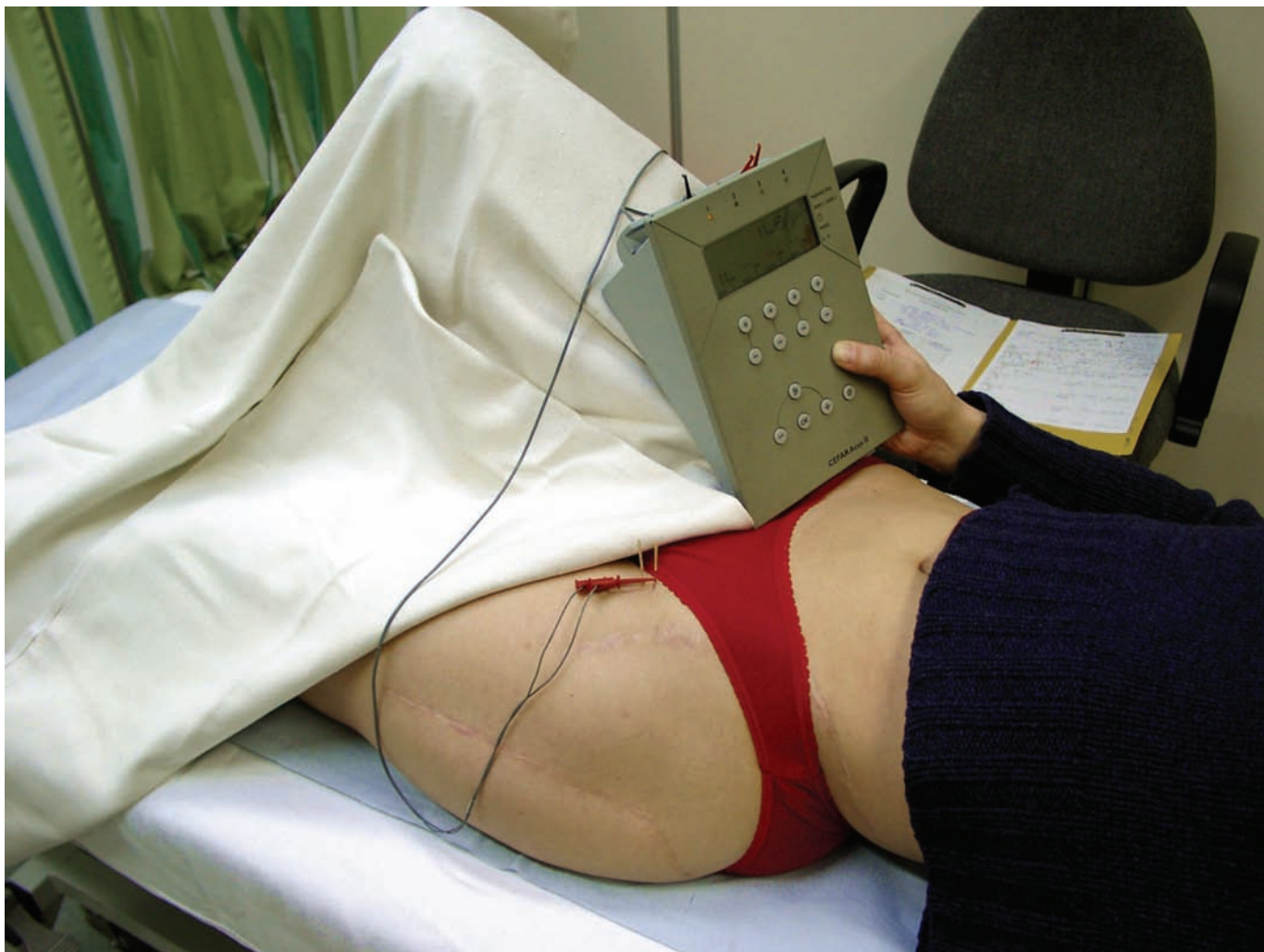


## Electroacupuncture for secondary myofascial pain from iliopsoas



The image shows the application of electroacupuncture in the treatment of secondary myofascial pain from iliopsoas. This 33-year-old lady had recurrent knee pain diagnosed as hip dysplasia for which she had four hip operations culminating in a resurfacing procedure.

