

# POSSIBLE GENERATORS OF RETROTROCHANTERIC GLUTEAL AND THIGH PAIN: THE GEMELLI-OBTURATOR INTERNUS COMPLEX

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## ABSTRACT

**Objective:** To investigate and correlate the anatomy of the gluteal region with the clinical findings of retrotrochanteric and posterior thigh pain, as seen in clinical chiropractic practice, and describe potential treatment options.

**Methods:** A descriptive gross anatomic study is correlated to a case presentation of a patient with deep persistent aching pain in the retrotrochanteric region of the left hip and upper posterolateral thigh.

**Results:** The structures that are located in the same location as the retrotrochanteric pain described by the patient are the gemelli-obturator internus muscle complex and associated bursae.

**Conclusions:** In patients with persistent gluteal and sciatica-like pain, especially when centered in the retrotrochanteric region, the gemelli-obturator internus muscle complex and associated bursae should be considered as a possible source of the pain. (*J Manipulative Physiol Ther* 2005;28:534-538)

**Key Indexing Terms:** *Gluteal Region; Bursa, Synovial; Sciatica; Manipulation, Chiropractic*

The specific pain generators for patients with pain in the gluteal and posterior hip region can be challenging to identify. In clinical practice, the first author sees patients complaining of low back, gluteal, and sciatica-like pain, with the gluteal pain sometimes being the most severe aspect. This type of pain sometimes persists after relief of other back and lower extremity pain after standard spinal manipulation. A case report of such a patient with gluteal pain located in the retrotrochanteric region of the femur that was most intense at the greater trochanteric insertion of the gemelli-obturator internus muscle complex (GOIC) is presented. This clinical finding led the authors to conduct a descriptive gross anatomic study of the gluteal region to identify potential pain generators in this case.

## CASE REPORT

A 63-year-old white man with a history of an L5 right hemilaminectomy 22 years prior developed a left L4-L5 disk herniation with left L5 dermatome radiculopathy. After 6 weeks of decompression adjusting of the L4-L5 herniated disk, relief of the left sciatic radicular pain was attained; however, a deep persistent aching pain in the retrotrochanteric region of the left hip and upper posterolateral thigh remained. Stabilization and stretching exercises were continued throughout the care of this patient, but had failed to yield relief of this pain. The persistent left retrotrochanteric and thigh pain was relieved within 1 week by deep goading massage and tetanizing current into the retrotrochanteric area of the hip at the insertion of the GOIC.

## MATERIALS AND METHODS

A dissection of the deep gluteal region in an embalmed adult cadaver was performed. The gluteus maximus muscle was incised in a superior-to-inferior direction lateral to the route of the posterior femoral cutaneous nerve and folded out of the way. The gluteus medius, piriformis, gemelli, obturator internus, and quadratus femoris muscles/tendons were cleaned, and their relationships to the sciatic nerve were defined. The boundaries of the greater and lesser sciatic foramina were defined. The bursae in the retrotrochanteric region were identified. The trochanteric attachment of the GOIC was cut, and the GOIC folded medially to

