Drop Hallux due to an Osteoclastoma
A Big Toe Issue

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ABSTRACT

The following report describes the occurrence of an isolated drop toe secondary to a giant cell tumour (GCT). This is rarely reported in the medical literature. This pathology affected the patient's functionality and activities of daily living. We present the case of a 15 year old school girl with a delayed diagnosis of drop toe. The patient had decreased function due to gait disturbance. There was a delay in diagnosis until a swelling was noticed in the proximal posterior lateral aspect of the leg after loss of extensor hallucis longus (EHL) function had already occurred. The parent carried child to obtain orthopedic specialist care three months after initial drop toe complaint. After the clinical diagnosis was made, the appropriate investigations were ordered to stage the tumour. Definitive treatment involved wide local excision and reattachment of lateral collateral ligament with suture anchors. Follow up entailed orthotic usage, physiotherapy and gait re-training. The occurrence, patho-physiology, treatment and outcome are discussed below.

Keywords: Extensor hallucis longus, giant cell tumour, great toe, osteoclastoma

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INTRODUCTION

Common peroneal nerve palsy account for 15% of peripheral nerve injuries (1). Drop toe secondary to a GCT is a rarely reported pathology. Evidence describing drop hallux is limited and peroneal palsy is often due to traumatic and other causes (2, 3). Surgical treatment of this proximal fibular GCT utilized Type 1 proximal fibular resection (4, 5).This case describes the clinical features leading to diagnosis and management of this condition.

CASE REPORT

A previously well 15 year old schoolgirl presented to the Princess Elizabeth Centre orthopaedic clinic with an initial complaint of ‘not being able to raise her big toe’. She also explained how she would often stub her toe while walking. She and her father thought that this problem would eventually resolve. Three months later she noticed a gradual painless swelling on proximal posterior lateral aspect of left leg. The father decided to seek specialist care due to this new development.

On examination an otherwise healthy looking teenage girl had a diffuse swelling of the proximal aspect of her left leg. The overlying skin was normal in appearance. The lump was the size of a golf ball and was immobile. There was some discomfort on deep palpation.

The left great toe only was in plantar-flexion. The patient was unable to actively dorsiflex her left hallux. There was otherwise normal passive range of motion of the ipsilateral first ray. The remaining digits exhibited normal forefoot active and passive ROM. The contralateral limb was

normal. Bilaterally she displayed normal midfoot and hind foot and ankle ROM. She also displayed abnormal cadence in gait. The remainder of her neurovascular examination was grossly normal.

The consultant at this point ordered routine haematological and radiological investigations. An urgent Magnetic Resonance scan was also ordered to stage lesion. The patient was reviewed 2 weeks later. Her complete blood count (CBC) was normal. The X-ray projections displayed a purely expansive lytic destructive lesion of epiphysis and metaphysis bordering subchondral bone of the proximal left fibula only (Fig.1). The MRI sequence showed no extraosseous spread (Fig.2). Incisional biopsy correlated with radiological findings and a diagnosis of GCT was made.

The patient had a low grade intra-compartmental lesion. One week later the patient had elective type 1 proximal fibula resection for an Enneking stage 1A lesion with suture anchors to re-attach lateral collateral ligament (Fig.3). Immediately post operatively she could dorsiflex her ankle however her great toe remained in plantarflexion. Post operative histological findings confirmed a low grade osteoclastoma/GCT. Her post operative course required a hallux extension splint, anterior compartment muscle strengthening exercises and gait re-training.

DISCUSSION

GCT of bone was first described by Cooper and Travers in 1818 (6). Data analysis from United States and Europe show that GCT represents 5% of all primary bone tumours and 21% of all benign bone tumours (7). Females are affected more than males with a ratio of 1.3-1.5:1 (7, 8).

Drop foot from common peroneal nerve (CPN) palsy accounts for 15% of peripheral nerve injuries (1) . Its superficial course aides in the likelihood of injury especially trauma induced (2). In this case, drop hallux was caused by an isolated lesion (GCT) affecting the inferior motor branch of the CPN supplying the extensor hallucis longus muscle. There is a paucity of evidence describing this phenomenon making this case report unique.

Surgical treatment followed appropriate Enneking grading and staging (9). A type 1 proximal fibula resection was adequately performed with removal of proximal fibula (4, 5). The covering muscle layer and CPN were spared.

The patient’s post operative course required a hallux extension splint, physiotherapy and gait training. The important lesson learnt in this report was a proximal GCT was a rare cause of an isolated drop hallux by involvement the inferior motor branch supplying the EHL.

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Figure 1: Radiograph AP projection Left knee joint and proximal leg

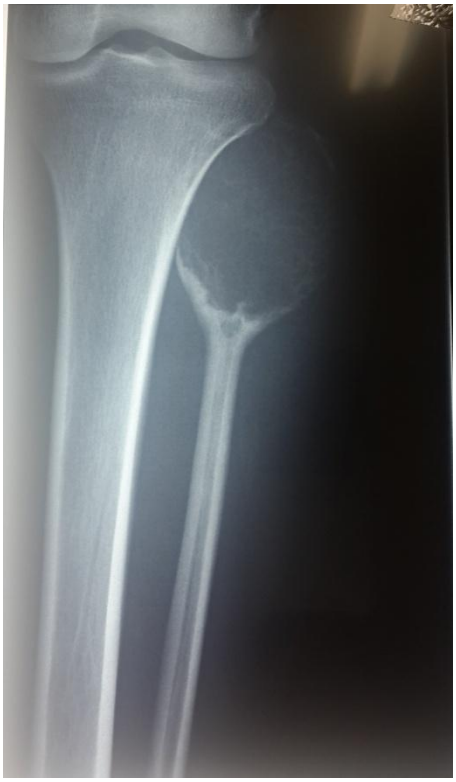

Figure 2: MRI T2 coronal image Left proximal knee joint and leg

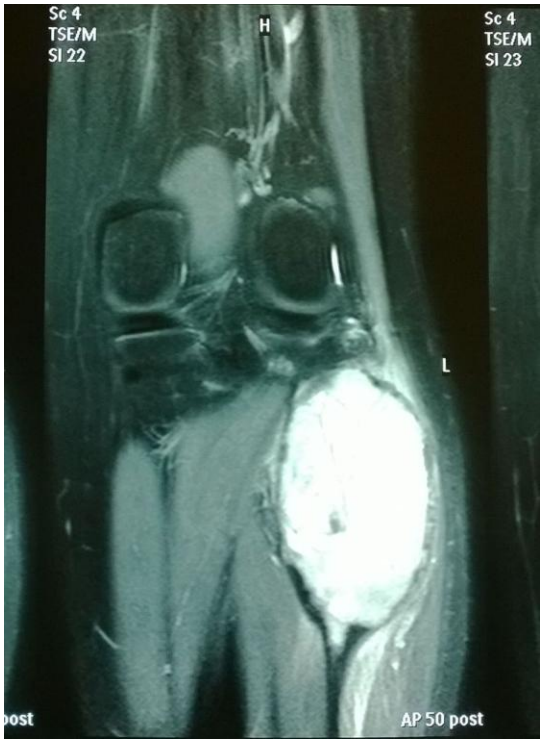

Figure 3: Intra operative Type 1 proximal fibula resected specimen