A variety of cystic lesions are encountered around the knee joint. Particularly, the prepatellar region is the site of soft tissue lesions including mainly bursal fluid collections, joint synovial herniation and tendons ganglia. We report here the case of an exceptional prepatellar post-traumatic epidermal inclusion cyst mistaken for a prepatellar bursitis. With this case report, orthopedic surgeons should widen the array of the differential diagnosis in patients presenting with a post-traumatic prepatellar slow growing soft tissue mass, making epidermoid inclusion cyst a valid possibility to consider.

Keywords: knee; prepatellar; epidermal inclusion; cyst; bursitis

INTRODUCTION

A variety of cystic or cystic-appearing lesions may be encountered in and around the knee joint in the clinical setting [1,2]. Most of them are benign and represent mainly bursal fluid collections (bursitis, hematomas), joint synovial herniation or tendons and ligaments ganglia [2]. Less frequently, these cystic lesions can complicate infectious or inflammatory processes and neoplastic lesions, whether benign (hemangiomas, lipomas) or malignant [1]. The specific anatomic location of the lesion, particularly around the prepatellar region, often permits a restriction of the differential diagnosis [2].

When irritated, the prepatellar bursa produces excessive amount of fluid, causing swelling and tension over the surrounding soft tissues [3]. This is called prepatellar bursitis and usually explains the majority of swellings of the prepatellar region [3]. This condition is caused by constant repetitive kneeling, and sometimes by a direct blow to the front of the knee [3]. After an acute episode, characterized by knee redness, swelling, and pain, chronic inflammatory changes take place [4]. While the majority of cases are mild and become quiescent, some cases witness a progressive enlargement of the bursa due to absence of rest and unavoidable continuous trauma [4]. Conservative, symptomatic therapy is the mainstay of treatment; however, incision, drainage or bursectomy are reserved for patients with severe refractory chronic disease [5,6].

Knowing that prepatellar bursitis doesn’t explain all prepatellar soft tissue lesions, and that differential diagnosis includes most frequently prepatellar bursitis, lipomas or ganglion cysts, we report here the case of an exceptional prepatellar post-traumatic epidermal inclusion cyst mistaken for a prepatellar bursitis. To our knowledge, only one similar case was reported in the literature to date [7].

By reporting this case, we aim to make treating orthopedic surgeons consider this entity as a valid differential diagnosis in patients presenting with a post-traumatic prepatellar slow growing soft tissue mass.

CASE DESCRIPTION

A 58 years old hypertensive patient with dyslipidemia presents to our clinics with a progressively growing soft tissue mass of the left knee. The patient is a plumber and spends many hours per day kneeling on his knees. This growing mass was first noticed 2 years ago after a severe trauma to the left knee, with an X-ray showing no fracture at that time. During the last months, this mass gradually increased in size to reach 6 x 4 centimeters. The mass is not spontaneously painful but the patient reports some tension and tenderness on activities requiring maximal left knee flexion. Otherwise, the patient is healthy and doesn’t complain of any other articular pain, loss of weight, fever or general status alteration.
The physical examination reveals a subcutaneous prepatellar soft tissue mass that is mildly painful to palpation. It measures 6 x 4 centimeters and is free from adhesion to cutaneous and to deep tissues. This mass is homogenous, of liquid consistency and no zones of induration are noted. There is no redness or warming of the left knee when compared to the right one. The left knee has a normal range of motion except for tension noted on maximal flexion. Distal arterial pulses are palpable and the lower left limb has a normal coloration. The patient walks normally and has stable vitals with no fever.

The knee X-ray shows a subcutaneous soft tissue mass, with a patellar tendon calcification. No osseous lesions are noted. The blood test results were insignificant except for a mildly increased CRP level (CRP = 17 mg/L).

Many previous courses of non-steroidal anti-inflammatory drugs with rest failed. The patient is instructed to have as much rest as possible while elevating his left lower extremity, to put daily ice on the swollen region and to keep a moderately compressing knee bandage (RICE therapy). Another last course of a COX-2 non-steroidal anti-inflammatory drug is also introduced.

Six weeks later, the patient shows up without improvement, having the same physical examination findings except for the mass being now painful and measuring 7 x 5 centimeters. Excisional biopsy is therefore planned.

During the surgical intervention, a subcutaneous mass measuring 6.5 x 4.7 centimeters is found with a grayish content (Figure 1). A marginal excision is performed and the removed cyst was sent with its capsule to pathology. The wound was closed primarily without tension.

Pathological examination revealed a ruptured epidermal inclusion cyst (Figure 2).

DISCUSSION

The analysis of the patient’s case reveals a 58 years old patient presenting with a slow growing post-traumatic prepatellar mass that is soft and homogenous with a liquid consistency. RICE therapy failed due to the unavoidable repetitive kneeling occasioned by the patient employment. The mass persisted despite repetitive courses of non-steroidal anti-inflammatory drugs. With a left knee X-ray showing no particularities the differential diagnosis in this patient includes chronic prepatellar bursitis on top of the list, followed by synovial cyst, chronic reabsorbing hematoma, hemangioma, inflammatory lesion and neoplastic lesion. The patient refused further investigation and opted for an excisional biopsy, and pathology analysis revealed, to our surprise, an epidermal inclusion cyst.

Epidermal inclusion cysts are the most common benign cutaneous cyst. They may occur anywhere in the body with predilection to some locations like the face, the scalp, the neck and the trunk [8]. They are usually asymptomatic, coming to clinical attention only by a bulgy firm nodule of varying size or by infection [9]. Trauma is their main cause due to implantation of epidermal elements in the dermis.
Epidermoid cyst must be removed completely with the cyst wall to reduce the odds of recurrence [11]. A review of the literature shows that epidermal inclusion cysts are described in unusual locations. They are rarely located in the lower extremities and were reported for instance in the foot and ankles due to shoe impingement [10,12]. A case report also describes a popliteal epidermoid inclusion cyst [10].

To our knowledge, only one case of prepatellar epidermoid cyst is reported in the literature [7]. This epidermoid cyst was also confused to a chronic prepatellar bursitis [7]. Unspecific MRI findings couldn’t lead the authors to the diagnosis and they were left with a differential diagnosis including chronic prepatellar bursitis, lipoma and ganglion cyst [7].

Furthermore, many available case reports describe prepatellar soft tissue masses. Investigations revealed a granuloma, a clear cell sarcoma and a synovial sarcoma [13-15]. Those reports cite a wide array of differential diagnosis for possible prepatellar soft tissue masses. They include hemangioma, lymphangioma, ganglion cyst, prepatellar bursitis, fibromatosis, and malignant neoplasms [13-15]. None of these reports mentioned epidermoid inclusion cysts in the possible differential diagnosis.

Therefore, our case report, together with the previous case published in 2013, are adamant in widening the array of the differential diagnosis in patients presenting with a post-traumatic prepatellar slow growing soft tissue mass, making epidermoid inclusion cyst a valid one to consider.

REFERENCES