Case Report

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Oncology Section

Rare Presentation of Vulvar Carcinoma: A Case Report

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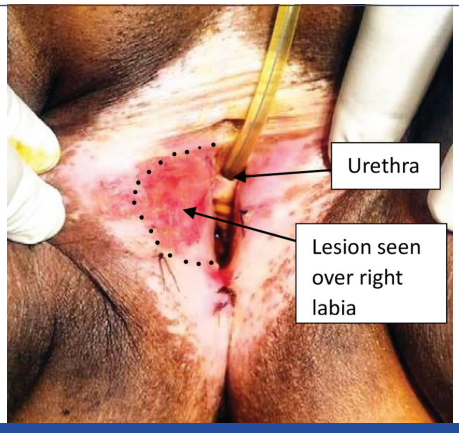
ABSTRACT

Vulvar cancer develops on the outer surface of the female genitalia, often presenting as a lump or sore accompanied by itching. While it can affect women of any age, it is most frequently diagnosed in older adults. Verrucous Carcinoma (VC) is a slow-growing variant of Squamous Cell Carcinoma (SCC) characterised by a warty appearance. It is a rare cancer in women. Author presents a case of a 52-year-old female with a painful lesion on the right vulvar region, initially misdiagnosed as a dermatological condition. Routine investigations were normal; however, suspicion of malignancy prompted further evaluation, including colposcopy and biopsy. Histopathology confirmed a superficially invasive, well-differentiated keratinising SCC (FIGO Stage IB, T1N0M0, Grade 1). The patient underwent wide local excision with right inguinal lymph node dissection. Postoperative recovery was uneventful, and no adjuvant therapy was required. This case was initially misdiagnosed but was correctly diagnosed through a biopsy. Therefore, this case should be considered to help ensure accurate diagnoses in similar cases. Its rarity makes it unique. This case highlights the importance of early detection and diagnosis of vulvar carcinoma, particularly its rare forms, such as VC. Multidisciplinary management, including surgical intervention, is essential for improving patient outcomes in rare malignancies.

Keywords: Cervical biopsy, Colposcopy, Histopathology, Squamous cell carcinoma, Wide local excision

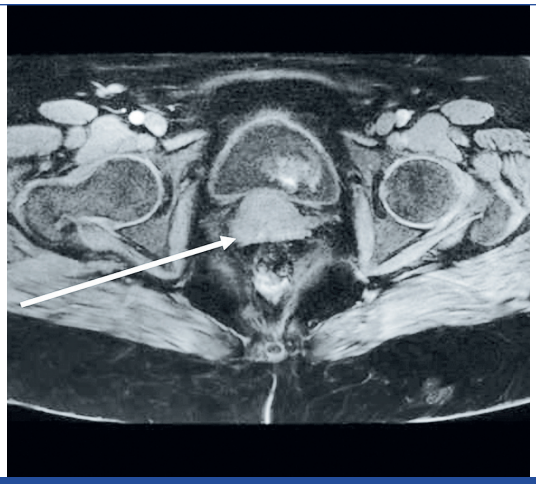
CASE REPORT

A 52-year-old woman experienced pain, itching, and discomfort for three months due to a sore on her right vulvar area. Initially, she consulted a dermatologist, who misdiagnosed her with lichen sclerosis and prescribed the local application of Tacrolimus ointment twice daily for two months. However, she did not experience relief. After that, a Pap smear test was performed, which did not indicate any abnormalities. Then, she was referred to the surgical oncology department for further management. Although routine tests were reported to be normal, the possibility of vulvar carcinoma was raised. During her examination, doctors discovered a 5×3 cm lesion on her right labia, as shown in [Table/Fig-1]. Fortunately, there was no active bleeding, and deeper structures, such as the parametrium, were unaffected. A digital rectal examination also revealed normal findings, with intact anal tone and no signs of haemorrhoids or fissures.The patient was referred to a gynaecologist for colposcopy, and a cervical biopsy was taken for further evaluation. The biopsy revealed superficially invasive, well-differentiated keratinising SCC (FIGO Stage IB, T1N0M0, Grade 1) and is not associated with Human Papillomavirus (HPV). The tumour measured 50×30 mm and was confined to the epidermis and superficial dermis, with clear margins and no stromal invasion.

