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A Rare Case of Giant Atypical Lipomatous Tumor in the Gluteal Region: Clinical, Radiological and Histopathological Insights

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Abstract: ***Objective: This article presents a rare case of a 47-year-old male diagnosed with a giant atypical lipomatous tumor (ALT) in the right gluteal region. The tumor exhibited progressive growth over ten years, leading to ulceration, abscess formation, and purulent discharge. Imaging studies revealed a large pedunculated mass with heterogeneous density. The patient underwent surgical excision with a wide resection and reconstruction. Histopathological analysis confirmed an atypical lipomatous tumor/low-grade liposarcoma. Given the rarity of ALT in the gluteal region, this case highlights its diagnostic challenges, imaging characteristics, and surgical management strategies.***

Keywords: atypical lipomatous tumor, giant liposarcoma, gluteal tumors, surgical resection, histhopatolgy.

1. Introduction

Atypical lipomatous tumor (ALT) is a rare entity that corresponds to a low-grade, well-differentiated sarcoma[1]. ALT, along with well-differentiated liposarcoma (WDL) and dedifferentiated liposarcoma (DDL), comprises approximately 40-45% of all liposarcomas and represent a clinical spectrum [2, 3, 4]. ALT and WDL present the same morphology and genetic basis, sharing amplified sequences in the chromosomal region 12q13-15, particularly in oncogenes CDK4 and MDM2[5]. The term ALT is preferred when the lesion arises in surgically treatable sites, mainly the extremities or trunk, being more superficial, and the term WDL in deep locations such as the retroperitoneum or mediastinum. Therefore, classifying a histopathologically well-differentiated liposarcoma as ALT or WDL is mainly based on the location of the tumor and surgical resectability. This difference is relevant, since WDLs in particular have a higher risk of dedifferentiation to DDLs, a higher rate of recurrence and distant metastasis. ALTs often mimic lipomas clinically and histologically, and therefore often represent a diagnostic challenge. This article presents the case of a patient with an atypical lipomatous tumor in the right gluteal region is presented below.

This study aims to present a rare case of an atypical lipomatous tumor in the gluteal region, emphasizing its clinical, tomographic, and histopathological characteristics, along with its surgical management.

This case highlights the diagnostic and surgical challenges of giant atypical lipomatous tumors in the gluteal region, contributing valuable insights for clinicians handling similar rare cases.

2. Clinical Case

A 47-year-old male patient, with no medical history, presented with a tumor in the right gluteal region that had been progressively growing for 10 years. He was asymptomatic and reported that in recent months he had presented changes with ulcerative, abscessed characteristics and purulent discharge. A giant pedunculated tumor measuring approximately 22 × 20 × 18 cm was observed in the right gluteal region, ulcerated and abscessed at the base, with purulent discharge, sloughed edges, and necrotic patches. A simple and contrast-enhanced computed axial tomography of the abdomen and pelvis was requested, which reported an increase in volume due to a pedunculated lesion at the level of the lower border of the right gluteus, measuring 220 x 199 x 180 mm in its major axes. It had arterial irrigation from the inferior gluteal artery, with an approximate volume of 1316 cc , with heterogeneous density ranging from -17 HU to -121 HU. at the expense of multiple dense images inside, predominantly in the lower edge, in addition, an increase in the density of the isodense portions to soft tissues is identified. An excisional biopsy is performed which reports a mesenchymal tumor to be classified in a definitive study. The laboratory findings were as follows: complete blood count reported hemoglobin of 9.5 g/dl; a white blood cell count of 4.90 × 10 3 / µl with normal formula (73.30% neutrophils), platelet count of 208 × 10 3 / µl. creatinine 0.8 mg/dl; sodium 138 mmol/l; potassium 3.8 mmol/l; glutamate- oxaloacetic transaminase (AST) 18 U/l; glutamate-pyruvate transaminase (ALT) 10 U/l; total bilirubin 0.41 mg/dl; lactate dehydrogenase 115 U /l.

