

A Rare Accessory Slip of Gluteus Maximus with Possible Sciatic Nerve Compression - Gluteus Maximus Accessories

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Abstract: In this case report, we present new evidence of gluteus maximus muscle originating from posterior part of iliac crest as separate muscle from sacroiliac fibres of gluteus maximus. To the best of our knowledge, this type of variant has not been reported in previous literature. The clinical and embryological basis of the same has been discussed.

Keywords: Gluteus maximus, additional slip, accessory slip, Sciatic nerve.

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INTRODUCTION

The major bulk of gluteal region is constituted by three gluteal muscle namely gluteus maximus (GM), gluteus medius and gluteus minimus. The gluteus maximus is the largest and the most superficial muscle of the gluteal region constituting a large area of the buttocks. It usually originates from posterior gluteal line of ilium, outer sloping surface of the iliac crest, posterior surface of the lower part of the sacrum, the side of the coccyx and gets inserted into the iliotibial tract and into the gluteal tuberosity [1, 2].

Most of the variations of gluteal region variations reported so far are limited to piriformis and sciatic nerve [3-5]. Few variations involving gluteal muscles have been reported in the literature like gluteus medius accessorius, gluteus quartus scansorius, double gluteus maximus and gluteo perinealis etc. Clinically these variations can manifest as compression of sciatic nerve, unstable hip joint and awareness about these variations would enable surgeons involved in hip replacement to perform surgeries effectively [2, 6, 7].

Taylor *V et al.* have reported an insertional variation involving gluteus maximus (GM) [1]. There is paucity of literature concerning accessory head or slip of gluteus maximus. We report a unique morphological variation of gluteus maximus presenting as an accessory slip which has not been previously reported.

CASE REPORT

A case displaying the unilateral variant muscle deep to the gluteal maximus was encountered during a routine dissection for first year medical students in the Department of Anatomy at MVJ Medical College and Research Hospital. When gluteal region was dissected following the steps in Cunningham's dissection manual, we observed an unorthodox variation in the right side gluteus maximus muscle. The skin was removed and the loose connective tissue on the muscles cleaned in both gluteal regions. Then all the structures were clearly seen and examined in this region. The origin and insertion of each muscle and neurovascular structures were given special attention.

The gluteus maximus muscle was reflected to lateral side from its origin. We encountered an additional slip present unilaterally beneath the gluteus maximus. The accessory slip of GM originated from the posterior superior iliac spine. This variant slip was fleshy throughout in its length and directed laterally deep to gluteus maximus. It was seen getting inserted to the undersurface of deeper fibers of gluteus maximus before latter gained insertion to the gluteal tuberosity. The whole accessory slip was 8.2cm in length, 1.4 cm and 1.0 cm in width at its origin and insertion respectively. This variant slip was innervated by twig from the inferior gluteal nerve (Figure 1).

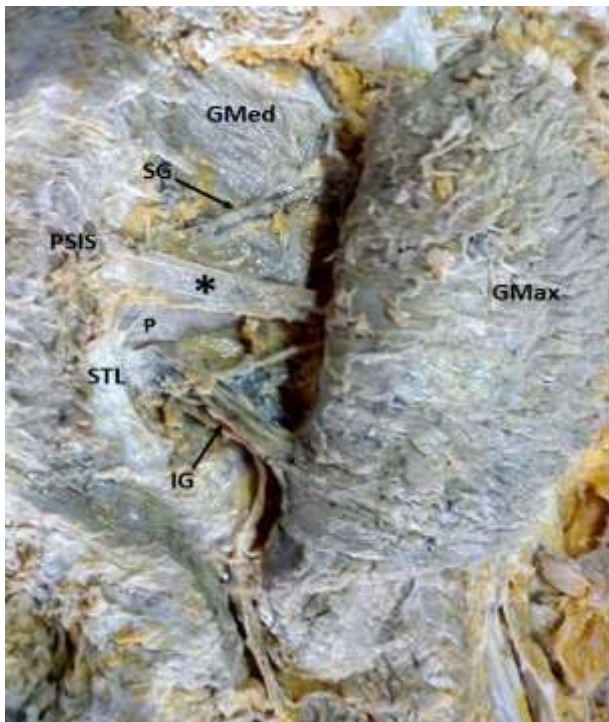


Fig-1: Right Gluteal region with accessory slip of GM showing its proximal attachment to sacrotuberous ligament. GMax- Gluteus Maximus; GMed- Gluteus Medius; P- Piriformis; PSIS- Posterior superior iliac spine; STL- Sacrotuberous ligament; SG- Superior Gluteal vessels & Nerve; IG- Inferior Gluteal Vessels & Nerves

DISCUSSION

An extensive review of literature revealed very few variations in gluteal muscles. In 1883, Knott documented the presence of distinct slip of deep fibres of GM which were detached from superficial fibres in 12.5% (5 out of 40) cases.⁸ Testut way back in 1884 was the first to coin the term “coccygeofemoral” muscle. This muscle originated from posterior aspect of coccyx and was inserted into proximal femur below the usual insertion of GM. Therefore this presented as detached slip of gluteus maximus [9]. The same was reported as double gluteus maximus by Kirici Y and Ozan H.

Another variant in the gluteal muscle reported was gluteoperinealis muscle wherein fibres were seen getting inserted into urethral bulb and bulbocavernous. Above stated variant was also reported by Sripanidkulchai *et al.* [7].

Orthaber S *et al.* reported the two variation involving gluteal muscles in a single cadaver. They reported the presence of gluteus medius accessories and gluteus quartus scansorius. The former originated from iliac crest deep to gluteus medius and inserted to greater trochanter independently or along with gluteus medius. The latter was seen originating from anterior aspect of gluteus minimus and fascia lata and inserted into tip of greater trochanter [2].

A case of accessory slip of GM originating from GM and getting inserted into intertrochanteric line was observed by Taylor V *et al.* but this variation involves GM insertion. Taylor V was also the first to report the above stated accessory muscle with distinct tendon. We did not encounter any other study or report concerning accessory slip of GM [1].

In the present case report, we encountered an accessory muscle slip present unilaterally beneath the gluteus maximus. This accessory slip of GM originated from the posterior superior iliac spine was fleshy throughout in its length contrary to the presence of distinct tendon observed by Taylor V *et al.* It was directed laterally and traversed deep to gluteus maximus. It was seen getting inserted to the undersurface of deeper fibers of gluteus maximus before latter gained insertion to the gluteal tuberosity. Hence we named this variant muscle as gluteus maximus accessories.

During embryonic period, the sacroiliac and coccygeofemoral parts of GM are seen as distinct bundles separated by loose connective tissue. Fusion of these two bundles gradually occurs in prenatal period. The embryologic basis of the present case could be attributed to separation of few fibres of sacroiliac part, manifesting as accessory slip [6].

Because of the close proximity of the accessory slip to sciatic nerve, compression of the nerve could be one possible outcome. This variation may also clinically present as greater trochanteric pain syndrome owing to accessory slip contributing to greater bulk of the muscle [1].

CONCLUSION

This case report is the first of its kind to report a unique anatomical variant of accessory slip of gluteus maximus. This could be of both academic

and clinical interest to surgeons involved in hip replacement to perform surgeries effectively.

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