World Journal of Advanced Research and Reviews
eISSN: 2581-9615 CODEN (USA): WJARAI
Cross Ref DOI: 10.30574/wjarr
Journal homepage: https://wjarr.com/

(CASE REPORT)

When Benign Becomes Massive: Surgical Management of Bilateral Giant Gluteal Neurofibromas

Imane El Aissaoui [1, 2], Rim Labbaci [1, 2, *], Nada-Imane Daghouri [1, 2], Otmane Taybi [1, 2] Issam diher [1, 2] and Adil Dehhaze [1, 2]

[1] *Department of Burns and Plastic Surgery, Mohammed VI University Hospital, Tangier Morocco.*
[2] *Faculty of Medicine and Pharmacy of Tangier, Abdelmalek Saadi University, Morocco.*

World Journal of Advanced Research and Reviews, 2025, 28(02), 1472–1476

Publication history: Received on 05 October 2025; revised on 13 November 2025; accepted on 15 November 2025

Article DOI: https://doi.org/10.30574/wjarr.2025.28.2.3830

Abstract

Giant neurofibromas represent a rare and striking form of benign nerve sheath tumors arising from peripheral nerves. Their gluteal localization is exceptional and presents a dual challenge: surgical, due to their rich vascularization and diffuse infiltration, and psychological, because of the significant deformity they induce. We report the case of a bilateral giant gluteal neurofibroma in a patient with type 1 neurofibromatosis, surgically managed in our department.

Keywords: Giant Neurofibroma; Gluteal Region; Neurofibromatosis Type 1; Hemorrhage

1. Introduction

Neurofibromas are benign tumors arising from Schwann cells, fibroblasts, and perineural cells. The giant form remains rare and is defined by a weight exceeding 3 to 5 kg or a diameter greater than 20 cm.

Gluteal localization is particularly uncommon but can be highly disabling due to the tumor's large volume, causing gait disturbance, postural imbalance, and an increased risk of secondary skin infection.

The present case highlights the diagnostic, technical, and reconstructive challenges associated with this exceptional location.

2. Case presentation

We report the case of a 35-year-old male patient with a known history of type 1 neurofibromatosis and no other associated comorbidities. He was referred to the Plastic Surgery Department for evaluation and management of a giant gluteal neurofibroma that had been progressively enlarging over the past six years.

On general examination, the patient was hemodynamically, respiratory, and neurologically stable.

Cutaneous examination revealed a large, soft, non-tender mass occupying nearly the entire gluteal region bilaterally, without signs of inflammation. The overlying skin appeared thickened, folded, and studded with multiple neurofibromatous nodules. In addition, multiple café-au-lait spots were observed over the rest of the body surface.

* Corresponding author: Rim LABBACI

The patient reported significant functional discomfort, with difficulty walking, sitting, and sleeping due to the size and weight of the tumor.

No inguinal lymph nodes were palpable.