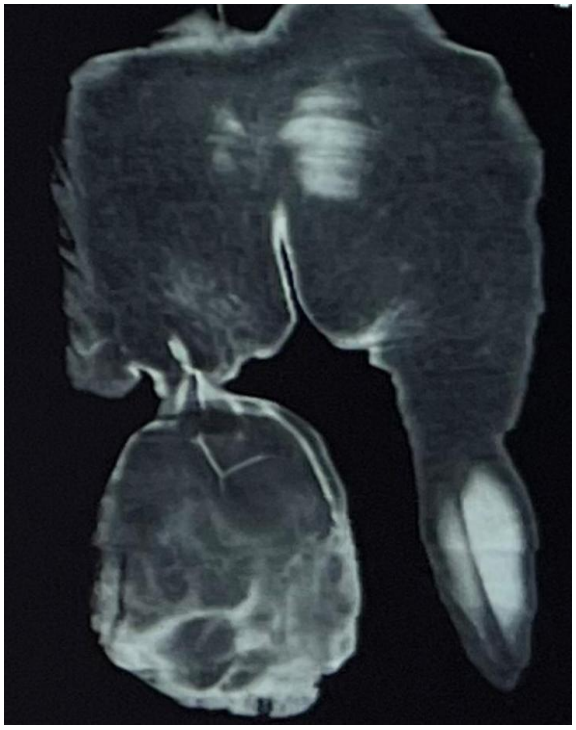

Image 1: Simple and contrast-enhanced tomography in coronal section of the pelvis and pelvic extremities.

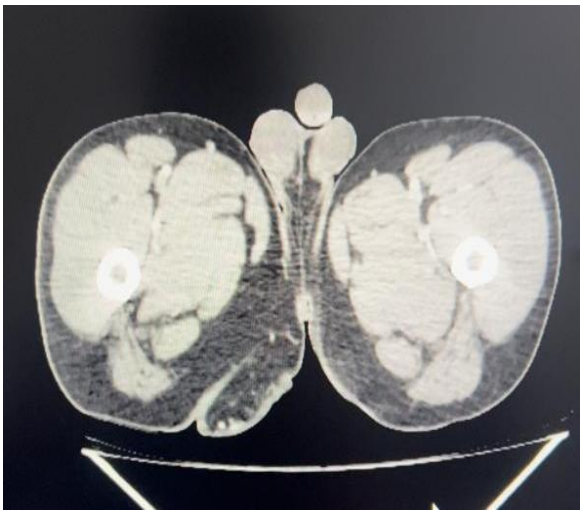

Image 2: Axial section tomography of a tumor in the gluteal region

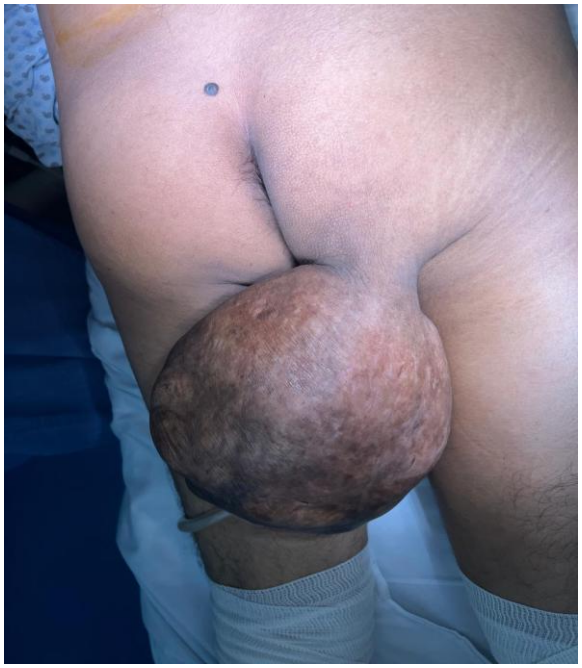

Image 3: Tumor in the right gluteal region prior to surgery

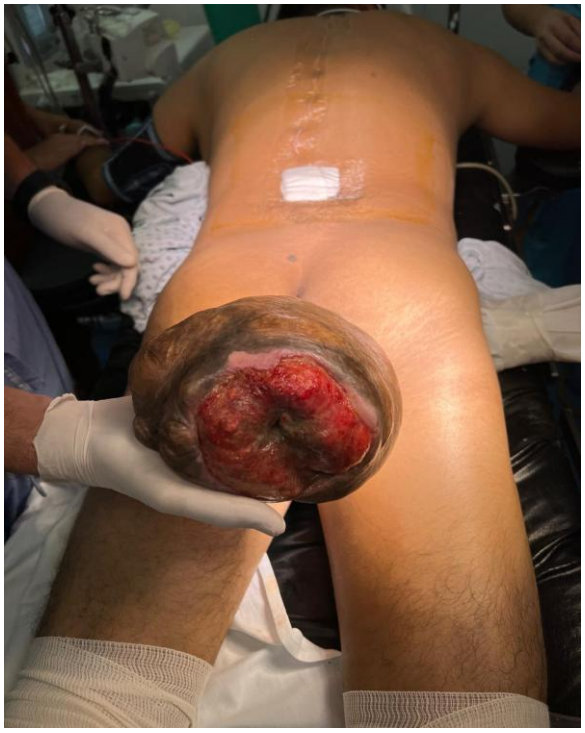

Image 4: Tumor prior to surgery

It was decided to surgically resolve the problem, where a wide resection of the lesion plus remodeling was performed. During the surgery, the pedunculated base of the tumor was adequately delimited, approaching it through a transverse elliptical incision, which covers the entire circumference of the tumor base. It was dissected in layers up to the aponeurosis of the gluteus maximus muscle and the tumor was bloc removed. Adequate hemostasis was performed, performing closure in layers. During the hospital stay, the patient received adequate postoperative care, so he was discharged 24 hours after surgery, with a histopathological result reporting an atypical lipomatous tumor.

