

# Evaluating Anterior Knee Pain



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## KEYWORDS

- Anterior knee pain • Bursitis • Patellar pain • Patellar fractures
- Patellar tendinopathy • Patellofemoral pain syndrome • Patellar subluxation
- Chondromalacia • Osgood Schlatter's disease

## KEY POINTS

- Patellofemoral osteoarthritis and chondromalacia are common causes of anterior knee pain and may be overlooked as the etiology (especially if the radiology report reads "normal").
- Quadriceps and patellar tendinopathy often occur in patients where there is repetitive stress placed on the anterior knee, such as in jumping and running sports.
- Patellar dislocation and subluxation is a common problem with incidence of 5.8 per 100,000 persons and increasing to 29 per 100,000 persons in the age range of 10 to 17 years old.
- Bursitis of the knee commonly occurs in the pre-patellar bursa or the pes anserine bursa.
- Patellofemoral pain syndrome can be described as patellar tracking dysfunction, and is a common cause of anterior knee pain.
- A bipartite patella is the result of a secondary ossification center that did not completely fuse to the primary site.
- Osgood-Schlatter is a condition that typically presents at the beginning of a growth spurt.
- Sinding-Larsen-Johannson syndrome is a traction apophysitis of the inferior pole of the patella.
- Osteochondritis dissecans is an uncommon but important cause of anterior knee pain in adolescents.
- Plicae are remnants of embryologic tissue.
- Patellar fractures can account for up to 1% of all fractures seen.
- Fat pad impingement syndrome can be an unusual cause of anterior knee pain.

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INTRODUCTION

Musculoskeletal complaints account for about 20% to 30% of all primary care office visits; of these visits, discomfort in the knee, shoulder, and back are the most prevalent musculoskeletal symptoms. Having pain or dysfunction in the front part of the knee is a common presentation and reason for a patient to see a health care provider.

A good history and thorough physical examination are essential to an accurate diagnosis of the cause of anterior knee symptoms. In turn, an accurate diagnosis is essential to optimal management and best possible outcome for the patient. As with other musculoskeletal conditions, the overall goals in management of anterior knee pain are to improve comfort, restore function, maximize function, and to preserve function.

There are a number of pathophysiological etiologies to anterior knee pain. This article describes some of the common and less common causes, and includes sections on diagnosis and treatment for each condition, as well as key points.

PATELLOFEMORAL OSTEOARTHRITIS AND CHONDROMALACIA

**Key points for patellofemoral osteoarthritis (OA) and chondromalacia**

1. Patellofemoral OA and chondromalacia are common causes of anterior knee pain and may be overlooked as the etiology (especially if the radiology report reads “normal”).
2. Physical examination findings may largely be nonspecific, but an important finding is tenderness over the lateral or medial patella facet.
3. Radiologic evaluations can be very helpful aides in diagnosing this condition. The Merchant or skyline view is helpful when evaluating isolated patellofemoral OA.
4. Nonoperative management may include ideal body weight maintenance, physical therapy, oral medication and supplements, corticosteroid and viscosupplementation injections, and bracing.
5. The overall goal of treatment is to improve and maximize patient comfort and function.

Introduction

Isolated patellofemoral OA is not an uncommon disease process; it can be an etiology of anterior knee pain or simply an incidental finding on radiographs without clinical significance. In a study conducted by Davies and colleagues,<sup>1</sup> of 206 knees of patients older than 60 presenting with symptomatic knee pain, 15.4% of men and 13.6% of women had isolated patellofemoral osteoarthritis. In another study, of 240 asymptomatic knees of patients 55 years and older, 19% of men and 34% of women had radiologic evidence of isolated patellofemoral osteoarthritis.<sup>2</sup> Patellofemoral osteoarthritis, defined as a loss of the cartilage in the trochlear groove and retro-patella surface, is found in approximately half of patients who are diagnosed with degenerative arthritis of the knee.<sup>3</sup> Chondromalacia is a softening of the patellofemoral cartilage, and may be a precursor to degenerative joint disease in this compartment of the knee. For the purposes of this article, both chondromalacia and OA can be the cause of anterior knee pain related to the cartilage in this knee compartment.

Diagnosis

Patients with patellofemoral OA or chondromalacia will typically present with anterior knee pain. There is no one single defining symptom that is characteristic of

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