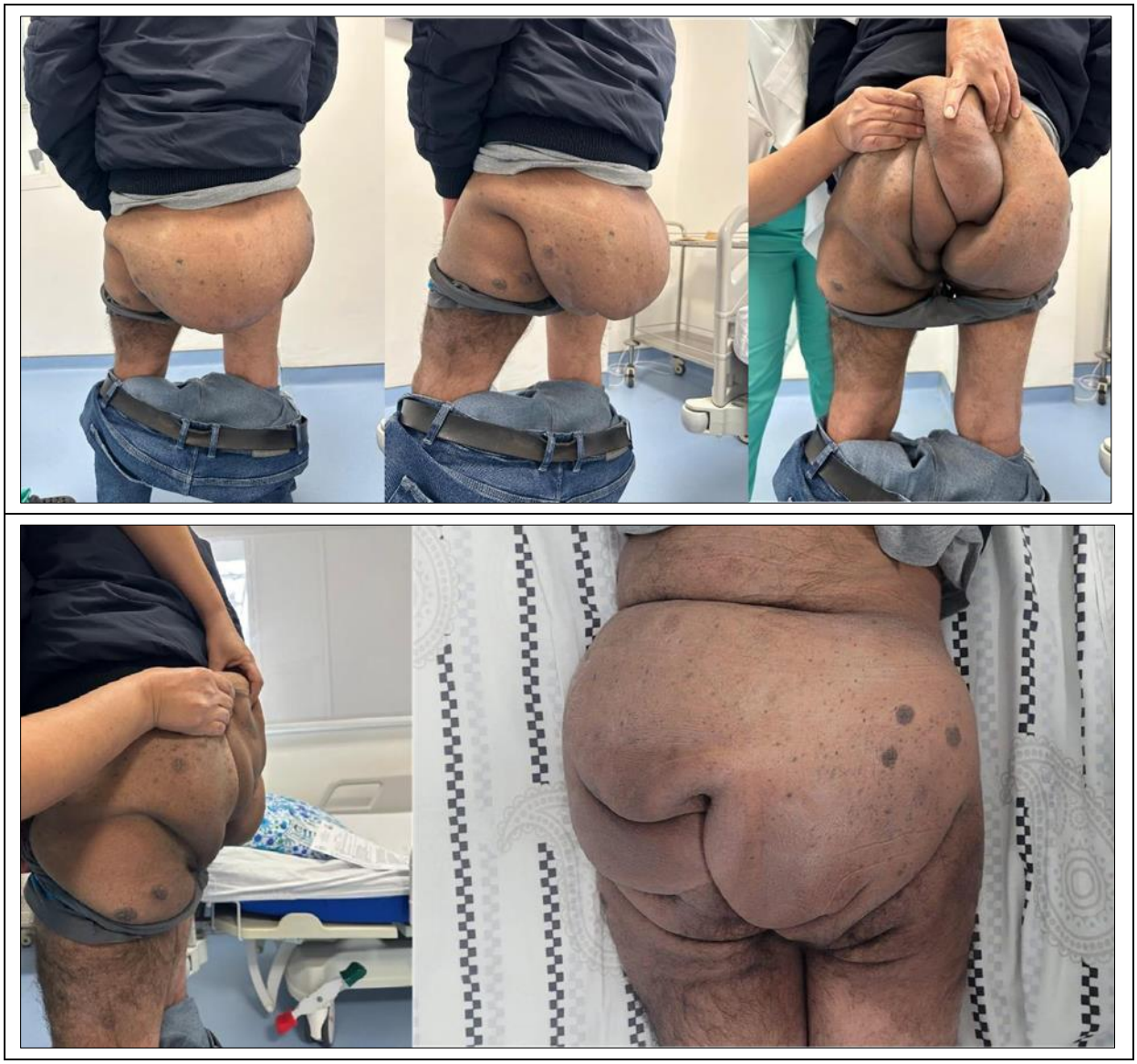

Figure 1 Preoperative appearance

A biopsy was performed, revealing a benign plexiform neurofibroma without any signs of malignancy.

Pelvic MRI demonstrated a heterogeneous mass, isointense on T1 images and hyperintense on T2 images, poorly demarcated, infiltrating the subcutaneous tissue and fibers of the gluteus maximus, without bone involvement. Thickening of the left sciatic nerve was noted over several centimeters both proximal and distal to the sciatic notch.

2.1. Surgical management

The procedure was performed under general anesthesia with the patient in the prone position. A monobloc excision was carried out, following the macroscopic tumor

margins while carefully preserving the deep neurovascular structures. Major feeding vessels were identified and meticulously coagulated.

Diffuse bleeding encountered during dissection resulted in severe intraoperative hypotension, necessitating immediate transfusion of two units of packed red blood cells and aggressive fluid resuscitation. The patient's hemodynamic status stabilized after volume replacement and transfusion, allowing the safe continuation of the surgery.

Skin closure was achieved by direct suturing without the use of a flap, due to the significant skin laxity resulting from chronic distension. The surgical design, modeled on the posterior approach of a circular abdominoplasty, restored the naturalcurvature of the intergluteal cleft and improved the gluteal contour.

Two bilateral suction drains were placed, and the excised tumor was sent for histopathological examination. The tumor weighed 9.3 kg

