Complex regional pain syndrome of the foot and ankle following knee arthroscopy

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Introduction

Complex regional pain syndrome is a phenomenon widely reported in the medical literature. It is a form of neuropathic pain that runs a course atypical to that usually associated with pain. It has been recognised as a sequelae to many insults to the affected anatomical area and is seen in multiple aspects of medical and surgical practice, including as a common complication of orthopaedic procedures, particularly arthroplasty. Complex regional pain syndrome typically affects structures immediately adjacent to the site of surgery and is rarely seen as a result of lower limb arthroscopy. However, this article presents a unique case of complex regional pain syndrome of the foot and ankle following knee arthroscopy.

Discussion

Complex regional pain syndrome is characterised by neuropathic pain, often following minor trauma, that is 'disproportionate in time and intensity to the usual course of pain' (Fukushima et al, 2014). Complex regional pain syndrome is a relatively common pathology, with an incidence as high as 32.4 per 100 000 (Kim et al, 2018), and is commonly associated with surgery.

Complex regional pain syndrome following surgery is thought to be a 'reflex neurovascular reaction' to trauma (Harada et al, 2018), with recognition of shoulder–hand syndrome as a complication of arthroscopic rotator cuff repair. Two subtypes of complex regional pain syndrome have been described: type I resulting despite the absence of major nerve injury

Case report

A 53-year-old white man of Mediterranean descent, with chronic left knee pain secondary to cartilaginous injury, underwent an arthroscopy. His past medical history was limited to previous right knee arthroscopy following anterior cruciate ligament and lateral meniscal injury.

Approximately 2 weeks after the uncomplicated left knee arthroscopy, the patient experienced swelling and pain of the knee. This was managed symptomatically and the knee settled. Subsequent to this the left foot became painful and swollen and was initially managed with immobilisation in a close contact plaster boot. Blood tests at this time were unremarkable (white cell count 7.3×10^9/litre, C-reactive protein 2 mg/litre, urate 0.33 mmol/litre, erythrocyte sedimentation rate 2 mm/hour), and X-rays were normal.

The pain and swelling persisted over the next month and the patient was referred to the rheumatology outpatient clinic, by which time the foot and ankle had become warm and oedematous. Movement in all planes at the ankle and subtalar joint was painful, with features of hypersensitivity and hyperpathia present. Blood tests at this time remained normal.

Magnetic resonance imaging of the affected foot and ankle showed generalised soft tissue oedema and increased T2-weighted signal of the tarsals and metatarsals (Figure 1). No active arthropathy was seen. The magnetic resonance imaging was felt to be in keeping with a diagnosis of complex regional pain syndrome.

Complex regional pain syndrome was diagnosed and the patient was seen by the pain management team. Therapy including amitriptyline 10 mg once nightly and gabapentin 200 mg three times daily was commenced. He also received physiotherapy and hydrotherapy. Further review 2 weeks later showed some improvement in symptoms. Symptoms had almost completely resolved approximately 6 weeks later and the patient was discharged back to the care of his GP.

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Figure 1. Axial STIR image of left foot with highlighted features of complex regional pain syndrome. 1 – soft tissue oedema at the lateral aspect of the midfoot; 2 – bone marrow oedema-like signal of the midfoot.

and type II as a direct consequence of nerve injury (Shim et al, 2019). Studies suggest that there are reperfusion and microvascular elements to the pathophysiology (Coderre and Bennett, 2010).

Complex regional pain syndrome has strong associations with knee surgery, occurring in up to 21% of patients undergoing total knee arthroplasty (Kosy et al, 2018). Arthroscopic surgery is also a 'common precipitating cause' of complex regional pain syndrome (Dowd et al, 2007). There are widely documented instances of complex regional pain syndrome of the knee following knee arthroscopy (Pandita and Arfath, 2013; van Bussel et al, 2014), but this case is unusual as the presentation was at a lower limb joint distal to the site of arthroscopy. Söylev and Boya (2016) described a case of complex regional pain syndrome at the foot following total knee arthroplasty.

This case highlights the importance of considering complex regional pain syndrome in a foot or ankle, even if the initial trauma or surgery was proximal to the site of complex regional pain syndrome. A similar phenomenon has been reported with instances of distal complex regional pain syndrome occurring after upper limb surgery (Tanesue et al, 2018).

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Learning points

- Lower limb complex regional pain syndrome can present in a joint distal to the site of knee arthroscopy.
- A similar phenomenon may occur after upper limb arthroscopy.
- Although relatively rare, complex regional pain syndrome secondary to arthroscopy can respond well to conservative management strategies, particularly if diagnosed promptly.

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