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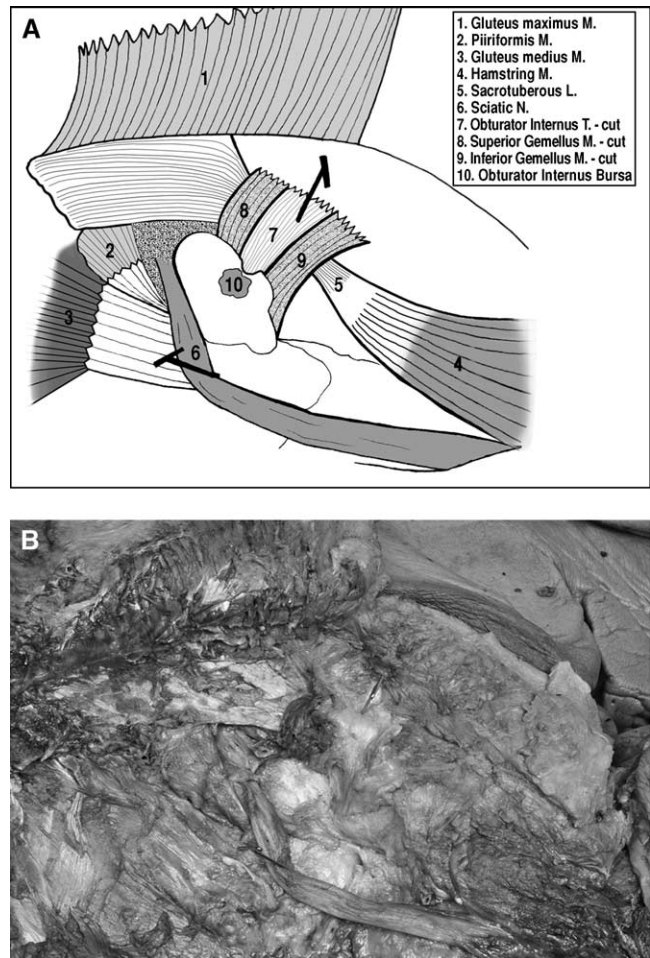
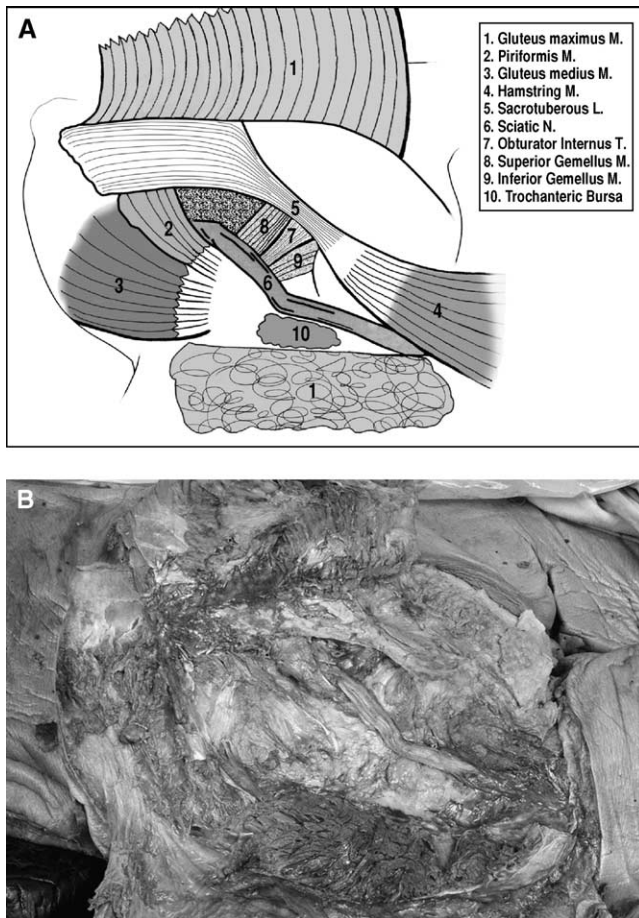
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**Fig 1.** Photograph and corresponding line drawing of a dissection of the left gluteal region with the gemelli superior, gemelli inferior, and the obturator internus muscles intact. Superior is to the left of the figure and medial is to the top of the figure. The gluteus maximus muscle has been cut vertically and folded out of the way. Note the relationship of the sciatic nerve to the gemelli-obturator internus complex. Also note the location of the trochanteric bursa of the gluteus maximus.

**Fig 2.** This is a photograph and corresponding line drawing of the same left gluteal region seen in Fig 1A and B, in which the gemelli-obturator internus complex has been cut from its distal attachment to the greater trochanter and folded inferomedially. In addition, the sciatic nerve has been displaced laterally. Note the bursa of the obturator internus at the region of the lesser sciatic notch.

show the bursa of the obturator internus located in the region of the lesser sciatic notch.

## RESULTS

The deeper structures of the gluteal region are shown in Fig 1A and B. The structures that are at the location of the retrochanteric pain described in the case presentation are the distal attachments of the GOIC and associated bursae. A brief review of the components of this complex is presented below.

### Superior Gemellus

The superior gemellus originates from the ischial spine and inserts on to the medial aspect of the greater trochanter in union with the tendon of obturator internus. The superior

gemellus action is lateral rotation of the thigh; when the hip is flexed, it aids in thigh abduction. A branch from the nerve to the obturator internus from the sacral plexus containing fibers from the L5-S2 spinal nerves provides innervation to the superior gemellus. The superior gemellus may be absent or small or may be doubled and inserted into the hip joint capsule. It may fuse with the piriformis or gluteus minimus muscle.

### Inferior Gemellus

The inferior gemellus muscle originates from the ischial tuberosity and also inserts on to the medial aspect of the greater trochanter in union with tendon of obturator internus. Its actions are the same as the superior gemellus. A branch of the nerve to the quadratus femoris from the sacral plexus and lumbosacral trunk containing fibers from

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