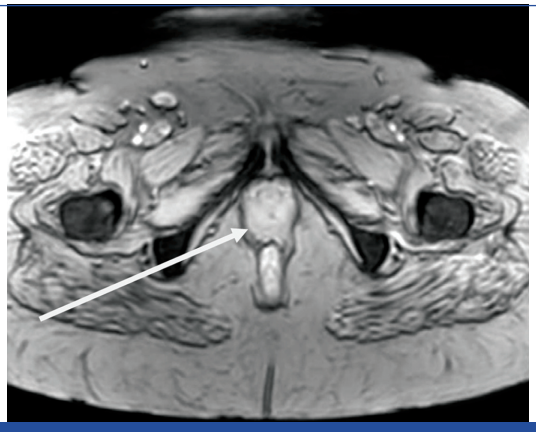


[Table/Fig-1]: Lesion over right labia with almost 1 cm margin for excision.

The pelvis's Magnetic Resonance Imaging (MRI) revealed a slight soft-tissue thickening in the right perineum with enlarged lymph nodes, suggesting possible neoplastic pathology, as shown in [Table/Fig-2,3].

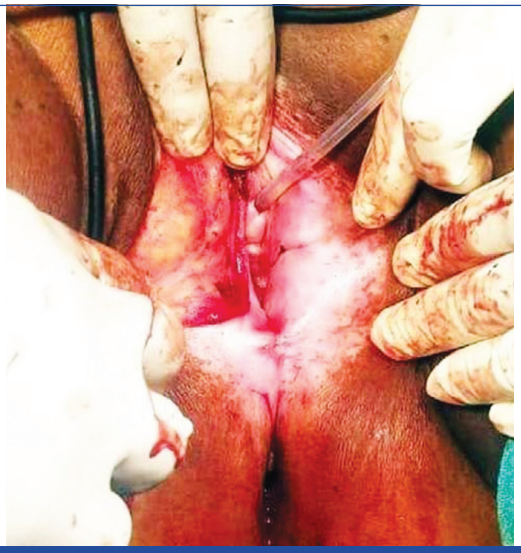


[Table/Fig-2]: Pelvis MRI shows the soft-tissue thickening involving the perineum to the right of midline.

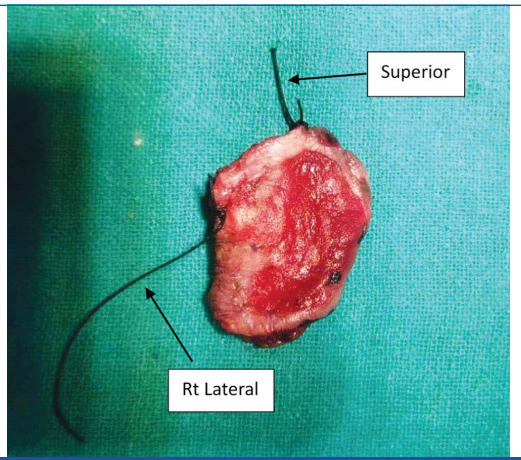


[Table/Fig-3]: Pelvis MRI showing enlarged lymph nodes.

Based on the diagnosis and work-up, surgery was confirmed as the next step. The patient underwent wide local excision of the lesion, along with right inguinal lymph node dissection, under regional anaesthesia. The surgeons maintained a 1 cm tumour-free margin while carefully preserving the urethra, as shown in [Table/Fig-4]. After achieving haemostasis, the wound was closed in layers. The excised tissue [Table/Fig-5] was sent for histopathological analysis, which confirmed superficially invasive, well-differentiated SCC. The tumour was confined to the upper layers of the skin, with no deep stromal invasion, and clear surgical margins indicating complete removal. The right inguinal lymph nodes showed reactive lymphadenitis without malignant infiltration.The histopathological image revealed features of keratinising SCC, including keratin pearls, infiltrative tumour nests, nuclear atypia, intercellular bridges, and stromal inflammation, confirming the diagnosis. Haematoxylin and Eosin (H&E) staining was performed, with images captured at 4x magnifications, as shown in [Table/Fig-6].

