CASE REPORT

Chronic Knee Pain Demystified: The Pellegrini-Stieda Syndrome Case Report.

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Abstract

This case report describes a man who initially presented to a primary care clinic with recurrent chronic left knee pain for four years. He had a history of trauma from a motor vehicle accident in 2002 and sustained left femur fracture with no knee injury and had undergone a left total hip replacement due to avascular necrosis of the femoral head. Physical examination did not reveal significant abnormality like arthritis, ligamentous injury, or tumour. There was no tenderness or bony irregularity noted at the medial side of the left knee. Over a four-year period, the patient's knee pain worsened and became increasingly dysfunctional. No X-ray was performed as the patient was just treated for musculoskeletal pain. A knee radiographic examination finally done during the latest visit to primary care raised, concern for a potential bone malignancy, leading to a referral to a tertiary centre. Further investigations, including a CT scan, raised suspicion of benign periosteal thickening and an avulsed fragment adjacent to the medial femoral condyle, where he was diagnosed with a chronic left medial collateral ligament (MCL) injury with a large concomitant Pellegrini-Stieda lesion and a chronic partial anterior cruciate ligament injury. This case highlights the diagnostic challenges at the primary care level in differentiating between a benign chronic MCL injury and other common causes of knee pain, as the presenting symptoms are similar. An accurate diagnosis can be achieved with a thorough history, clinical examination, and the use of additional imaging techniques. Prompt recognition of this uncommon knee problem is essential for delivering suitable therapy and preventing unwarranted delays in referral and treatments.

Keywords: *bone tumour; knee pain; Pellegrini-Stieda lesion.*

Introduction

Pellagrini-Stieda Syndrome is a rare knee condition characterized by chronic knee pain and limited range of motion with post-traumatic calcification of the medial collateral ligament (MCL). It is essential for healthcare providers to consider this diagnosis in individuals with a history of knee trauma. However, identifying a Pellegrini-Stieda Syndrome may be challenging due to overlapping symptoms with other knee conditions. This case report presents the challenge of the diagnostic journey in a patient who suffered from chronic recurrent left knee pain, ultimately leading to the diagnosis of Pellegrini-Stieda lesion after an initial confusion with a potential bone tumour.

Case presentation

A 38-year-old Malay gentleman initially presented to a primary care health clinic with progressive left knee pain for 4 years. He described it as moderately throbbing, aggravated by long walks, and relieved by rest. He denied any recent knee trauma, fever, reduction in knee motion, or rest pain. The pain disrupted his everyday routines and job, as his occupation necessitates standing and walking. He alluded to a past motor vehicle accident in 2002, where he sustained a closed fracture midshaft of the left femur complicated with left hip avascular necrosis, for which he underwent a total left hip replacement. Further history revealed that the patient had presented to the primary clinic on multiple occasions with the same chief complaint since 2019, where he was treated for a simple musculoskeletal injury and prescribed an oral analgesic. No X-Ray examination was conducted during these numerous visits.

A knee radiograph was finally obtained for the current consultation in primary care. However, it showed a significant quantity of new bone formation with indistinct cortex on the distal end of the left femur, suggesting a possibility of bone cancer. Otherwise, there was no loss of weight, appetite, and any history of malignancy in the family.

Afterwards, he was then referred to the Orthopaedic clinic at a tertiary centre to investigate his chronic left knee discomfort and rule out the possibility of malignancy. Initial examination of the left knee revealed a slightly antalgic gait with no gross effusion, deformity, or significant muscle atrophy. The medial condyle of the left femur was tender. Patella grind test was positive, suggesting a patella femoral lesion, whilst there was grade 1 translation on an anterior drawer test, suggestive of a partial ACL injury. Interestingly, valgus stress test appeared negative. His left knee flexion was 0 to 120^{o} both actively and passively.

