Differential Diagnosis of Buttock/Thigh Pain

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INTRODUCTION

In 1775 Contunnius[1] of Naples wrote a treatise pointing out that it was important to distinguish between nervous sciatica and gouty arthritis of the hip. This is as true today as it was then, and of course it is not uncommon for patients to suffer from both lumbar spine and hip pathology, particularly athletes and the elderly.

BACKGROUND

Although we have come a long way in terms of imaging: with the introduction of X-rays, radionucleotide, CT, MR and ultrasound scanning, there is no substitute for taking an in depth history and performing a thorough examination, as exemplified by Cyriax[2] in the last century. He introduced a system of selective tissue tension to distinguish between passive and contractile tissue pathology. For example, if passive straight leg raising is limited by posterior thigh pain, one may entertain the diagnosis of sciatica. However, if resisted knee flexion is also painful then a hamstring injury is more likely because this only increases tension in the hamstrings whereas the SLR test increases tension both of the hamstrings and the dura/nerve roots.

There should be no difficulty in distinguishing between conditions that present classically and dramatically. However, when there is more subtle or dual pathology, it may be more difficult to make a precise diagnosis or to decide which is the more relevant and the major source of pain.

Imaging does not always come to the rescue: for instance, it is well accepted that the magnitude of pain experienced from an osteoarthritic hip does not always correlated with the degree of degenerative change demonstrated on X-ray. Indeed, quite marked osteoarthritic change can prove to be relatively asymptomatic as far as the patient is concerned. Generally it is the pain that the patient is aware of before restriction of movement. Similarly the spine is no different, and 50% of asymptomatic individuals in their 50's have quite significant potential pathological change demonstrated on MRI.

INTERVENTIONAL INVESTIGATIONS

More specific interventional investigations may help to confirm the diagnosis with the added bonus that a cure may be achieved. Thus, if a capsulitis or early osteoarthritis of the hip is suspected then injecting and manipulating the hip under X-ray control is valuable. (Fig.1) In the case of a capsulitis, a complete cure may be achieved. With osteoarthritis, short term relief is achieved which at best may delay total hip replacement until a more suitable age or at least confirm that surgery is likely to relieve the pain.

Fig.1A Confirming needle placement under X-ray control when injecting a patient presenting with a suspected capsulitis of the hip.

Fig.1B Hip Arthrogram confirming intra-articular drug placement.

Fig.2A Lateral X-ray view confirming needle placement for an L4 dorsal root ganglion block in a patient presenting with lateral buttock and thigh pain with MRI scan findings of foramenal encroachment by a combination of far lateral disc protrusion and zygapophyseal joint degeneration.

Fig.2B The introduction of contrast into the foramen confirms appropriate drug placement.

I was struck by the fact that during the 70's, almost ten times more laminectomies were performed in the USA compared to the UK. **When was surgery really necessary?** It is well accepted that cauda equina syndrome (with bowel and bladder dysfunction) and significant progressive, polyradicular neurological deficit requires urgent decompression. However, we were able to demonstrate that most sciaticas (86%)

recovered with an average of three injectional techniques with most (76%) large disc herniations regressing over time [3,4].

When an older patient presents with buttock and thigh pain that is thought to arise from lumbo-sacral nerve root compromise, and imaging (X-rays, CT, MRI) demonstrates potential for compromise of more than one nerve root, then specific injection and manipulation under X-ray control in the form of a dorsal root ganglion block (also referred to as selective root blocks/epidurals, tranforaminal epidurals) (Fig.2) may help to clarify the situation. One may expect the introduction of drugs around the pathological nerve root to provoke the patient's usual pain which is subsequently blocked by the anaesthetic in the short term. Then there may be an exacerbation of symptoms for a day or two with potential for improvement over a few weeks if a deposteroid such as Triamcinolone Acetanide is used. If long term relief is not achieved, then a spinal surgeon can specifically decompress the appropriate nerve root confident of achieving long term relief.

Some 25% of general practice involves the management of musculoskeletal disorders and the following common conditions should be entertained when confronted by patients complaining of buttock and/or thigh pain:

SCIATICA

Buttock and posterior thigh pain is consistent with L4, L5 or S1 compromise. Classically this is aggravated by sitting or bending and relieved by lying down. Of course referred pain may also arise from the facet or sacroiliac joints but in the case of sciatica, one would expect to find a positive straight leg raise or slump test (combining neck flexion and SLR in the sitting position) in more subtle cases. In addition, neurological deficit encompassing reduced sensation, power and/or reflexes may be present. Pain referred to the anterior or medial thigh is more consistent with L3 or L2 compromise when the femoral stretch test may be positive and either quadriceps weakness and/or reduced knee jerk in the case of the former and hip flexor weakness in the latter, may be found. X-rays are generally unhelpful unless more sinister pathology is suspected, but MRI is the investigation of choice in persistent cases that have failed to respond to less specific interventions including caudal epidural steroid injections.

Other causes of "sciatica" are hamstring origin injuries, ischial bursitis and piriformis syndrome all of which are responsive to injectional and manipulative techniques if nature and manual methods including physiotherapy fail to afford a cure. Do not forget to turn the patient over on the couch. I have discovered a myosarcoma involving the buttock and hamstring which should have been picked up much earlier, in a young man who was repeatedly reassured that his sciatica would resolve with many months of bed rest.

THE HIP

Early and even significant osteoarthritis of the hip seems to be missed so often. Examining the patient's passive range of hip movements (including internal rotation with the patient lying prone) will avoid this embarrassment. However, it is not always easy and surgical colleagues often refer patients for injectional techniques to ascertain where the pain predominantly arises from. If there is both significant hip and lumbar spinal pathology, then it is usually worthwhile proceeding with total hip replacement first. The spine often settles down subsequently, probably because restoration of hip motion reduces the stress on the spine.

There are more subtle peri-articular pathologies to bear in mind too. Psoas bursitis presents in high hurdlers and cross country skiers with anterior thigh pain provoked by a combination of full passive hip flexion and adduction. Lateral hip pain should arouse the suspicion of trochanteric bursitis particularly if the patient cannot lie on that side at night. The tissues directly over the greater trochanter are tender. Gluteus medius tendonitis presents in a similar way and seems to be very common these days. Walking may be painful and there is tenderness over the posterior – superior greater trochanter. MRI imaging confirms the diagnosis as it has done in one case of gluteus maximus tendonitis that defied diagnosis by a number of eminent colleagues. Do not forget the bones: stress fractures in athletes, although I have actually had an old lady walk in to see me with a traumatic fractured neck of femur. Not one to inject or manipulate! Avascular necrosis of the femoral head does not always follow a high intake of steroids or trauma, and infection including osteomyelitis does still present today in non-ethnic and apparently perfectly healthy patients.

THE GROIN

This is another subject in itself but I will just mention here about hernias and meralgia paraesthetica (irritation of the lateral cutaneous nerve of the thigh).

SUMMARY

BACK:	Sciatica: S1 to L2
	Referred pain eg. Facet/SIJ
HIP:	OA/Capsulitis
	Psoas bursitis
	Trochanteric Bursitis
	Slipped epiphysis
	Stress fracture
	Avascular necrosis
BUTTOCK:	Hamstring Origin Injury
	Ischial bursitis
	Piriformis syndrome
	Gluteal bursitis
	Gluteus medius tendonosis
	Gluteus maximus tendonosis
GROIN:	Hernia
	Osteitis pubis
	Adductor origin injury
	Hamstring origin injury
MISC:	Meralgia paraesthetica
	Infection
	Malignancy

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