



# Infrapatellar bursitis presenting as a lump

Mantu Jain , Manmatha Nayak, Sajid Ansari, Bishnu Prasad Patro 

Orthopaedics, All India  
Institute of Medical Sciences,  
Bhubaneswar, India

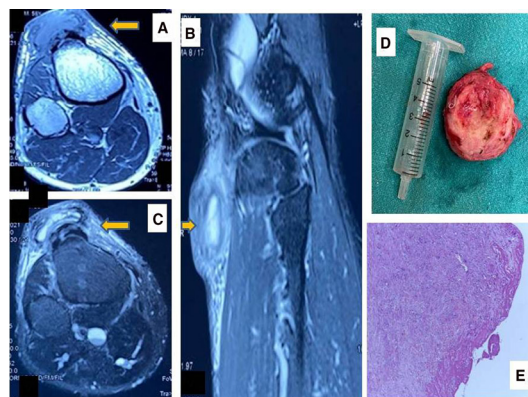
Correspondence to  
Dr Mantu Jain;  
montu\_jn@yahoo.com

Accepted 12 May 2021

## DESCRIPTION

A bursa is a fluid-filled sac meant to reduce the friction between surfaces.<sup>1</sup> A bursa can be superficial when present between the skin and underlying tendon or bone such as the prepatellar, infrapatellar, olecranon bursa or superficial calcaneal.<sup>2</sup> Deep bursae are located deep to the fascia, typically between muscles, tendon, and bones.<sup>3 4</sup> Trauma, particularly repetitive, overuse, haemorrhage and, crystal disease, infection, are some of the common causes for inflammation of the bursa leading to bursitis.<sup>1 3 5 6</sup> There could be systemic illness in some cases, and in a few, the cause remains unknown.<sup>7</sup> Occupation and habitual or practices predispose certain types known by eponyms such as prepatellar bursitis, also known as housemaid's knee, and superficial infrapatellar bursitis synonymous with clergyman's knee.<sup>8</sup> The bursa with chronic inflammation may have calcification or become a solid lump losing its fluid content.<sup>7 9</sup> This case depicts such a case wherein the patient presented with painful swelling.

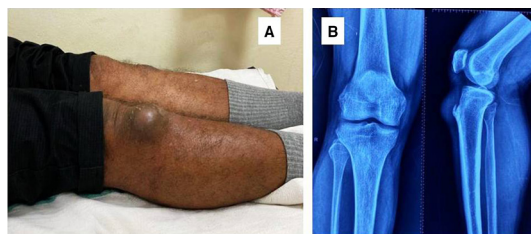
A 58-year-aged man, clerical by job, presented to our outpatient department with painful swelling (Visual Analogue Score of 4/10) over the anterior aspect of the right knee just inferior to the patella for almost a year (figure 1A). He had a history of minor trauma to the knee. On examination, the lump was solitary, slightly tender and roughly measured 5×5 cm with slight discoloration of the overlying skin. Extremes knee flexion and extension aggravated the pain. The blood investigations, including a complete blood count, acute phase reactants, were within the normal limit. The serum uric acid and autoimmune markers such as the antinuclear antibody, rheumatoid factor, and the anti-citrullinated peptide were also unremarkable. Radiological investigations included an X-ray of the knees where the soft tissue swelling could be appreciated without any calcification or ossification (figure 1B). A MRI revealed a well-defined, subcutaneous, elliptical mass in the midline, which was superficial to the tibial tuberosity. The mass was hypointense on T1-weighted but hyperintense on T2-weighted and



**Figure 2** MRI findings axial and sagittal showing fluid filled sac (A–C); excised mass (D) and histopathological study displaying chronic inflammatory tissue covered with fibrinous debris; 20×; H&E stain (E).

fat-suppressed images associated with surrounding subcutaneous oedema (figure 2A–C). The patient was counselled for an excisional biopsy. Under local anaesthesia, a midline incision was made and the mass was removed in toto and sent for histopathological examination (figure 2D). The macroscopic examination revealed a soft to firm yellowish mass without any haemorrhage, necrosis or gritty sensation on cutting. Microscopic examination revealed chronic inflammation tissue covered with fibrinous debris (figure 2E).

Infrapatellar bursitis can be a source of anterior knee pain.<sup>10 11</sup> Common mechanism is repetitive injury from prolonged kneelings such as a cleaner or clergyman. Some people give a relation of trauma as in our case in the absence of habitual practice. Most remain painless, yet situations with extremes of movement like squatting, which is standard practice in rural Indian set-up, may cause stimulation of nociceptive mechanoreceptors leading to pain as reported by our patient. Pain can also arise due to infection or inflammatory disease of deep infrapatellar bursa (DIPB).<sup>11</sup> Taylor found gout affecting DIPB,<sup>12</sup> while Klein has reported DIPB secondary to Osgood Schatter disease.<sup>13</sup> Inflammation of DIPB will produce localised tenderness and thickening of the soft tissues posterior medial and lateral to the patellar tendon. Continued mechanical irritation of an inflamed bursa could lead to fibrosis and calcification.<sup>14</sup> Ultrasonography can be handy for detecting soft-tissue changes and bursitis in the carpet layer.<sup>15</sup> Aspiration of a bursa and subjecting to microbiological gram staining is a must in suspicion of infective pathology. The role of fine-needle aspiration and cytology is doubtful. Arora *et al* found negative in two attempts.<sup>9</sup>



**Figure 1** Clinical picture of patient showing the lump (A). (B) The x-ray revealing the soft-tissue swelling without calcification/ossification.

