

## Pre-patellar and sub-patellar bursitis

### Definition of causal agent

Local trauma, such as resulting from a direct blow or a fall on the knee or occupation requiring excessive kneeling can produce pre-patellar bursitis. Superficial infra-patellar bursitis (*clergyman knee*) is placed more distally than pre-patellar bursitis and is associated with a more upright posture when kneeling. The deep infra-patellar bursa is inflamed less frequently than the superficial infra-patellar bursa.

Main occupations where observed: carpet layers, coal miners, roofers, plumbers, gardeners, homemakers etc.

### Definition

**Pre-patellar bursitis** is the inflammation of the bursa overlying the patella resulting in marked increase of fluid within its space.

Incidence of pre-patellar bursitis is greater in males than females.

Synonyms: “housemaid’s knee”, “carpet layers' knee” and “beat knee”.

**Sub-patellar (s. infra-patellar) bursitis** is inflammation of the sub-patellar bursa.

The sub-patellar bursa can be divided into superficial and deep components. The deep component lies between the patellar ligament and the upper anterior surface of the tibia, and the superficial component lies between the patellar ligament and the skin.

Synonym: “clergyman knee”.

### □ Acute pre-patellar and sub-patellar bursitis

Onset may be sudden if secondary to acute trauma. The inflammation and swelling strike over a few hours or days. If caused by injury, bursitis will resolve after a few days or weeks.

#### **Exposure criteria:**

*Minimal intensity of exposure:* occupational trauma such as a fall on the patella, direct blow to the knee or blunt trauma to the knee confirmed by anamnesis.

*Minimal duration of exposure:* from a few seconds or minutes to eight hours.

*Maximal latent period:* three days.

#### *Diagnostic criteria*

- History: occupational trauma of the knee.
- Clinical symptoms:
  - Knee pain
  - Swelling of the knee
  - Redness of the knee

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- Difficulty with ambulation
  - Inability to kneel on the affected side.
- **Signs.** During physical examination any of the following signs and symptoms may be noted:
- Tenderness of the patella to palpation
  - Fluctuant oedema over the lower pole of the patella
  - Localised erythema
  - Localised crepitation
  - Decreased knee flexion secondary to pain.

*Differential diagnosis*

- Anterior Cruciate Ligament Injury
- Medial Collateral and Lateral Collateral Ligament Injury
- Posterior Cruciate Ligament Injury
- Pes Anserinus Bursitis
- Rheumatoid Arthritis
- Presence of infection
- Crystalline inflammatory arthropathy (eg, gout, pseudogout).

**Necessary investigations:**

Investigations are necessary to exclude other diagnoses

**□ Chronic pre-patellar and sub-patellar (infra-patellar) bursitis**

Occupational chronic pre-patellar and sub-patellar (infra-patellar) bursitis may develop initially as chronic disease or the development may be gradual without an acute phase (bursopathia). History of recurrent minor injuries associated with overuse (e.g. repeated kneeling) is present. This bursitis may be associated with rheumatoid arthritis and infection.

***Exposure criteria:***

*Minimal intensity of exposure:* occupational exposure confirmed, if possible assessed, by the history and analysis of working conditions providing evidence of repeated friction between skin and patella.

*Minimal duration of exposure:* several months.

*Maximal latent period:* one month

***Diagnostic criteria***

- Occupational history
- Clinical symptoms. Pre-patellar bursitis causes pain and swelling felt at the front of the knee, chiefly on kneeling; superficial sub-patellar bursitis causes pain and diffuse swelling over the tibial tubercle and lower portion of the patellar ligament. Most typically the following symptoms could be observed:
  - Increased pain at night
  - Redness of the knee
  - Local heat of the knee
  - Tenderness of the knee.

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- Physical examination:
    - In the case of *pre-patellar bursitis*:
      - fluctuant, well-circumscribed, warm oedema is present over the lower pole of the patella;
      - crepitation may be found upon palpation;
      - pain may be increased on knee flexion due to increased tension over the bursa;
      - knee joint is normal
    - In the case of *sub-patellar bursitis*:
      - the patient has painless passive flexion and extension, however, pain occurs with active flexion and extension at the extremes of the range of motion;
      - Oedema, when visible, is on both sides of the patellar tendon, these sites usually are tender.

#### *Differential diagnosis*

- Presence of infection.
- Septic bursitis.
- Rheumatoid arthritis.
- Osteoarthritis.
- Crystalline inflammatory arthropathy (e.g. gout, pseudogout).