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Case Report

Squamous cell carcinoma of scrotum mimicking as non-healing ulcer: a case report

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ABSTRACT

Scrotal cancer is an extremely rare malignancy, with squamous cell carcinoma (SCC) being the most common histological subtype. Despite its rarity, the condition presents significant diagnostic and therapeutic challenges, particularly in cases of delayed presentation and atypical features such as abscess formation within the tumor. A 51-year-old male with diabetes presented with a three-year history of a non-healing ulcer on the scrotum. Clinical examination revealed a distinct ulcer with everted margins, necrotic tissue, and inguinal lymphadenopathy. Radiological investigations, including pelvic MRI and inguinal ultrasonography, confirmed scrotal wall thickening and enlarged lymph nodes bilaterally. The patient underwent wide local excision of the scrotal ulcer, left orchidectomy, and ilioinguinal lymph node dissection. The patient recovered without complications. Histopathological examination confirmed infiltrating moderately differentiated squamous cell carcinoma, staged as T2N1M0. The findings underscored the complexity of diagnosis and the necessity for a multidisciplinary treatment approach. This case highlights the diagnostic difficulties associated with scrotal SCC, particularly in the context of delayed presentation. Early detection and comprehensive treatment strategies, including surgical excision and lymph node dissection, are critical for improving patient outcomes in this rare malignancy.

Keywords: Scrotal cancer, Squamous cell carcinoma, SCC, Non-healing ulcer, Multidisciplinary approach, Early detection, Lymph node dissection

INTRODUCTION

Scrotal cancer is an extremely rare condition, affecting only one in every one million men annually, making it one of the least common forms of cancer.[1] According to data from the Surveillance, Epidemiology, and End Results (SEER) program, squamous cell carcinoma (SCC) is the most common histological subtype of scrotal cancer, accounting for approximately 35% of all reported cases. In comparison, basal cell carcinoma (BCC) and melanoma contribute to 16.7% and 3.3% of cases, respectively, underscoring the diverse nature of this malignancy.[2] Several factors are associated with the development of scrotal cancer, with past occupational exposure to soot, famously linked to chimney sweepers' carcinoma, being one of the historical risk factors. Additionally, more contemporary risk factors include human papillomavirus (HPV) infection, smoking, chronic skin inflammation, and exposure to ionizing and ultraviolet (UV) radiation. Despite its rarity, the complexity of scrotal cancer lies in its varied etiology and risk factors.[3-6]

Currently, there are no standardized clinical guidelines for the management of scrotal SCC due to the limited number of documented cases. As a result, treatment often involves a personalized approach, which may include wide local excision (WLE), partial or total scrotectomy, and reconstructive surgeries using skin grafts or flaps. In cases of metastatic spread to the inguinal lymph nodes,

radical inguinal lymph node dissection (ILND) may be recommended, sometimes accompanied by adjuvant chemoradiotherapy to improve oncological outcomes. This multimodal approach has shown effectiveness in treating other cancers, such as penile SCC, that metastasize to the inguinal lymph nodes.[7-9]

The aim of this case report is to present a unique instance of scrotal SCC, focusing on its clinical presentation, diagnostic challenges, and therapeutic approach. We document the case of a 51-year-old male with an ulcerating scrotal lesion and provide insight into the complexities involved in diagnosing and managing this rare condition. This case underscores the importance of early detection, multidisciplinary intervention, and individualized treatment strategies to improve patient outcomes.

CASE REPORT

We present the case of a 51-year-old male, who worked as an auto driver and sought medical attention for a non-healing ulcer on the left side of his scrotum that had persisted for three years (Figure 1). The patient experienced a dull, aching pain associated with the ulcer and reported intermittent serous discharge, along with occasional episodes of bleeding. He also mentioned an unspecified amount of weight loss over the three years, though he denied any significant change in appetite. This case underscores the clinical challenge of managing a chronic scrotal ulcer and highlights the importance of a multidisciplinary approach for comprehensive assessment and tailored management, especially considering the risk factors for malignancy.

Figure 1: Non healing ulcer.

On physical examination, the patient presented with an irregularly shaped ulcer on the left lateral aspect of the scrotum, measuring 4×3 cm, situated 4 cm from the midline raphe and the root of the penis. The ulcer had well-defined margins with everted edges and slough. The surrounding skin was normal, but serosanguinous discharge was noted. The ulcer was non-tender, with no signs of erythema, but bleeding was observed upon touch, and the surrounding area was indurated. The bilateral testes were palpable, non-tender, and firm in consistency. The examination of regional lymph nodes revealed multiple discrete, firm, and non-tender nodes in the left inguinal region.