One year later, the knee pain recurred, and it was reproduced by pressure on a (secondary) myofascial trigger point in iliopsoas. It responded immediately to treatment. For a full description, see **Cummings M**. Referred knee pain treated with electroacupuncture to iliopsoas. *Acupunct Med* 2003; 21(1–2):32–35.

Image and text provided by Mike Cummings

# Referred Knee Pain Treated with Electroacupuncture to Iliopsoas

Mike Cummings

Mike Cummings  
medical director  
BMAS

medical-director  
@medical-  
acupuncture.org.uk

## Summary

This is a case report of a 33-year-old woman who presented with an eight year history of deep left knee pain. The pain was originally diagnosed as deriving from osteoarthritis of the hip secondary to dysplasia, however, the same pain returned at seven months, and again at 10 months, after successful hip resurfacing arthroplasty. Six to eight weeks after the start of the second relapse of referred knee pain, the patient sought acupuncture treatment at the British Medical Acupuncture Society's London Teaching Clinic. A single myofascial trigger point was found in iliopsoas that reproduced the patient's pain. It was successfully treated with two sessions of electroacupuncture applied directly to the point. Pain referral to the knee from trigger points in the upper part of rectus femoris is well recognised, however, this pattern of referral from iliopsoas has not been described previously.

## Keywords

*Referred knee pain, electroacupuncture, myofascial trigger point, iliopsoas.*

## Introduction

Pain from osteoarthritis of the hip is usually felt in the groin, directly over the joint itself, though referred pain to the lateral aspect of the hip, the anterior thigh and the knee are all described. It is somewhat more uncommon to have referred pain in the knee, without any more local symptoms around the hip.

## Presentation

CJ was a 33-year-old woman who presented to the British Medical Acupuncture Society's London Teaching Clinic (LTC) in January 2003 with an eight-year history of 'deep' left knee pain referred from the left hip joint. The pain first came on during a period of prolonged standing, and initial investigation of the complaint centred on the left knee joint. No problem was found on clinical examination of the knee joint, but a subsequent hip X-ray revealed a dysplastic left hip with osteoarthritis. Her symptoms were managed symptomatically for several years, and then a series of surgical procedures were used to delay the inevitable need for a hip replacement.

At roughly yearly intervals from the age of 30 she underwent a left periacetabular osteotomy,

a left femoral osteotomy, and a lateral shelf grafting procedure with bone harvested from the left anterior iliac crest. Finally, a year before presentation in the LTC, she underwent a Birmingham hip replacement – a procedure in which the acetabulum and femoral head were resurfaced. In May 2002, about three months after the arthroplasty, she had recovered, she walked without crutches, and she had no knee pain.

Her pain returned in September 2002 on returning from the Mediterranean to the UK where the weather was undergoing a cold spell. She took diclofenac 50mg three times a day to control the pain, and it resolved after about 10 days. She suffered a second relapse during a cold spell in December 2002, and this time the pain did not resolve following a 10 day course of diclofenac. She did not want to continue taking NSAIDs, and sought alternative treatment for the pain. This led her to consider acupuncture, and she first presented to the LTC in late January 2003, some 6-8 weeks after the onset of her latest relapse.

She described the left knee pain as 'deep', and identical to the original pain that was attributed to hip arthrosis, secondary to dysplasia (see figure 1).

