

Acute Traumatic Avulsion of the Gluteus Medius Muscle in a Patient With no History of Hip Pain: A Case Report

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ABSTRACT

Introduction: We report a clinical case of a woman with a complete acute avulsion of the gluteus medius muscle at its distal insertion in the greater trochanter, with an evolution of fewer than 24 hours from the onset of peritrochanteric pain and in the absence of a clear trigger or documented chronic degenerative wear. Anteroposterior (AP) pelvis and lateral hip radiographs were taken during her evaluation in the emergency department given the suspected diagnosis, with subsequent confirmation of the findings with magnetic resonance imaging (MRI). The patient was treated with a reconstructive surgical technique within the first week of the injury with excellent clinical and functional outcomes. **Conclusion:** Acute traumatic avulsion of the gluteus medius muscle is a pathology with a low incidence, which means that the available evidence to guide its management is scarce. This clinical case is presented with the intention of exposing the clinical and diagnostic approach to this entity and showing a management option with satisfactory results.

Keywords: hip; pain; gluteus; avulsion.

Level of Evidence: IV

Avulsión traumática aguda del músculo glúteo medio en una paciente sin antecedente de dolor de cadera: presentación de un caso

RESUMEN

Introducción: Se presenta el caso clínico de una mujer con avulsión aguda completa del glúteo medio en su inserción distal en el trocánter mayor, con cuadro de evolución menor de 24 horas desde la aparición del dolor peritrocantérico, en ausencia de un claro desencadenante o desgaste crónico degenerativo documentado. En la evaluación por urgencias ante la sospecha diagnóstica, se hace radiografía anteroposterior (AP) de pelvis y lateral de la cadera afectada, con posterior confirmación de hallazgos por resonancia magnética nuclear (RMN). El tratamiento se realiza mediante una técnica quirúrgica reconstructiva dentro de la primera semana de la lesión, con excelentes resultados clínicos y funcionales. **Conclusión:** La avulsión traumática aguda del músculo glúteo medio es una patología con una baja incidencia, lo que hace que la evidencia disponible para guiar su manejo sea escasa. Se presenta este caso clínico con la intención de exponer el abordaje clínico y diagnóstico de esta entidad y mostrar una opción de manejo con resultados satisfactorios.

Palabras clave: cadera; dolor; glúteo; avulsión.

Nivel de Evidencia: IV

INTRODUCTION

Greater trochanteric pain syndrome is an entity characterized by pain in the lateral aspect of the hip. Less commonly, the pain radiates to the thigh and knee, aggravated by walking, climbing stairs, or bearing weight. This syndrome is a common reason for orthopedic consultation, with significant impacts on quality of life, and is more common in women between 40 and 60 years of age.¹ The incidence of this condition in the general population is unknown.² Most of these cases present as secondary to chronic degenerative processes and are associated with the presence of trochanteric bursitis, but with recent scientific advances and MRI images, it has been recognized that the avulsion of the tendons of the gluteus medius and gluteus minimus is a common cause of recalcitrant pain in the peritrochanteric region.³

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How to cite this article: Gómez Bermúdez S.J., Quiroz Álvarez J.E., Avendaño Arango V., Moore Velásquez J.L. Acute Traumatic Avulsion of the Gluteus Medius Muscle in a Patient With no History of Hip Pain: A Case Report. *Rev Asoc Argent Ortop Traumatol* 2022;87(5):715-720. <https://doi.org/10.15417/issn.1852-7434.2022.87.5.1552>



The diagnosis of greater trochanteric pain syndrome is based on clinical suspicion by imaging, initially with an AP pelvis radiograph plus lateral hip radiograph and subsequent confirmation with MRI, which is the gold standard in the evaluation and diagnosis of the pathologies at the level of the hip abductors.⁴

Regarding the treatment of this entity, taking into account that its presentation is usually chronic or associated with other procedures, such as arthroplasty, there are management options that range from conservative measures to surgical techniques, among which we find multiple options: open, arthroscopic, and reconstructive techniques, among others.

The objective of this case report was to highlight the diagnostic and therapeutic approach of a patient with acute avulsion of the gluteus medius who underwent a surgical reconstructive procedure with a gluteus maximus flap, based on the Whiteside technique, with good evolution.

CLINICAL CASE

A 57-year-old woman, stay-at-home wife, with no comorbidities or a history of connective tissue diseases or a family history of musculoskeletal disorders. The patient was admitted to the emergency service due to a clinical picture of 18 hours of evolution of acute pain in the lateral aspect of the right hip.