A plain radiograph of the left knee was repeated and showed a periosteal calcific growth over the medial aspect of the medial condyle, which was initially suspected to be a periosteal sarcoma. Subsequent computed-tomography imaging revealed a benign periosteal thickening, with a small, avulsed fragment adjacent to the medial femoral condyle, unlikely to be osteosarcoma. A diagnosis of a chronic left medial collateral ligament injury with a large Pellegrini-Stieda lesion was established. As the lesion was quite large and may not be amendable to an injection-based procedure, the patient was referred to the Sports Surgeon for further potential discussion for surgical excision.

Discussion

Pellegrini-Stieda Syndrome

Pellegrini-Stieda Syndrome is a medical disorder characterised by knee pain and restricted movement, often accompanied by the presence of a Pellegrini Steida Lesion (PSL). [1]. PSL is ossifications of the medial collateral ligament (MCL) at or near its proximal insertion on the medial femoral condyle of the knee that occurs after a direct or indirect trauma [2].

The pathogenesis of PSL is most likely the calcification of a post-traumatic hematoma at least three weeks after the initial trauma or secondary to repetitive microtrauma [3]. Other hypothesized etiologies include ligamentous

tissue metaplasia, periosteal proliferation, and a type of myositis ossificans [4].

PSL vs Bone Tumor

Diagnosing a Pellegrini-Stieda Lesion from the radiograph can be challenging because it can present with similar symptoms and radiographic findings to other knee pain conditions, such as knee osteoarthritis or bone malignancy. However, there are certain features that can help differentiate between the conditions.

PSLs typically occur on the medial aspect of the medial femoral condyle, where the MCL attaches [5]. Bone tumours, on the other hand, can occur in any location within the bone, [6] but most of the bone tumours arise at metaphysis. PSLs are often associated with a history of knee trauma. Patients with PSLs may experience pain, swelling, and limited range of motion at the knee joint [5]. Malignant bone tumours, on the other hand, may also cause pain and swelling which should be progressive in nature within a short period of time. Patients may also present with other systemic symptoms, such as weight loss and fatigue. PSLs may appear radiographically as calcifications or ossifications at the insertion site of the MCL on X-rays. Bone tumours, on the other hand, may show abnormal bone growth, destruction of normal bone structure, periosteal reaction, or soft tissue masses [6]. Additional imaging modalities, such as MRI or CT scans, may be needed to evaluate the lesion further. A biopsy and histological examination can provide a definitive diagnosis.

Role of Primary Care

In this example, there was an unintentional delay in diagnosing the patient. Although the individual had a past history of knee injuries, the discomfort experienced was not intense and did not restrict their physical capabilities. Furthermore, there were no other symptoms observed, such as oedema or reduced range of motion, during the initial presentation. Consequently, the diagnosis was not contemplated until the patient had radiographic imaging during the last visit in primary care.

There are several factors that can contribute to the delayed diagnosis of Pellegrini-Stieda Syndrome. Initially, the lesion may not exhibit any symptoms. Furthermore, the symptoms of Pellegrini-Stieda Syndrome can be mistakenly associated with other knee disorders, such as osteoarthritis or patellofemoral pain syndrome. Additionally, the presence of the lesion may not be discernible on radiographs until a significant period, ranging from several weeks to several months, following the occurrence of the injury.

Primary care plays a crucial role in diagnosing Pellegrini-Stieda Syndrome by thoroughly assessing patients with knee pain, as they are frequently the initial healthcare providers that patients with musculoskeletal issues seek out [7]. The physician should conduct a comprehensive evaluation of the patient's medical history and perform a detailed physical examination. If there are any indications of a post-traumatic lesion, the physician should also request radiographs. It is recommended to refer the patient to a specialized medical facility early, particularly if they have experienced the same issue several times. In the case of a patient with a Pellegrini-Stieda lesion, the doctor can explore various treatment options, such as conservative management with the use of non-steroidal anti-inflammatory medicines (NSAIDs), corticosteroid injections, and range-of-motion exercises. Surgical intervention may be necessary for extremely refractory instances [8].