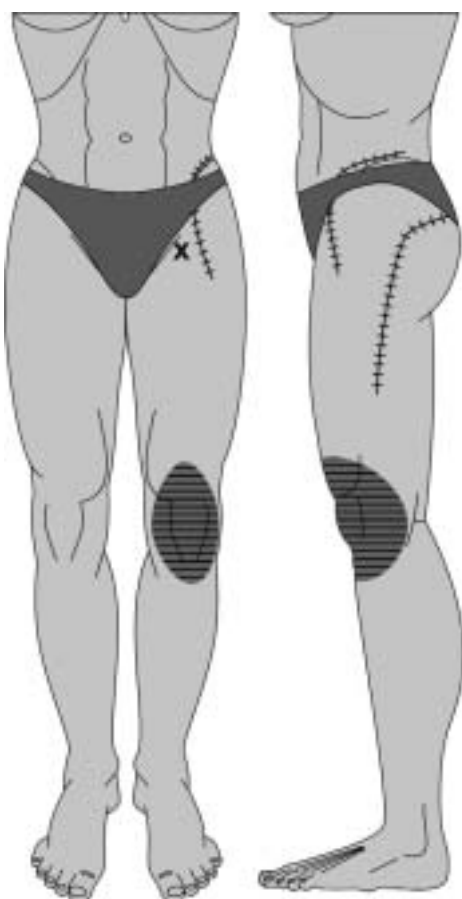


Figure 1 This diagram shows the distribution of CJ's pain (shading with horizontal lines), her surgical scars, and the location of the trigger point in iliopsoas (marked with an 'X').

### Assessment

On examination, no abnormality was detected in the left knee. There were two long scars on the anterolateral and posterolateral surface of the left hip and upper thigh (see figure 1). There was a good, mostly pain free, range of movement of the left hip, though it was slightly reduced compared to the right hip. Her referred knee pain was provoked by left hip flexion to about 120 degrees, and 90 degree flexion combined with adduction or internal rotation. A discrete point of muscular tenderness, which also provoked her referred knee pain, was found about 2-3cm lateral to the femoral artery in the groin area. Her pain was provoked by needle insertion to about 4cm at this point. No other tender points or trigger points were found in the hip girdle musculature. The trigger point was medial to sartorius and rectus femoris, and functional testing was consistent with a location in iliopsoas. Figure 2 illustrates the site of the trigger point on an anatomical diagram.

My impression was that her pain was derived from a myofascial trigger point in iliopsoas, which had probably been set up as a result of the pain and dysfunction from osteoarthritis of her dysplastic hip. The provocation of pain with hip flexion, flexion and adduction or flexion and internal rotation could have resulted from direct

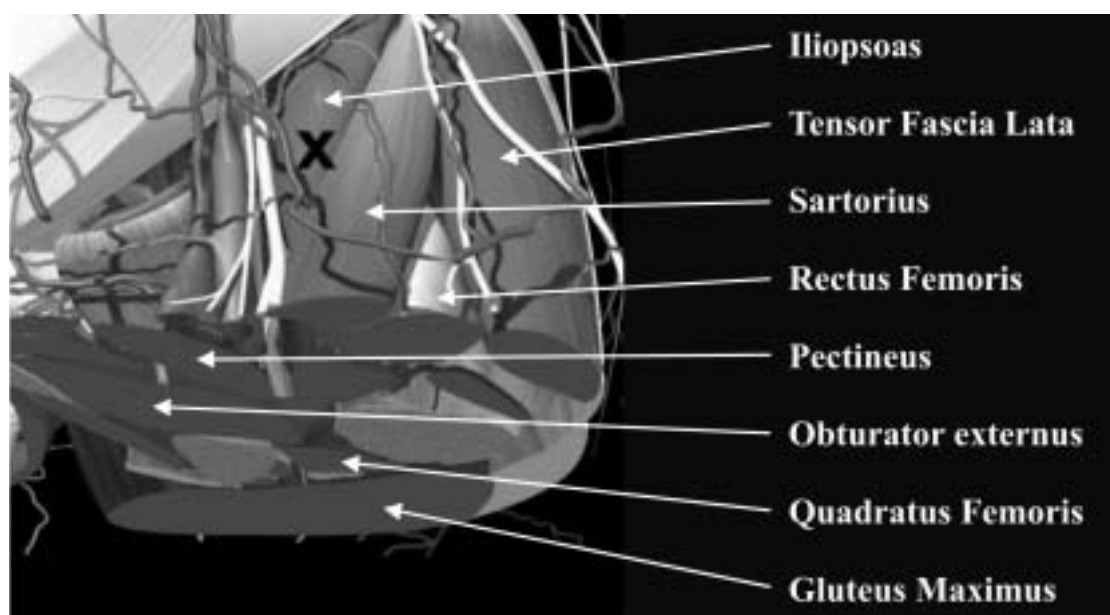


Figure 2 This diagram is an axial image of the left hip illustrating the location of the trigger point in iliopsoas (marked with an 'X'). Image courtesy of Primal Pictures Ltd. [www.anatomy.tv](http://www.anatomy.tv)