The patient stated that she was previously in good general condition, without referring to precipitating traumatic events or previous symptoms related to pain in the hip or back. She reported that, when attempting to stand up from a chair, she felt sudden, intense pain over the lateral aspect of her right hip, which worsened with movement, and consequently limited her walking completely.

Physical examination findings revealed normal alignment between the hip, knee, and ankle, with no edema, erythema, or ecchymosis around the hip, tenderness upon palpation, and both active and passive arcs of motion over the peripheral region of the greater trochanter as well as an impossibility for sitting and standing due to the intensity of the pain. The neurovascular evaluation of both lower limbs was normal.

AP pelvis and lateral right hip radiographs were taken, which reported a 6-mm bone fragment adjacent to the greater right trochanter, located in the soft tissues of the lateral aspect of the hip (Figure 1). Given the suspected diagnosis and the fact that the patient persisted with severe pain and limited mobility, magnetic resonance imaging was chosen over computerized axial tomography.



Figure 1. AP radiograph of the right hip.

The MRI indicated a complete rupture of the gluteus medius insertion in its posterior and lateral portion, with a disruption of the fibers that extended towards the anterior portion of the myotendinous junction, with hemorrhagic involvement within the muscle fibers and complete bone avulsion at the insertion site, in the lateral region of the gluteus medius. It is pointed out that the hyperintensity surrounding the left gluteus medius due to tendinopathy and tendinitis must be taken into account versus the associated partial injury, which must be correlated with the mechanism of trauma (Figure 2).

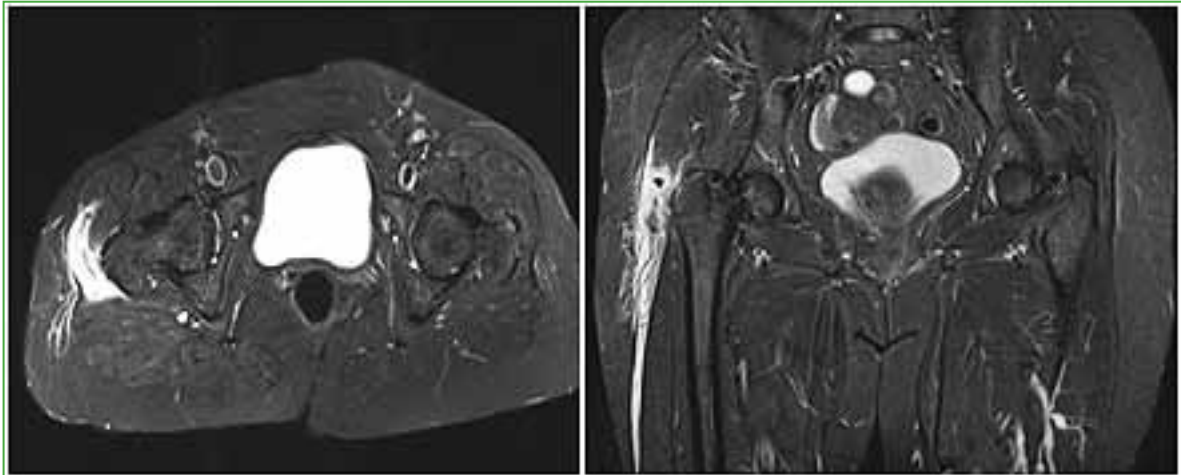


Figure 2. MRI, axial and coronal slices of the lesion.

The patient was taken to surgery and, after intraoperative evaluation, it was found that primary repair was not appropriate due to the fibrillar characteristic of the lesion. A reconstructive surgical procedure based on the Whiteside technique was then performed. A posterior approach to the hip was used, the gluteus maximus was divided into its medial muscle portion and fascia lata, then a flap of the posterior portion of the muscle was raised proximally to create a triangular muscle flap. The flap was then advanced over the femoral neck into the gap between the greater trochanter and the lateral cortex of the femur and attached to the inner surface of the anterior capsule. The vastus lateralis muscle was sutured to the distal fibrous portion of the gluteus maximus, and, with the hip abducted from 10° to 15°, the edges of the gluteus maximus were closed over the flap and the greater trochanter (Figure 3).