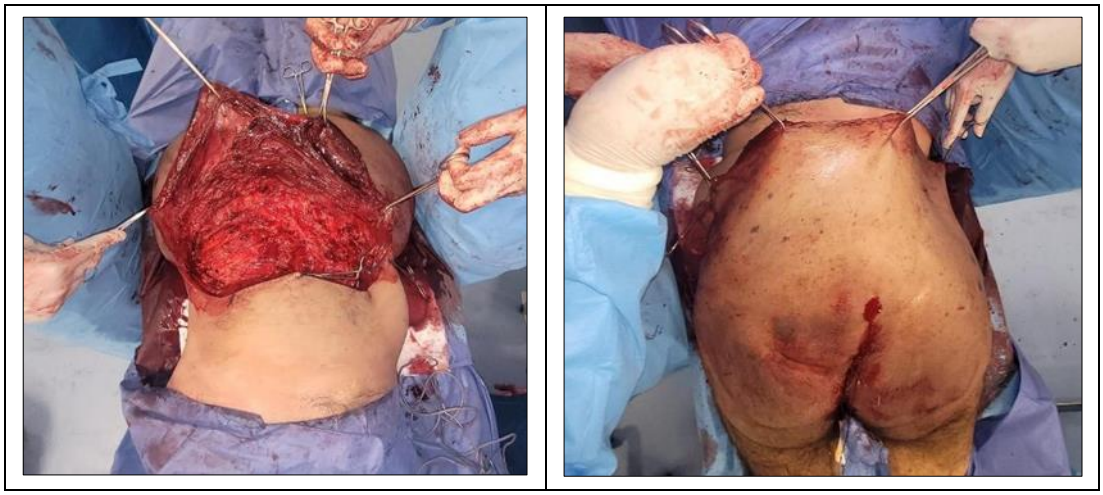

Figure 2 Intraoperative images

The postoperative course was uneventful, with no secondary hemorrhage or skin necrosis. The patient was able to resume walking on postoperative day 10, reporting a marked improvement in postural comfort and psychological well-being.

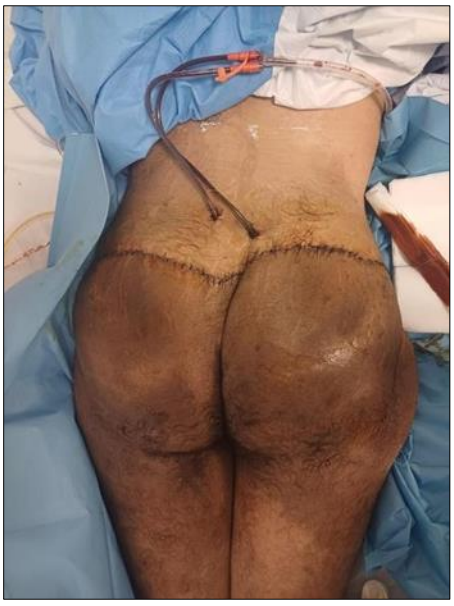

Figure 3 Postoperative day 1 appearance

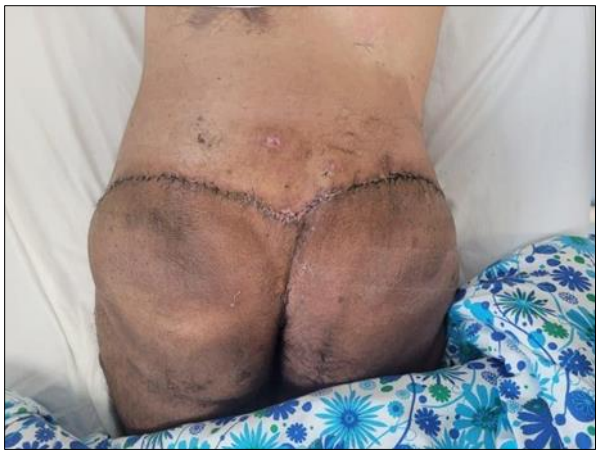

Figure 4 Postoperative day 3: drain removal and patient discharge

At 12 months of follow-up, there was no evidence of recurrence or malignant transformation.

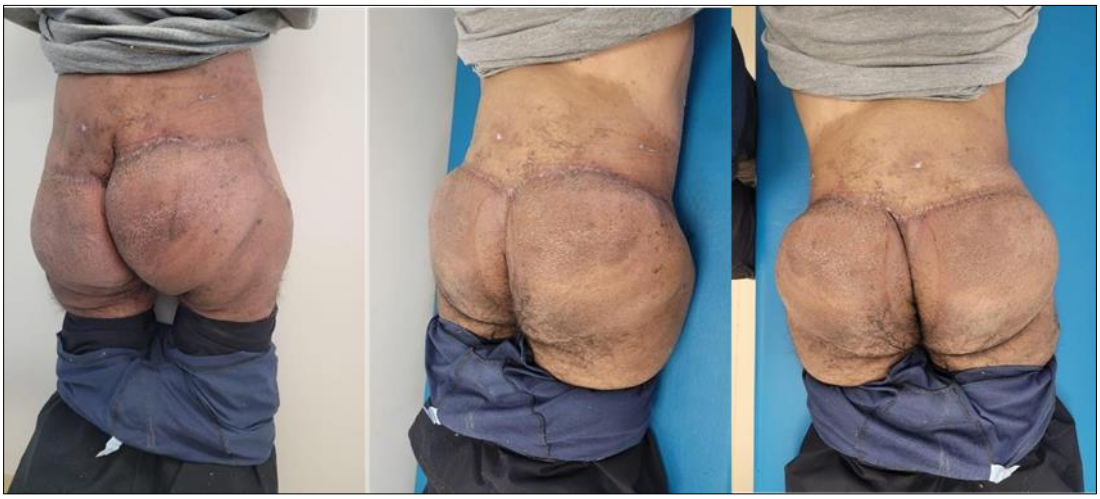

Figure 5 Clinical appearance at 12 months postoperatively

3. Discussion

Giant neurofibromas represent a rare entity among benign nerve sheath tumors, and their gluteal localization—particularly when bilateral remains exceedingly uncommon. The majority of cases reported in the literature involve cervicofacial, thoracic, or lumbar locations.