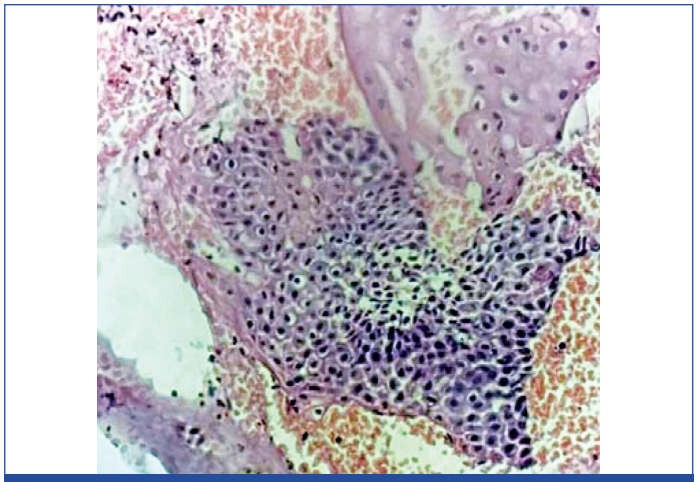


[Table/Fig-4]: Postoperative image after wide local excision with urethral tract well preserved (Foley catheter in situ).

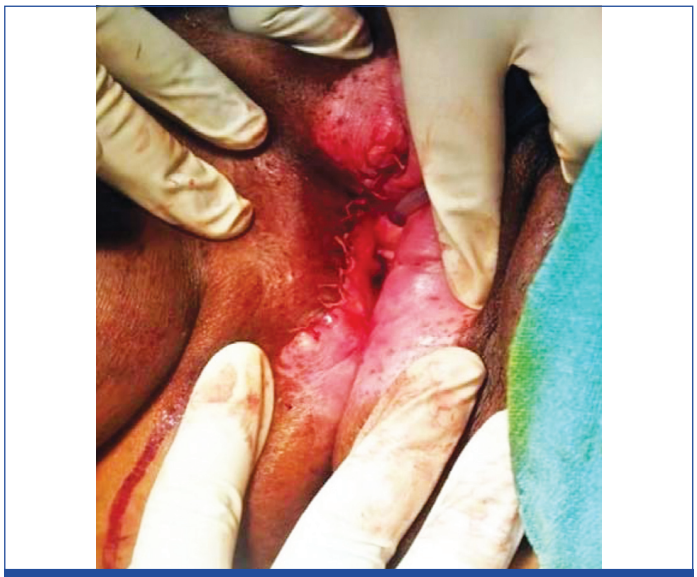


[Table/Fig-5]: Specimen showing excised specimen with sufficient margin circumferentially.

In the days following surgery, the patient's recovery progressed smoothly. The surgical site showed healthy healing during follow-up visits to the oncology outpatient department, with no signs of infection or complications. [Table/Fig-7] shows the postoperative image with complete wound closure. On the 15th postoperative day, her Foley catheter was removed, and she experienced no urinary issues. Adjuvant therapy was not required. The patient continued to do well during the follow-up period, with no sign of reoccurrence or urinary complaints. Each step of her journey marked significant progress, offering hope for a positive outcome. The patient remains under followed-up, and multidisciplinary team meeting are conducted to ensure comprehensive care.



[Table/Fig-6]: H&E-stained histopathological section of the vulvar tissue, 4x magnification.



[Table/Fig-7]: Postoperative images with complete closure.