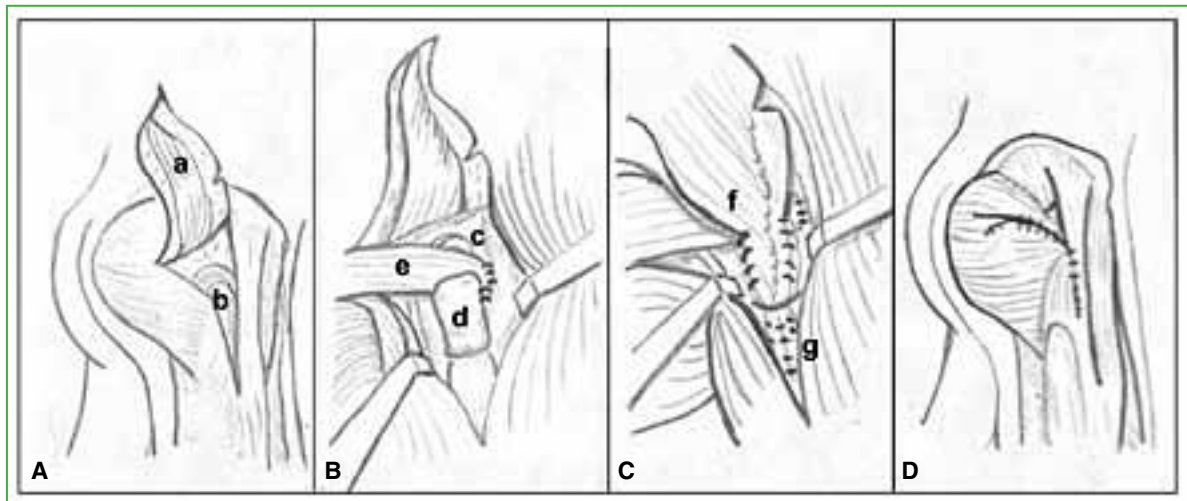


Figure 3. Scheme of the surgical technique. **A.** Posterior approach with the division of the gluteus maximus (a) until exposure of the femoral head (b). **B.** The triangular flap over the femoral neck (c) is sutured to the anterior capsule and greater trochanter (d). The posterior portion of the gluteus maximus is visualized (e). **C.** Anterior gluteus maximus suture (f) and vastus lateralis suture (g). **D.** Approach closure.

Adapted from Whiteside LA. Surgical technique: Transfer of the anterior portion of the gluteus maximus muscle for abductor deficiency of the hip. *Clin Orthop Relat Res.* 2012;470(2):503-510. <https://doi.org/10.1007/s11999-011-1975-y>

At follow-up, the patient had an adequate postoperative period, had no problems with the surgical wound, and achieved good pain control. The patient presented a satisfactory evolution, initially, she walked with external aids until she could completely do without them. At the 6-month control, a good clinical evolution was documented. The patient reported that she had occasional pain that did not require the use of analgesics. She did not have any limitations in her activities of daily living, the limp is minimal, she did not present Trendelenburg gait and her Harris hip score (HHS) was 89.95. She had hip motion arcs of 110° of flexion, full extension, adduction of 20°, abduction of 15°, external rotation of 30°, and internal rotation of 15°, with the last control MRI showing no recurrent lesions (Figure 4).

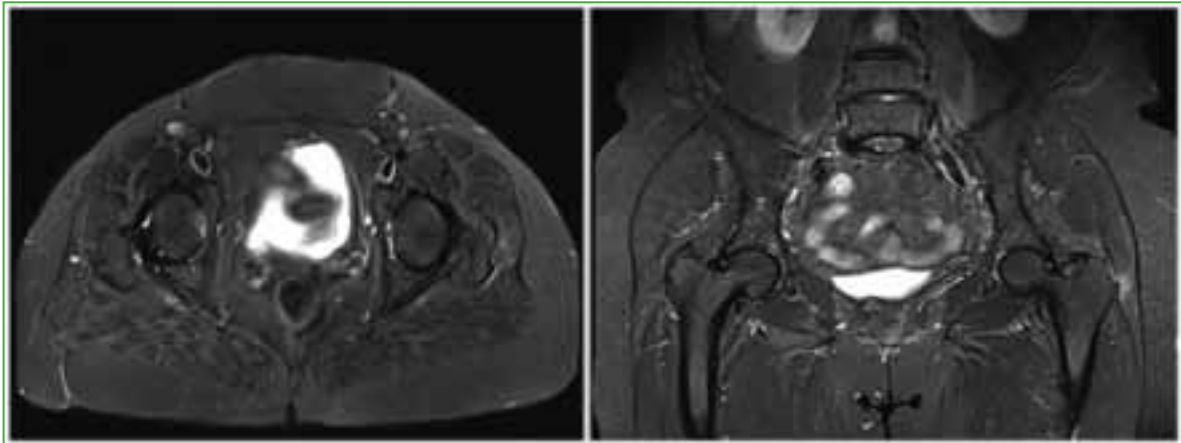


Figure 4. Axial and coronal section of NMR control.