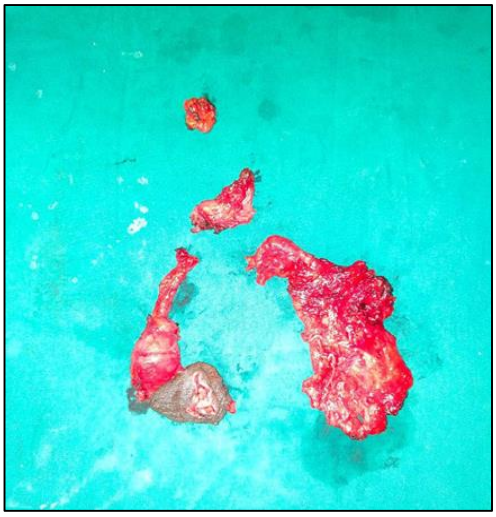

Figure 2: Uppermost is left iliac node, below that is left deep inguinal node, on the right lower is left superficial inguinal node and on the left lower is wide local excision of ulcer along with left orchidectomy specimen.

Figure 3: Postop day 14.

Radiological findings

MRI of the pelvis, performed on 30.10.23, demonstrated scrotal wall thickening with an irregular surface and overhanging margins, measuring 2.3×2.3 cm, with a thickness of 10 mm. The lesion extended to the posterior wall and root of the scrotum on the left side, while the fat plane between the lesion and the testis was preserved. Bilateral inguinal lymphadenopathy with diffusion restriction was also observed. Ultrasonography on

14.11.23 confirmed the presence of multiple enlarged lymph nodes in both the left and right inguinal regions, the largest measuring 0.9×1.7 cm and 0.9×0.7 cm, respectively. CT scans of the chest and abdomen showed no evidence of metastasis. Fine-needle aspiration cytology (FNAC) of bilateral inguinal nodes, performed on 8.11.23, yielded a hemorrhagic smear without conclusive evidence of metastasis.

Surgical management

The patient was optimized for surgery and underwent wide local excision of the scrotal ulcer, left orchidectomy, and left ilioinguinal block dissection. Post-operatively, the patient had an uneventful recovery (Figure 3).

Histopathological examination

Histopathological examination (HPE) revealed an infiltrating moderately differentiated squamous cell carcinoma, graded as 2. The final diagnosis was squamous cell carcinoma of the scrotum, staged as T2N1M0. This diagnosis highlighted the need for a multidisciplinary approach to managing advanced scrotal SCC.

Diagnostic challenges and alternative diagnoses

The patient's initial presentation with a chronic non-healing ulcer posed a diagnostic challenge, as such ulcers can have multiple differential diagnoses. Chronic ulcers in the scrotal region can be attributed to a variety of benign conditions such as infections, including fungal or bacterial causes, chronic skin conditions, or trauma-related injuries. Differential diagnoses considered in this case included scrotal abscesses, fungal infections, and other skin malignancies such as basal cell carcinoma or melanoma.

The persistence of the ulcer, combined with its non-responsiveness to conservative management and the patient's reported weight loss, raised suspicion for malignancy. The diagnostic pathway involved radiological imaging to assess the local extent of the lesion and the status of regional lymph nodes. Fine-needle aspiration cytology of the inguinal lymph nodes was used to evaluate potential metastasis, but the results were inconclusive, necessitating surgical intervention.

The final diagnosis of moderately differentiated squamous cell carcinoma was confirmed through histopathological analysis following surgical excision. The decision to proceed with wide local excision and lymph node dissection was made based on the radiological findings of lymphadenopathy and the confirmed malignant nature of the ulcer. The preserved fat plane between the lesion and the testis also suggested that the tumor had not yet invaded deeper structures, guiding the extent of surgical intervention. This case emphasizes the complexity of diagnosing scrotal SCC, especially in the context of chronic non-healing ulcers where malignancy must be considered among other benign and malignant differentials. The patient's delayed presentation further complicated the diagnostic process, underscoring the importance of early medical evaluation in similar cases.

DISCUSSION

Scrotal squamous cell carcinoma is a rare malignancy, which poses significant diagnostic and management challenges due to its rarity and varied presentation. The case discussed here involves a patient with a delayed presentation, which complicated both the diagnosis and treatment process. Although wide local excision with lymph node dissection remains the gold standard for localized SCC of the scrotum, alternative approaches could have been considered, particularly given the complexity of the case and the involvement of lymph nodes.