impingement of the trigger point between the femur and pelvis. There was no obvious restriction of hip extension, though subtle restriction would have been difficult to detect.

### ***Treatment and Results***

A treatment plan was discussed with the patient, and this included an initial two or three sessions of direct needling to the single trigger point, with the possible addition of electroacupuncture depending on her sensitivity to manual needling.

As the patient had not experienced acupuncture previously, a standard size needle (Seirin, 0.25x30mm) was inserted into the upper part of her left tibialis anterior (ST36 area). This

aversive. The stimulation frequency was 2Hz, and the duration of treatment was 15 minutes. Figure 3 shows CJ receiving electroacupuncture, and figure 4 indicates the assumed needle placement on an anatomical diagram.

At her second session, two weeks later, she described a good response to the initial treatment. There had been no exacerbation of her pain, and the benefit was felt within a few hours of the initial session. The treatment given at the second session was similar in all respects, except that a dense dispersed frequency of 2/80Hz was applied for 20 minutes on this occasion. At review after a further two weeks she described an excellent response, with negligible pain remaining.

It should be noted that the patient had metallic implants in the hip joint, and also around the anterior superior iliac spine, from her prior surgery. Particular care was taken to avoid direct needling of these, as this might constitute an infection risk. The site of needle placement into the trigger point was comfortably lateral to the femoral artery. Care was taken to avoid contamination of the electrode clips by ensuring that contact was made with a clean portion of each needle shaft, i.e. a portion that had not penetrated the skin. Contact between the clips and the skin at the insertion site was also avoided.

### ***Discussion***

Seeking tenderness on examination is a recognised technique in assessing musculoskeletal pain; however, reproducing a patient's pain with a mechanical stimulus at a discrete point is likely to be more useful. Indeed, the latter is the feature with the highest interrater reliability in the clinical diagnosis of myofascial trigger points.<sup>1</sup> Examination techniques often involve temporary exacerbation or reproduction of a patient's pain in an attempt to locate the precise source. An acupuncture needle exerts a high pressure stimulus at its tip within tissues, and it can be used as an extension of the examiner's finger. In clinical medicine various logical assumptions are made about the source of a patient's pain, and interventions that abolish pain completely are sometimes used for diagnostic as well as therapeutic purposes.

In this case it was determined that CJ's deep

*Figure 3 This picture was taken at a review appointment two weeks after the second treatment. The needles are inserted to a depth of about 4cm.*

caused minimal response, so a direct approach to the trigger point was taken. Deep dry needling (Seirin, 0.30x50mm) of the trigger point did not cause her aversive pain, so a second needle was inserted 1-2cm distal to a similar depth of 4cm. These two needles were connected to one of the outputs of a Cefar Acus II electroacupuncture device, and the patient slowly increased the output current until the sensation was strong but not