Their slow and infiltrative growth, combined with rich vascularization, makes them a formidable surgical challenge.

Complete excision represents a significant technical challenge due to the high risk of hemorrhage and the difficulty in delineating tumor margins while preserving deep structures, particularly the gluteus maximus muscle and the sciatic nerve. This is compounded by the considerable hemorrhagic potential inherent to these tumors. Histologically, neurofibromas are composed of Schwann cells, fibroblasts, and a loose, highly vascularized stroma, which explains the frequent occurrence of massive intraoperative blood loss. Several authors, including Maruani et al. (2015) and Akram et al. (2018), have reported that these tumors can result in blood losses of several liters, necessitating meticulous anesthetic preparation with invasive monitoring and ready availability of packed red blood cells. In our case, the patient experienced severe intraoperative hypotension secondary to significant blood loss, requiring immediate transfusion, perfectly illustrating the hemorrhagic nature of this type of surgery and highlighting the critical importance of multidisciplinary planning.

Preoperative planning is based on a thorough imaging evaluation, particularly MRI, which enables precise assessment of tumor size, infiltrative behavior, and its anatomical relationships with muscles and deep neurovascular structures. Preoperative embolization of feeding vessels has been reported in selected cases to minimize intraoperative bleeding; however, its effectiveness is variable and largely dependent on the tumor's histological characteristics and vascular supply.

Following tumor resection, soft tissue coverage largely depends on the size of the defect and the residual skin laxity. In cases of bilateral excision, as in the present report, reconstructive options must be carefully considered to restore gluteal contour while ensuring tension-free closure. Several techniques have been described in the literature, including gluteus maximus musculocutaneous flaps, superior or inferior gluteal perforator flaps, as well as local or fasciocutaneous rotational flaps. In our case, the marked skin laxity allowed for direct closure after resection, following a surgical design modeled on the posterior approach of a circular abdominoplasty. This rarely reported approach offers the advantages of a harmonious scar, restoration of gluteal volume, and preservation of overall body symmetry.

The absence of recurrence and the favorable postoperative outcome confirm the effectiveness of this approach, although vigilance remains necessary given the low, yet present, risk of malignant transformation in plexiform forms. This case underscores the importance of a rigorous, well-planned multidisciplinary approach, integrating the expertise of the plastic surgeon, anesthesiologist, and radiologist, to ensure operative safety, minimize blood loss, and optimize both aesthetic and functional outcomes.

4. Conclusion

Giant gluteal neurofibromas represent an exceptional clinical entity, whose management remains challenging due to their infiltrative nature and rich vascularization. Complete excision, often technically demanding, requires meticulous anesthetic preparation and a multidisciplinary approach to minimize hemorrhagic risk. Preoperative imaging assessment and the careful selection of appropriate reconstructive techniques are essential to achieve satisfactory functional and aesthetic outcomes.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

References

[1] Vélez R, et al. Multidisciplinary management of a giant plexiform neurofibroma of the lower back and buttock. BMJ Case Rep. 2013;2013: bcr2013009681. doi:10.1136/bcr- 2013-009681.

[2] Gyedu A, et al. Giant solitary neurofibroma in the gluteal region: A rare presentation. BMJ Case Rep. 2012;2012: bcr2012007482. doi:10.1136/bcr-2012-007482.

[3] Shen X, et al. Surgically treated solitary giant gluteal and retroperitoneal neurofibromas in a patient with neurofibromatosis type 1. World J Surg Oncol. 2016;14(1):1–7. doi:10.1186/s12957-016-0880-y.

[4] Sassi I, et al. Giant gluteal and vesical plexiform neurofibromas in a patient with neurofibromatosis type 1. J Med Case Rep. 2024;18(1):1–6. doi:10.1186/s13256-023- 04315-z

[5] Getachew F, et al. Life-threatening intratumoral bleeding in gluteal plexiform neurofibroma: A case report. Surg Neurol Int. 2025; 16:1–4. doi:10.25259/SNI_221_2025

[6] Ross AL, et al. Surgical management of a giant plexiform neurofibroma of the lower extremity. J Plast Reconstr Aesthet Surg. 2011;64(7): e171–e174. doi: 10.1016/j.bjps.2010.07.015

[7] Tovo Filho R, et al. Surgery combined with embolization in the treatment of diffuse plexiform neurofibroma: A case report. JAAD Case Rep. 2020;6(3): e107–e109. doi: 10.1016/j.jdcr.2020.01.010.