DISCUSSION

The VC is an extremely rare subtype of SCC, representing less than 1% of all SCC cases. Ackerman initially identified VC in 1948 [1]. Since then, descriptions of occurrences in various sites, including the cervix, vagina, and bladder, have also been reported [2]. Diagnosing vulvar cancer in older women is challenging. Timely and appropriate diagnosis and treatment are essential for maintaining quality of life [3]. Three different histologic subtypes of vulvar carcinoma are recognised: basaloid carcinoma, warty carcinoma, and keratinising squamous carcinoma. Several reports [3-6] suggest these carcinomas may have different aetiologies [4]. Routine pelvic examinations and increased awareness of potential symptoms can improve the likelihood of earlier detection and more effective treatment [5]. Globally, vulvar carcinoma accounts for approximately 4% of all female genital malignancies globally and 0.6% of all female cancers, with over a 1000 new cases and deaths annually. Annually, around 27,000 women worldwide are diagnosed with vulvar cancer [6]. According to the surveillance, epidemiology, and end results programme, vulvar cancer accounts for 0.3% of all new cancer cases in the US annually, with an incident rate of 2.6 cases per 100,000 women [3]. In India, vulvar carcinoma ranks 33rd among cancer cases, accounting for 0.02% of cancer-related deathsand 0.26% of the diagnosed cases [7]. Vulvar carcinoma represents 5% of all gynaecologic cancers. It most frequently affects women over 65, with a lower prevalence in younger women [8]. Vulvar SCC (VSCC) is categorised into HPV-associated and HPV-independent types, with HPV-related VSCC often linked to high-risk HPV strains, particularly HPV-16. In contrast, HPV-independent VSCC is typically associated with chronic inflammatory conditions

like lichen sclerosus, reflecting distinct aetiopathogenic pathways. The warty and basaloid subtypes, which are linked to HPV, most commonly occur in patients aged 40-44 years. In contrast, the keratinising subtype is independent of HPV and is more common in elderly individuals [9].

While risk factors such as smoking, high-risk sexual behaviour, and immunosuppression are frequently associated with HPV-related lesions, their absence in our patient highlights the heterogeneity of vulvar SCC aetiology [10]. Cases of HPV-independent vulvar SCC, such as this one, are often linked to chronic inflammatory conditions like lichen sclerosus or other non-viral mechanisms [11]. However, no such predisposing condition was identified in the present case, underscoring the need for further investigation into other possible etiological factors. Immunohistochemistry (IHC) for p16 is not always necessary to support a diagnosis when the lesion exhibits prominent morphological features. This is because the stain is positive in most cases, yet there are instances where the lesion shows high-grade morphology but is p16 negative [12].

People with vulvar cancer can receive several kinds of treatment, including immunotherapy, chemotherapy, radiation therapy, and surgery [13]. Treatment of locoregionally advanced vulvar cancer is a challenging issue for radiotherapy and gynaecologic oncologists alike. Standard radical vulvectomy is not an effective therapy when the illness affects or abuts the bladder, urethra, rectum, or anus [14]. The complete treatment of women with vulvar cancer requires the administration of psychosexual support, individualisation of therapy, and adherence to the fundamental principles of multidisciplinary team management [9]. Although the function of imaging in vulvar carcinoma is not widely reported, its involvement in common gynaecologic malignancies like cervical cancer is well-established [15]. Gynaecologic malignancy is increasingly being treated with MRI since it provides a means of staging both the primary tumour and the surrounding lymph nodes [16]. MRI is increasingly recognised as a crucial imaging modality for studying the female pelvis, offering superior localisation and tissue differentiation capabilities compared to other techniques [17]. An uncommon kind of vulvar cancer known as VC is distinguished by its enormous size, moderate growth rate, and low rate of metastasis. In our instance, the tumour was growing faster than typical following laser treatment. Although postmenopausal women are often affected, there have also been rare reports of younger people with this illness [1]. Multiple partners, early sexual activity, oral contraceptive use, smoking, and immunodeficiency disorders are risk factors for vulvar High-grade Squamous Intraepithelial Lesions (vHSIL) that are associated with HPV-related lesions. Dangerous sexual conduct and continuous smoking for over 10 years were noted in our patient's medical history, and these are established risk factors for HPV infection [17]. In our case, a multidisciplinary team meeting was organised, and surgery was performed.

CONCLUSION(S)

Early detection and accurate diagnosis are essential for improving outcomes in vulvar carcinoma, particularly in rare forms like VC. Regular pelvic examinations and symptom awareness facilitate earlier diagnosis and more effective treatment. A multidisciplinary approach is crucial for comprehensive care. Early-stage vulvar carcinoma, such as International Federation of Gynecology and Obstetrics (FIGO) Stage IB, has an excellent prognosis with timely surgical intervention and personalised follow-up care. Advances in diagnostic and surgical techniques continue to improve the prognosis and quality of life for patients with vulvar malignancies.

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