The patient is transferred to surgical time, where a wide resection and remodeling are performed, adequately delimiting the pedunculated base of the tumor. A transverse elliptical incision is made covering the entire base of the tumor, leaving 1.5 cm margins. The patient is dissected in planes up to the fascia of the gluteus maximus muscle and the tumor is bloc removed. The patient is sent for an intraoperative histopathological study, which reports an atypical lipomatous tumor with free edges, with adequate post-surgical evolution. The patient is discharged 24 hours after surgery.

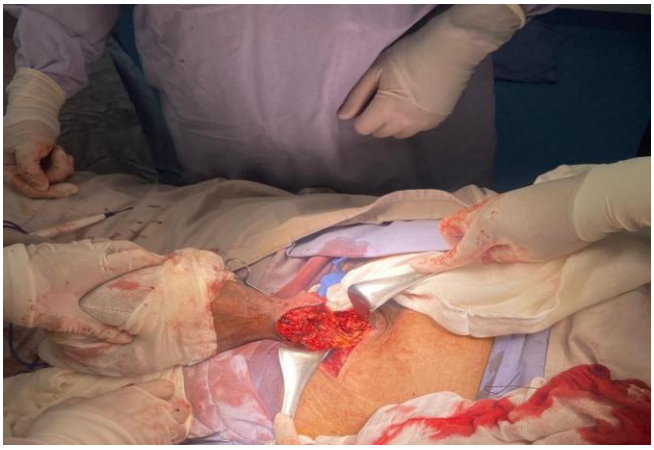

Image 5: Complete tumor resection, with an elliptical incision at the base of the tumor.

3. Discussion

Although atypical lipomatous tumor (ALT) is a rare tumor, it is relevant as a differential diagnosis of lipoma, the most common mesenchymal neoplasm in adults. Key clinical indicators of ALT include tumors larger than 4 cm, limited mobility, firm or elastic consistency, and potential herniation into the epidermis[4]. Imaging techniques such as ultrasound and MRI are useful in the diagnosis. Some ultrasound findings that would support the diagnosis of ALT are the presence of heterogeneous echostructures, infiltrating margins and significant vascularization detectable by Doppler . In contrast, lipomas are usually larger along their axis parallel to the surface of the skin and are iso or hypoechoic . In MRI, changes such as contrast enhancement, septal thickening or tumor heterogeneity could help differentiate ALT/WDL from a lipoma[2]. The definitive diagnosis is obtained by histopathological study. Histologically, ALT/WDL are divided into 3 subtypes: adipose (the most common), sclerosing, and inflammatory. The hallmarks of adipose ALT/WDL are mature-appearing adipocyte lobules, irregular fibrous septa, focal nuclear atypia with spindle cells showing nuclear enlargement and hyperchromia. Positive immunohistochemical staining for MDM2 and CDK4 is useful in the diagnosis and strongly correlates with gene amplification status[5]. In recent years, fluorescence in situ hybridization (FISH) identification of MDM2 gene amplification has become the gold standard for the diagnosis of ALT/WDL[1]. Although ALT/WDL do not have metastatic potential, up to 10% of cases may dedifferentiate and 30-50% may recur locally[8]. Tumor location is the main predictor of dedifferentiation and local recurrence, with retroperitoneal (WDL) location having the worst prognosis. In general, tumors located in the extremities and trunk (ALT) have lower rates of dedifferentiation and local recurrence[1]. Although the first-line treatment for these tumors is surgical resection, there is still controversy about adequate surgical margins and the usefulness of adjuvant therapies. Wide tumor resection[7], defined according to the Enneking classification[6], is suggested to avoid local recurrences and dedifferentiation. Recent publications suggest oncologic margins of 1 cm as adequate. Given the potential for local recurrence and dedifferentiation of these tumors, patients should remain under follow-up for long periods of time. Current recommendations call for checks to be carried out every six months for six years and then annually for 10 years [3].

4. Conclusion

Atypical lipomatous tumors are rare and often misdiagnosed as lipomas due to similar clinical presentations. Accurate diagnosis relies on imaging and histopathology. Surgical excision with oncologic margins is the standard treatment, with long-term follow-up essential for recurrence monitoring. Recognizing atypical presentations of soft tissue tumors ensures timely intervention and better patient outcomes.

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