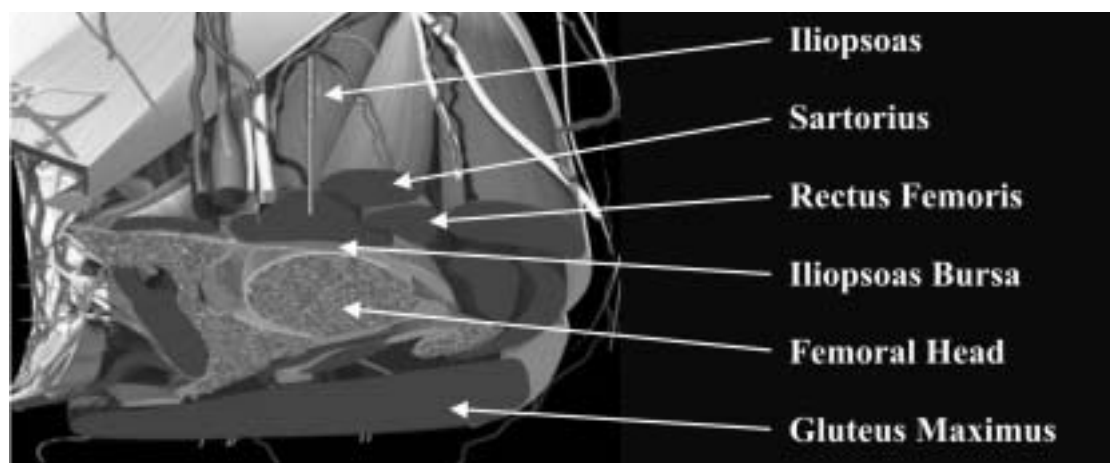


Figure 4 This diagram is an axial image of the left hip illustrating the approximate location of the needles in figure 3. Image courtesy of Primal Pictures Ltd. [www.anatomy.tv](http://www.anatomy.tv)

knee pain was derived from degenerative changes in her left hip, which had come on prematurely as a result of dysplasia. Resurfacing arthroplasty was the only intervention that had given complete relief from the pain – a compelling indication that the source had been osteoarthritis of the hip joint. One could argue that the non-specific effects of a major surgical procedure may have been responsible for the pain relief. It seems unlikely in this case since she had undergone three major surgical procedures on the hip without the same dramatic effect.

The recurrence of her pain in cold weather would be consistent with a muscular source, as muscle tissue is thixotropic i.e. its physical properties change with temperature.<sup>2</sup> Observational study of myofascial pain recognises the potential for a myofascial trigger point to develop secondary to a somatic source of pain, and to mimic that pain after the original source has resolved.<sup>3</sup>

The most comprehensive source of observational work in myofascial pain is 'The Trigger Point Manual'.<sup>3,4</sup> This reference indicates that the typical pain referral pattern from a trigger point in the lower part of iliopsoas is to the anterior thigh, and pain referral to the knee is more likely to come from the upper part of rectus femoris. In the case described here, the atypical pattern may have resulted partly from changes in the dorsal horn secondary to chronic pain from the

left hip joint. Pathways carrying pain signals from the hip would have been subject to central sensitisation, and a new and nearby pain source generated subsequently would have been very likely to cause activation of these pathways resulting in perception of the same pain.<sup>5</sup>

It is not clear exactly why trigger points develop around arthritic joints. It could be through a neural mechanism, or simply as a result of biomechanical dysfunction. In this case, the trigger point appeared to lie directly over the anterior surface of the hip joint within the bulk of iliacus.

Pain referral to the knee from trigger points in the upper part of rectus femoris is well recognised, however, this pattern of referral from iliopsoas has not been described previously.

#### Reference List

1. Gerwin RD, Shannon S, Hong CZ, Hubbard D, Gevirtz R. Interrater reliability in myofascial trigger point examination. *Pain* 1997;69(1-2):65-73.
2. Simons DG, Mense S. Understanding and measurement of muscle tone as related to clinical muscle pain. *Pain* 1998;75(1):1-17.
3. Simons DG, Travell JG, Simons PT. *Travell & Simons' Myofascial Pain & Dysfunction. The Trigger Point Manual. Volume 1. Upper Half of Body.* 2. Baltimore: Williams & Wilkins; 1999.
4. Travell JG, Simons DG. *Myofascial Pain & Dysfunction. The Trigger Point Manual. Volume 2. The Lower Extremities. 1.* Baltimore: Williams & Wilkins; 1992.
5. Arendt-Nielsen L, Laursen RJ, Drewes AM. Referred pain as an indicator for neural plasticity. *Prog Brain Res* 2000;129:343-56.