for being injured, such as a pivot injury and the association with an anterior cruciate ligament tear. If the patient develops swelling within minutes to an hour of the injury there is concern for structural damage, involving the cruciate ligaments, menisci, patellofemoral ligament, or an intraarticular fracture.</p> <p>If the main complaint is chronic pain then attention must be paid to the specific details of the chronicity, pattern, or location of pain. Factors that make the pain worse are a big clue to the underlying cause, and given that patellofemoral pain is the most common cause of chronic anterior knee pain exacerbating factors include loaded knee flexion, such as stairs, prolonged sitting. Another relatively common cause of chronic knee pain is osteochondritis dissecans, which presents more as pain with loading of the knee in general, not just in flexion. History of swelling and mechanical symptoms is also important.</p> <p>Important findings on exam include any evidence of an effusion, best tested for in full extension. Testing the ligaments and looking for a meniscus tear is also important, to include the Lachman exam and McMurray test. Joint line tenderness can also be an indication of meniscal pathology. In cases of chronic pain there is often pain along the patella and pain present with patella grind test.</p> <p>In addition to a good history and physical exam Xrays are most often indicated to rule out causes of pain that can only be found on radiographs, such as osteochondritis dissecans. It is reasonable to try conservative treatment before ordering Xrays, but in cases of ongoing pain radiographs should eventually be ordered. The main causes of pain that can be easily detected on radiographs is osteochondritis dissecans and Osgood Schlatter's, and a</p>



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	complete series should therefore include AP, lateral, and tunnel view. A sunrise view is less helpful than a tunnel view in looking for identifiable causes of pain.	
Initial Management	<p>After initial workup and evaluation the next steps in the management will depend on the suspected diagnosis.</p> <p>In cases of acute injury and MRI scan should be strongly considered in the presence of an effusion. The only cases that might not need to be worked up with an MRI scan are confirmed patellar dislocations without concern for an osteochondral injury.</p> <p>If the pain is chronic and the working diagnosis is patellofemoral pain then the management should consist of a trial of physical therapy, with a specific focus on quadriceps and VMO strengthening. This can also be administered as a home exercise program but needs to be followed diligently. Success of treatment is high, most cases respond favorably to therapy and need no further evaluation. If radiographs have not already been obtained then they need to be ordered after a course of therapy if the pain persists.</p>	
When to Refer	In cases of acute injury with concern for intraarticular pathology an MRI scan can be ordered by the primary care provider before referral to a specialist. If the MRI scan is negative for pathology therapy should be considered prior to referral, or a referral can be made up front. In cases of chronic pain that fail to respond to a complete course physical therapy the MRI scan should be ordered prior to referral to a specialist in order to optimize the visit.	
Pre-Visit Work Up	Work up should always include radiographs. Physical therapy should be prescribed in cases of chronic anterior knee pain and is minor acute injuries without concern for intraarticular pathology. MRI scans should be considered for cases of chronic knee pain that fails to respond to physical therapy, or for significant acute injuries especially in presence of an effusion.	
Co-management Strategy (as appropriate)	<p>Specialist scope of care Work up cases of unexplained ongoing chronic pain. Care of cases with confirmed pathology, such as osteochondritis dissecans or other intraarticular pathology.</p>	<p>Primary care scope of care Initial workup and management of cases of chronic anterior knee pain.</p>
Return to Primary Care Endpoint	At conclusion of orthopedic workup, when no further care or recommendations can be offered. Some cases of chronic anterior knee pain can be truly chronic and last for years, and other pain management strategies need to be considered in the primary care setting, such as referral to pain management.	