 Check for updates

© BMJ Publishing Group Limited 2021. No commercial re-use. See rights and permissions. Published by BMJ.

To cite: Jain M, Nayak M, Ansari S, *et al*. *BMJ Case Rep* 2021;**14**:e243581. doi:10.1136/bcr-2021-243581

The differential diagnosis includes infective and tumorous conditions such as tenosynovitis giant cell, tumour, fibromatosis, haemangioma, or malignant conditions like synovial sarcomas, especially in the presence of speckled calcification.<sup>9 14</sup>

The treatment in acute cases includes rest, ice compression, and elevation (RICE therapy) with medications like non-steroidal anti-inflammatory drugs. In large non-infectious swellings, the bursa can be aspirated, and intrabursal steroid injections could be used. Infectious bursitis require antibiotics and in some instances could require surgical drainage as well.<sup>16</sup> Chronic bursitis is usually painless and can be treated with observation if not interfering with activities of daily living. However, patients with cosmetic concern, acute exacerbation of pain or secondary infection would require a removal of bursa. The infrapatellar bursa if superficial like our case is easily accessible for surgical excision. But, for DIPB, recently, an endoscopic resection has been described.<sup>11</sup>

Infrapatellar bursitis is more common in repetitive knee trauma, but sometimes aetiology remains elusive. At the same time, awareness of the lesions helps arrive at the correct diagnosis, which, in turn, helps in proper management.

### Learning points

- ▶ Different types of bursa are seen around the knee joint.
- ▶ Chronic bursitis is painless and can be observed but when symptomatic or complicated requires surgical excision.
- ▶ Chronic bursitis can present as lump which must be further investigated.

**Acknowledgements** Dr. Suprava Naik for giving the MRI images. Dr. Manas Baisakh for giving the histological picture.

**Contributors** MJ, SA, and MN operated on the patient. BPP did a literature review. SA followed up with the patient. MJ and MN wrote the paper where SA, BPP gave valuable inputs.

**Funding** The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

**Competing interests** None declared.

**Patient consent for publication** Obtained.

**Provenance and peer review** Not commissioned; externally peer reviewed.

### ORCID iDs

Mantu Jain <http://orcid.org/0000-0003-3848-4277>

Bishnu Prasad Patro <http://orcid.org/0000-0001-9497-9624>

### REFERENCES

- 1 Chatra PS. Bursae around the knee joints. *Indian J Radiol Imaging* 2012;22:27–30.
- 2 Khodae M. Common superficial bursitis. *Am Fam Physician* 2017;95:224–31.
- 3 Williams CH, Jamal Z, Starnard BT. Bursitis. In: *StatPearls*. Treasure Island FL: StatPearls Publishing, 2021.
- 4 Koh WL, Kwek JW, Quek ST, et al. Clinics in diagnostic imaging (77). PEs anserine bursitis. *Singapore Med J* 2002;43:485–91 [http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list\\_uids=12568429](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=12568429)
- 5 Dawn B, Williams JK, Walker SE. Prepatellar bursitis: a unique presentation of tophaceous gout in a normouricemic patient. *J Rheumatol* 1997;24:976–8.
- 6 Hirji Z, Hunjun JS, Choudur HN. Imaging of the bursae. *J Clin Imaging Sci* 2011;1:22–2.
- 7 McCarthy EM, Murphy C-L, Doran MF, et al. Infrapatellar bursitis: an occupational legacy. *J Clin Rheumatol* 2011;17:49–50.
- 8 Lee P, Hunter TB, Taljanovic M. Musculoskeletal colloquialisms: how did we come up with these names? *Radiographics* 2004;24:1009–27.
- 9 Arora S, Batra S, Rao S, et al. "A 40-year-old female with painless, slow growing prepatellar mass". *J Clin Orthop Trauma* 2014;5:274–9.
- 10 Waters P, Kasser J. Infection of the infrapatellar bursa. A report of two cases. *J Bone Joint Surg Am* 1990;72:1095–6.
- 11 LaPrade RF. The anatomy of the deep infrapatellar bursa of the knee. *Am J Sports Med* 1998;26:129–32.
- 12 Taylor PW. Inflammation of the deep infrapatellar bursa of the knee. *Arthritis Rheum* 1989;32:1312–4.
- 13 Klein W. Endoscopy of the deep infrapatellar bursa. *Arthroscopy* 1996;12:127–31.
- 14 Stahnke M, Mangham DC, Davies AM. Calcific haemorrhagic bursitis anterior to the knee mimicking a soft tissue sarcoma: report of two cases. *Skeletal Radiol* 2004;33:363–6.
- 15 Myllymäki T, Tikkakoski T, Typpö T. Carpet-layer 'S' knee. An ultrasonographic study. *Acta Radiol* 1993;35:496–9.
- 16 Lormeau C, Cormier G, Sigaux J, et al. Management of septic bursitis. *Joint Bone Spine* 2019;86:583–8.

Copyright 2021 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <https://www.bmj.com/company/products-services/rights-and-licensing/permissions/>  
BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- ▶ Submit as many cases as you like
- ▶ Enjoy fast sympathetic peer review and rapid publication of accepted articles
- ▶ Access all the published articles
- ▶ Re-use any of the published material for personal use and teaching without further permission

### Customer Service

If you have any further queries about your subscription, please contact our customer services team on +44 (0) 207111 1105 or via email at [support@bmj.com](mailto:support@bmj.com).

Visit [casereports.bmj.com](http://casereports.bmj.com) for more articles like this and to become a Fellow