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SPECIAL ISSUE – LETTER TO THE EDITOR

Chronic Quadriceps Entrapment Syndrome a Diagnosis of Exclusion for Anterior Thigh Pain

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Dear Editor,

Anterior thigh pain in physically active population occurs due to direct injury to thigh, muscle strain, nerve entrapment, metabolic diseases, vascular and musculoskeletal diseases. However some cases do not fit into these criteria and remain undiagnosed. We describe a rare presentation of chronic quadriceps muscle entrapment syndrome (CQES). We believe this has not been described earlier in the published literature.

A 35-year-old physically active female presented to the pain clinic of our hospital with left anterior thigh pain since 13 years duration. The pain was dull aching, continuous, moderate to severe in intensity with waxing and waning pattern and with no particular aggravating factors. However, pain was relieved with stretching exercises of the lower limb and on taking non-steroidal anti-inflammatory drugs (NSAIDs). There was no past history of trauma, surgery, musculoskeletal disease or vascular disease. The routine blood investigations, blood sugar, vitamin D levels, thyroid function tests, nerve conduction studies, and imaging studies including magnetic resonance imaging showed normal study. Neurological and musculoskeletal examination were normal. With no systemic, metabolic and degenerative elicited cause a provisional diagnosis of CQES was considered. The patient was initially offered conservative management, stretching exercises and a combination of gabapentin and nortriptyline 100/10 mg twice daily which was later increased to 300/ 10 mg twice daily. The patient reported 20 -30 % pain relief and any further increase in medication was refused due to complaints of sedation. Patient underwent an ultrasound-guided adductor canal block

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with a mixture of 10 ml of 0.25% ropivacaine with 40 mg triamcinolone at mid-thigh level. The patient reported more than 80% pain relief after the block. The second diagnostic block was repeated after one month with 10 ml of 1% lignocaine with 40 mg triamcinolone which also provided pain relief. After one month, patient received 10 IU botulinum toxin type A (Botox) was injected in 2 sites each in the muscle of rectus femoris and vastus lateralis. There was mild weakness in the affected leg which was followed by two isolated trigger points which resolved over next two months. The patient is currently managed with gabapentin and nortriptyline 100/10 mg twice daily, physiotherapy and is able to carry on with her routine activities with good quality of life.

This particular case represents a unique presentation of idiopathic femoral neuropathy related to entrapment of nerve to vastus medialis while it passed through the quadriceps muscle which has not been reported previously. The nerve to vastus medialis a branch of the posterior division of femoral nerve originates in or above the adductor canal and further divides into posteromedial sensory and anterolateral motor branches [1]. The pathogenesis in physically active patient could be the entrapment of small peripheral nerves of anterior thigh gets entrapped within the bulky muscle mass leading to chronic pain. Mild physical activity like stretching exercises probably resulted in lengthening of shortened musculocutaneous structures via aiding nerve gliding, improving neural vascularity, facilitating dissipation of harmful fluids, decreasing intraneural edema and nerve adherence [2] Anticonvulsants like gabapentin acts by affecting the influx of calcium, reduces the excitability of nerve cells and helps reduce pain. The two diagnostic nerve blocks led to more than 80% decrease in the pain intensity involved adductor canal block and later with botulinum toxin injection. The adductor canal is a potential space in the medial aspect of the thigh containing various sensory branches of the femoral nerve that innervates the anterior compartment of the thigh, therefore injecting local anesthetic into this space lead to pain relief for the above patient [3]. Botulinum toxin injections into the quadriceps muscle blocked the release of acetylcholine into the synaptic cleft, resulting in temporary muscle paralysis and relief of pain [4].The remaining trigger points can be explained as residual isolated points of pain after the entrapment pain was reduced. Literature reports isolated mononeuropathy of muscular branches of nerve to vastus medialis and vastus lateralis leading to muscle weakness and atrophy and chronic pain [5].

In the present case, it is worthwhile to understand that the diagnosis of CQES was a result of exclusion of other differential diagnosis. The diagnosis of CQES draws its support from the clinical history not explained by any other causes, no muscle atrophy and > 80 % pain relief with diagnostic adductor canal block performed at two different time points. The mechanistic management of CQES with multimodal approach was instrumental in long term pain relief of the patient.

Statements and Declarations

Conflicts of interest

The authors declare that they do not have conflict of interest.

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