DISCUSSION

The avulsion of the gluteus medius and gluteus minimus tendons was described by Bunker et al. and by Kagan in the late 1990s, both of whom independently coined the expression “rotator cuff tear of the hip”, making the analogy with the supraspinatus and infraspinatus at the shoulder.^{5,6} Although in clinical practice it can be difficult to recognize at the time of diagnosis, it usually presents with pain in the lateral aspect of the hip and, depending on the size of the lesion, is accompanied by a Trendelenburg gait, sensitivity to palpation of the affected region and limitation in abduction when evaluating ranges of motion.⁷

The acute presentation of these avulsions is rare and the exact etiology is still unknown.⁸ In the literature reviewed, two cases of acute traumatic avulsions were found, both in patients older than 70 years, with satisfactory responses after surgical management, in the case of Godshaw et al.,⁸ using the open technique and in the report by Stanton et al.,⁹ with an arthroscopic approach. In the literature search, no cases with evolution of pain in fewer than 24 hours were found.

As a diagnostic tool, conventional radiography may initially reveal intratendinous calcifications, bursa calcifications, or enthesopathies, although these pathological changes are not detectable in most patients.¹⁰ MRI is the gold standard for diagnosis. It allows visualizing the tendon thickening; in addition, the increase in signal strength in the T2 sequence may indicate a partial thickness tear. As for findings regarding complete tear, it is possible to observe the discontinuity of tendon fibers, both in the presence or absence of muscle retraction or atrophy.¹¹

The identification of an area of hyperintensity in the T2 sequence over the superior region of the greater trochanter is the finding with the greatest sensitivity and specificity: 73% and 95%, respectively. Other direct signs of injury to the gluteus medius or minimus tendons have also been described, including edema surrounding the soft tissues, intrasubstance signal abnormality, and other indirect signs, such as submedian or subminimal bursitis and peripheral fat atrophy.¹¹

Within the spectrum of greater trochanteric pain syndrome, when it is secondary to trochanteric bursitis or tendinopathy, initial management is conservative, including local measures, rest, physical therapy, and nonsteroidal anti-inflammatory drugs; when there is no clinical response, management with injectable corticosteroids can be considered, with effectiveness rates that vary between 72 and 75% in pain improvement within the first month of applying the medication.¹² In case of failure with conservative treatment or if the underlying cause is an avulsion in one of the abductor muscles of the hip, such as the gluteus medius, surgical management is performed, which includes open, reconstructive, and arthroscopic repair techniques, as well as transosseous fixations, possible augmentations, and even the use of autografts and allografts.¹³

The surgical management of this case was carried out following the technique described by Whiteside,¹⁴ which seeks to restore the effective abduction of the hip by transferring a gluteus maximus flap, anchored to the greater trochanter with supersutures using transosseous tunnels. In the case series described by Whiteside, 9 of the 11 patients in whom this surgical procedure was performed had strong abduction of the hip against gravity, negative Trendelenburg sign, and no abductor lurch in the postoperative period, which are promising results for future studies.

In a systematic review, Chandrasekaran et al. compared the open repair technique with the arthroscopic one, and reported no differences in terms of outcomes, pain, or abduction strength.¹⁵ In two recent publications, one by Thauinat et al. in 2021¹⁶ and another by Nazal et al. in 2020,¹⁷ excellent functional outcomes were reported using the arthroscopic approach.

Regarding the surgical approach, in Chicago, Illinois, Maldonado et al. repaired complete avulsions of the gluteus medius in 18 patients using a combined transfer technique of the gluteus maximus and tensor fasciae latae, with improvement in short-term follow-up, mainly on the visual analog scale of pain and on the modified Harris scale for the evaluation of the hip joint,¹⁸ a scale developed to assess the results of hip surgeries taking into account items such as pain, gait, walking distance, the need for support, and functionality.¹⁹ In the literature reviewed, no significant differences were found between the various surgical techniques regarding major outcomes that generate increased morbidity and a negative impact on quality of life.

In the postoperative period of both open and arthroscopic techniques, rehabilitation generally starts with low weight-bearing protected by crutches or no weight-bearing at all for the first 6 weeks, and is then followed by gradual weight-bearing, exercises, and progressive physical therapy.²⁰

CONCLUSION

Acute traumatic avulsion of the gluteus medius muscle is a pathology with a low incidence, which means that the available evidence to guide its management is scarce. This clinical case is presented with the intention of exposing the clinical and diagnostic approach to this entity and showing a management option with satisfactory results.

Ethical considerations

The authors requested consent from the hospital research committee for data collection and treatment. In 2016, three of the authors of this manuscript presented only the clinical case as a poster at the 12th Latin American Meeting of Hip and Knee Surgeons. The manuscript is prepared for publication in this scientific journal.

Conflict of interest: The authors declare no conflicts of interest.

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