

Symptomatic intratendinous ganglion cyst of peroneus tertius



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Symptomatic intratendinous ganglion cyst of the peroneus tertius in an Irish dancer

ABSTRACT

The case of an 18-year-old female high level Irish dancer who presented with a painful mass at dorsum of the foot is reported. A database search of Medline and PubMed only revealed one such case and it did not result from sport injury. This is the first case of intratendinous ganglion cyst of the peroneus tertius in a dancer reported in a literature. It details the surgical repair, complication and the possible mechanism that can lead to the formation of ganglion cyst in an Irish dancer.

INTRODUCTION

Ganglion cysts are benign tumour-like masses that arise from the mucinous degeneration of collagen fibers of the tendon and cellular hyperplasia that associated with active secretion of mucin.[1] They characteristically arise either from the synovium of joints or tendon sheaths.

We present a case report of an 18-year-old female Irish dancer with a symptomatic intratendinous ganglion cyst of the peroneus tertius.

CASE REPORT

An 18 year-old female Irish dancer presented with a painful mass in the left foot. (Fig 1) The pain was related to the dorsum of the foot. Worse on dancing and she complained of intermittent paraesthesia over the dorsolateral border of the foot after dancing practice. There was no history of

discrete trauma to the foot. She was a high level athlete and had competed at national and international Irish dancing competitions.

Examination revealed an oval cystic mass of size 2cm x 3cm. There was an otherwise normal range of movement of the foot and ankle. The superficial peroneal nerve was stretched over the mass, there was no sensory deficit. Plain X-Rays of the foot were normal.

MRI (Fig 2) confirmed the presence a mass along the dorsum of the foot consistent with a ganglion cyst closely adjacent to the extensor tendons. There was no evidence of tenosynovitis. The risks and benefits of conservative versus operative treatment were discussed and the patient and her family elected for surgical intervention.

A dorsolateral incision was utilised with protection of the superficial peroneal nerve. The ganglion was arising from and adherent to the peroneus tertius tendon (Fig 3). The tendon was salvaged during the operation. It was decided not to perform an 'en bloc' resection of the ganglion due to concern about function loss in this high level athlete. Excision of the ganglion by means of longitudinal incision in the tendon was done, followed by repair of the tendon with a running absorbable suture.

She made an uneventful recovery and remains well at 12-months follow-up. She has returned to dancing with no symptoms or local recurrence.

DISCUSSION

The Peroneus Tertius (PT) muscle arises from distal one third of anterior surface of fibula; it may be fused with distal portion of extension digitorum
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longus, through an interosseous margin. The peroneus tertius tendon is located lateral to the extensor digitorum longus tendon and inserts on the superior surface of the fifth metatarsal base. PT acts as an evertor/dorsiflexor of the foot that works when the foot is off the ground in concert with the other anterior compartment leg muscles.[2] The PT functions to fine tune of the foot position during swing phase which is one of the important movements as a dancer.[2]

The incidence of foot and ankle ganglion is between 3-5%.[3] Traditionally, they have been classified according to their site of origin: the tendon sheath, joint, bone or soft tissue.[4] Ganglion cysts have been reported in most joints throughout the body, commonly about the wrist. Intratendinous ganglion cysts arising in the foot are uncommon.[5]

The provisional diagnosis of intratendinous ganglion is based on the physical examination by palpation of a distinct mass that moves with tendon excursion. Plain radiographs are often normal and an MRI scan does not always differentiate between a simple ganglion and one that is adherent or arising from a tendon. This has important implications for the patient with regard to pre operative counselling with regard to sacrificing of the tendon or recurrence rates following surgery.

Two possible mechanisms of pathogenesis of ganglion cysts have been proposed; internal or external. Internal: Mucoïd degeneration of tendon ground substance forming cavities full of viscous fluid which may precipitate an intratendinous ganglion.[4] External: Repetitive friction may result in

tenosynovitis in which inflammation may cause ganglion formation within the tendon.[6]

In a study of Irish dancers by Walls and colleagues, only 3 ankles out of 18 were considered radiologically normal. Irish dance contains lots of jumps which require a large amount of lower extremity strength and stability. One of the Irish dance moves is to stand “ on toe” with ankles fully plantar flexed and knees extended then jump from this position. They produce sound while moving across the floor when standing “ on toe” by creating enough friction between the shoes and the ground. Thus, the peroneal muscles attempt to compensate. Overuse peroneal muscle for this static stabilizing function and dynamic dance movements may lead to tendonitis and tenosynovitis.[7]

The most common injury in female Irish dancers is a stress fracture in which the most common sites are the sesamoids bone (27. 7%) and metatarsals (23. 1%).[8] Peroneus tertius tendon is one of the tendons that insert at the metatarsal. A spiral fracture of the fifth metatarsal base also known as a ‘ Dance fracture’ typically occurs when the dancer rolls ‘ off pointe’ or landing on the lateral aspect of the foot after a jump where there is limited bony stability supporting the ankle. Higher demands for stability are placed on the ligaments and peroneal muscles. Ankles sprains are the most common acute injury in Irish dance population.[7] Repetitive sprains have also been linked to increased risk of osteoarthritis and articular degeneration at the ankle.[9] Hence, it may lead to the formation of ganglion cyst.

There are two types of shoes worn by Irish dancer which namely “ ghillie”, a soft shoe and “ hard shoe”. The ghillie is very thing, pliable leather shoes

with small arch support and thin metatarsal and heel pads. The “hard shoe” is comparable to a tap shoe. The objective of this shoe is to be loud, powerful, and rhythmical while standing upright. As a result a large amount of pressure is put on the metatarsals and sesamoids.

The superficial peroneal nerve descends anterior to the fibula and crosses the ankle joint roughly along the anterior midline. The ganglion cyst may compress the nerve and may result in impairment and loss of aversion. Compression neuropathies of the lower extremity are much less common than the upper extremity and only few cases have been described in the surgical literature since the first description of a neuropathy of the peroneal nerve by Sultan in 1921.[10]

Since the exact cause of a ganglion cyst is still unknown, it is difficult to tell how to prevent the formation of intratendinous ganglion cyst. However, early evaluation and treatment are recommended. Surgical excision with careful preservation of the tendon with protection of the nerve gives excellent results.

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