Conclusion

This case report highlights the challenges in diagnosing Pellegrini-Stieda Syndrome, which can be easily confused with other knee conditions, such as osteoarthritis, ligamentous injury, and bone tumours if the clinician lacks awareness about this rare syndrome. With proper history and meticulous physical examination, orthopaedic surgeons can easily differentiate it from other knee conditions. However, primary care clinicians may face some difficulty in diagnosis.

Routine radiographic investigation for refractory cases is essential to rule out other possible conditions and ensure early referral.

The patient in this case had a history of knee trauma, which made it even more difficult to distinguish between the two conditions. The X-ray findings were initially suspicious of bone malignancy, but the CT scan ultimately led to the correct diagnosis. It is important for healthcare providers to be aware of the signs and symptoms of Pellegrini-Stieda lesion to make an accurate diagnosis. This condition can be effectively treated with non-surgical or surgical interventions, depending on the severity of the injury.

Recommendation

This case report emphasis the significance of conducting a thorough medical history and comprehensive physical examination in routine primary care cases such as chronic knee pain. Acquiring knowledge in this situation can lead to additional investigation and referral, ultimately improving the patient's quality of life.

Conflict of interest

The author declares no conflict of interest in publishing this case report.

Ethical consent

Written consent was obtained from the patient to publish this case report. A copy of the written permission is available for review by the Chief Editor.

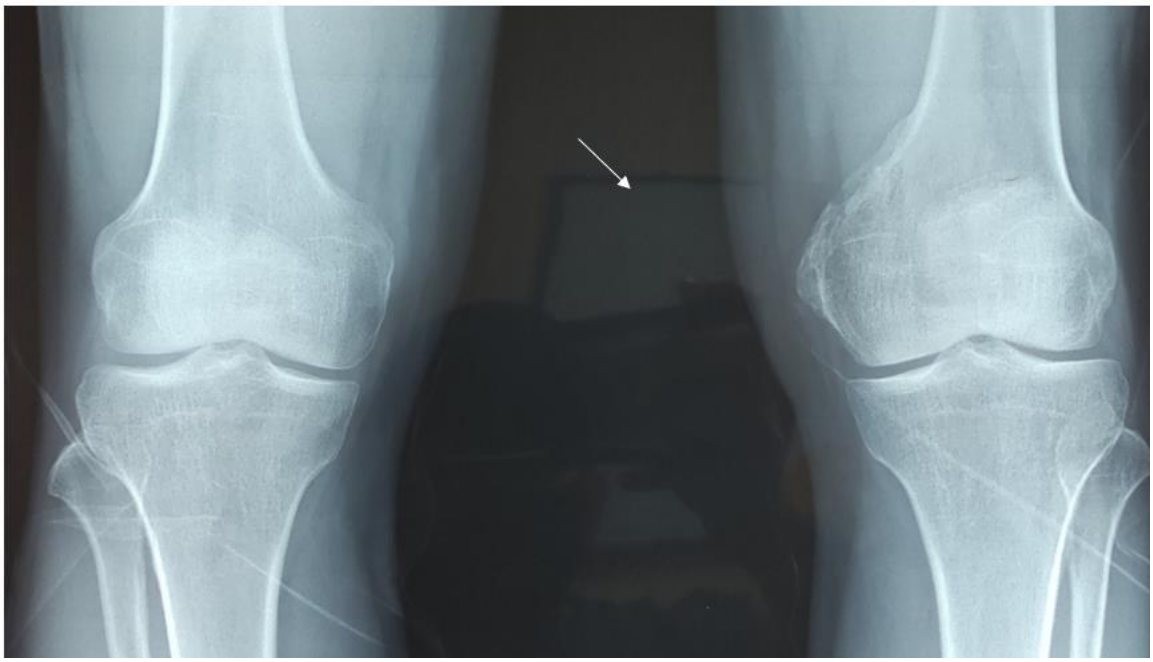

Figure 1. Bilateral standing knee Xray shows showed large Pellegrini Steida Lesion over medial side of left femur

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