Critical analysis of treatment options

In our case, the patient underwent wide local excision combined with left ilioinguinal node dissection, which aligns with standard practice for cases involving regional lymph node metastasis.[2] However, the decision to proceed with lymph node dissection could have been reconsidered based on sentinel lymph node biopsy (SLNB). SLNB has been shown to be effective in identifying microscopic lymph node involvement and could have been used as a less invasive alternative to full lymphadenectomy.[8] This approach might have reduced the morbidity associated with lymph node dissection, such as lymphedema, without compromising oncological outcomes.[7]

Additionally, while surgical excision with clear margins is the primary mode of treatment, adjuvant therapies such as neoadjuvant chemotherapy or radiotherapy could have been considered in cases with high-risk features, such as larger tumors or lymph node involvement.[10] Studies have shown that preoperative radiotherapy may reduce tumor size, allowing for more conservative surgery.[13] Similarly, the combination of cisplatin-based chemotherapy with surgery has demonstrated improved survival rates in patients with advanced disease.[14]

Potential limitations of treatment in this case

One limitation of the treatment approach in this case was the absence of adjuvant chemotherapy or radiation therapy postoperatively. Given that the patient had regional lymph node involvement, adjuvant therapy could have been considered to reduce the risk of recurrence, especially in cases of moderately differentiated SCC.15 Clinical studies suggest that adjuvant radiation therapy combined with chemotherapy improves the 5-year survival rate in patients with metastatic lymph nodes.[5]

Another consideration is the use of newer non-invasive treatment modalities, such as photodynamic therapy (PDT), which has shown promising results in early-stage SCC or cases where surgery is not feasible.[11] Although not applicable in this advanced case, PDT could be an option for patients with in situ SCC or those with contraindications for surgery.

Limited novelty and unique aspects of this case

What sets this particular case unique from others is the presence of a chronic, non-healing ulcer that persisted for three years without being identified as malignant. The delayed presentation, coupled with the patient's lack of notable risk factors (such as HPV infection, radiation exposure, or chronic occupational hazards), emphasizes the importance of maintaining a high index of suspicion for malignancy in chronic scrotal ulcers, even in the absence of these risk factors.[16] Moreover, the presence of an abscess within the tumor is an unusual finding, not typically reported in cases of scrotal SCC, which could have potentially delayed the diagnosis and masked the underlying malignancy.

This case also highlights the importance of early detection and a multidisciplinary approach, particularly in the context of patients with comorbidities such as diabetes, which may complicate wound healing and the overall clinical picture. The patient's prolonged period of undiagnosed SCC underscores the need for timely biopsies of non-healing scrotal ulcers and raises awareness among clinicians to consider malignancy as a differential diagnosis, regardless of the patient's risk profile.[17]

Lessons learned and clinical implications

This case emphasizes the need for a more proactive approach to diagnosing scrotal ulcers, particularly in patients with chronic lesions and comorbidities. The unusual presentation of the ulcer with intermittent bleeding and serous discharge, coupled with the patient's diabetic status, delayed the consideration of SCC as a differential diagnosis. The case underscores the value of early biopsy in cases of non-healing ulcers and the utility of imaging studies such as MRI to assess local invasion and lymph node involvement. Additionally, this case contributes to the growing body of literature suggesting that patients with chronic ulcers, regardless of the absence of traditional risk factors, should be thoroughly evaluated for malignancy. Early intervention, timely diagnosis, and a multidisciplinary approach are critical for improving outcomes in patients with scrotal SCC.[12]

CONCLUSION

The presented case underscores the intricate nature of scrotal squamous cell carcinoma (SCC), shedding light on its varied clinical manifestations and diagnostic challenges. The patient's delayed presentation, coupled with the unique occurrence of an abscess within the tumor, emphasizes the need for heightened awareness among both healthcare providers and the public regarding the significance of timely medical intervention. The diagnostic journey, comprising a comprehensive array of imaging modalities, fine-needle aspiration cytology (FNAC), and histopathological examinations, illustrates the complexity of confirming scrotal SCC and ruling out potential mimickers. The multifaceted nature of scrotal malignancies necessitates a meticulous approach to diagnosis, ensuring that the therapeutic strategy is tailored to the specific characteristics of each case.

Recommendations

Early biopsy and imaging: In cases of chronic, non-healing ulcers, especially in areas such as the scrotum, clinicians should maintain a high index of suspicion for malignancy, regardless of the presence or absence of traditional risk factors. Early biopsy, in conjunction with imaging studies like MRI, should be considered as part of routine diagnostic protocols for chronic ulcers to rule out SCC or other malignancies.

Multidisciplinary approach: The management of scrotal SCC requires a multidisciplinary approach involving urologists, oncologists, radiologists, and pathologists to ensure comprehensive care. Given the rarity of the condition and the potential for complex presentations, such as concurrent abscess formation, early involvement of a specialized team can improve diagnostic accuracy and guide personalized treatment strategies.

Tailored surgical intervention: While wide local excision remains the gold standard for localized scrotal SCC, clinicians should consider sentinel lymph node biopsy (SLNB) as a less invasive alternative for assessing lymph node involvement. This approach could reduce the need for full lymphadenectomy and associated morbidities in patients without obvious lymph node metastasis.

Consideration of adjuvant therapies: In cases with lymph node involvement or other high-risk features, adjuvant chemotherapy or radiotherapy should be considered to reduce recurrence risk and improve long-term survival. Clinicians should weigh the benefits of these therapies based on the individual patient's tumor characteristics and overall health status.

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