Supplementary

Appendix 1 Summary table of the characteristics of popliteal lymphadenopathies for each patient, including major diameter, minor diameter, cortical thickness, and cortical density

Patient	n	Short Axis (mm)	Long Axis (mm)	Cortical Size (mm)	Cortical Density
1	4				
		6,2	11	3,6	normal
		5,4	8,9	4	normal
		4,1	8,1	2,6	normal
		6	10,9	4,7	normal
Mean		5,43	9.73	3,72	
SD		0,95	1,45	0,88	
Range		4,1-6,2	8,1-11	2,6-4,7	
2	6				
		3	4,6	3	normal
		4,1	10,7	3,5	increased
		4,5	18	3,8	increased
		4,3	5,6	4	increased
		2,7	4	2	increased
		9,4	12,5	5,1	increased
Mean		4,67	9,23	3,57	
SD		2,43	5,51	1,04	
Range		2,7-9,4	4,0-18	2-5,1	
3	3				
		2,7	5,2	3	increased
		6	9,8	4	increased
		12,5	15	4	increased
Mean		7,07	10	3,67	
SD		4,99	4,9	0,58	
Range		2,7-12,5	5,2-15	3,0-4,0	
ALL PLN	13				
Mean		5,45	9,56	3,67	
SD		2,79	4,16	0,58	
Range		2,7-12,5	4,0-18,0	3,0-4,0	

SD, Standard Deviation; PLN, popliteal lymph node.

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Appendix 2 Clinical specifications of each case

Case 1

A 64-year-old woman with a history of ovarian and endometrial neoplasia, who had undergone a hysterectomy and double adnexectomy, subsequently underwent bilateral unicompartmental knee arthroplasty due to osteoarthritis of the knees. Following a week-long hospitalization, she was discharged with analgesia due to persistent pain. Despite six months post-operation, the patient continued to experience enduring pain, and a physical examination revealed a swollen left knee with referred pain in the medial compartment. Rehabilitation efforts were initiated, but after four months of toning therapy for both lower extremities, no improvement was observed.

Radiographs showed a doubtful area of periprosthetic osteolysis, without any other notable abnormalities. Given the and radiographic findings and the atypical nature of the pain, a CT scan was ordered, revealing radiological indications suggestive of infection in the right prosthesis. These signs included periarticular osteolysis, joint effusion with synovitis, and unilateral PLN. Percutaneous Aspiration and Fine Needle Aspiration (FNA) were not immediately feasible due to the prevailing COVID-19 pandemic situation. However, owing to the high clinical suspicion of infection, empirical antibiotic treatment was promptly initiated.

Upon conducting FNA six weeks later, the aspirated fluid appeared cloudy. Biochemical analysis indicated 5600 cells with 95% neutrophils, although cultures yielded negative results. Given the clinical, biochemical, and radiological features, the negative culture results were considered potentially false negatives due to prior antibiotic intake. A clinical diagnosis of septic prosthetic loosening was established, leading to the decision for septic prosthesis replacement with one-stage TKA.

Pathological examination of the fluid revealed reactive vascular proliferation and inflammatory infiltrate, featuring numerous polymorphonuclear leukocytes, thus confirming an infectious process. The surgical intervention proceeded without incident, and the patient was discharged with an oral antibiotic regimen.

Case 2

A 65-year-old woman with a history of hypertension and obesity, who had undergone a left knee prosthesis, presented to the emergency room four years later with progressive knee pain over the past month. The X-ray conducted in the emergency room indicated signs of loosening, prompting a follow-up X-ray to assess progression after three months. Meanwhile, the patient sustained trauma to her left knee and returned to the emergency room. A physical examination revealed significant joint effusion, raising suspicion of a periprosthetic fracture.

A knee CT scan was requested, confirming the suspected periprosthetic fracture. The CT revealed a femoral spiroid fracture, extensive areas of periprosthetic lysis suggestive of particle deposition disease, and the presence of dense PLNs. This suggested migration of debris (metal) to the popliteal lymph nodes. With the diagnosis of a periprosthetic fracture, the patient underwent total knee prosthesis replacement with cone placement and cerclage wiring.

Pathological anatomy conducted during surgery confirmed the presence of stroma with a marked histiocyte reaction, focal gigantocellular changes, and abundant intracellular pigment compatible with metallosis. Additionally, there were foci of degenerate material.

Case 3

A 75-year-old man with a medical history notable for an aspirin allergy, hypertension, and dyslipidemia underwent knee replacement surgery. Nearly 7 years post-operation, the patient began experiencing worsening knee pain and functional impairment. Physical examination revealed significant instability in both valgus and varus positions during extension, along with notable joint effusion. To investigate the possibility of loosening, a CT scan was conducted, which revealed an osteolysis zone around the tibial component, indicating potential loosening. Multiple PLNs with a dense cortical appearance were also noted, suggesting cement migration from the prosthesis. Additionally, dense material in the popliteal recess was observed,

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attributed to the migration of prosthetic debris (cement). A diagnosis of aseptic loosening was established, prompting prosthetic replacement surgery. Pathological examination confirmed connective tissue with morphological changes consistent with a reaction to wear particles

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