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From Benign to Malignant - A Case Series on Verrcous Lesion and Squamous Cell Carcinoma

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ABSTRACT:
Verrucous carcinoma is a subtype of squamous cell carcinoma which is less aggressive and rare. It typically occurs in areas such as larynx, oral cavity, anogenitalregions, and the plantar aspect of the foot, showing a tendency for local invasiveness. Cutaneous verrucous carcinoma is even rarer. This study focuses on three patients across different age groups, each displaying distinct clinical features indicative of verrucous carcinoma at various body sites. There is concern that these lesions could potentially progress to more aggressive forms of squamous cell carcinoma over time. Recognizing this progression is crucial for early identification, precise diagnosis, and implementing appropriate management and follow-up strategies to enhance patient outcomes.

Keywords: *Cutaneous malignancy, Squamous cell carcinoma, Cutaneous verrucous carcinoma, Wart, Verruca*

INTRODUCTION

Verrucous carcinoma (VC) is a rare subtype of well-differentiated squamous cell carcinoma (SCC) originally described by Dr. Lauren Ackerman in 1948 [2,3]. It primarily affects elderly males and commonly manifests in the mucous membranes of the oral cavity. This less aggressive form of SCC can also appear in other mucosal sites such as the pharynx, larynx, sinonasal passages, and esophagus. Cutaneous verrucous carcinoma is even more uncommon [5].

Conversely, cutaneous squamous cell carcinoma (cSCC) is a more common type of skin cancer, that occurs on sun-exposed areas such as the head, neck, and extremities . The development of cSCC is most commonly due to long standing exposure to sun light and weakened immune function [6-10].

From a clinical perspective, squamous cell carcinoma can mimic a wart (verruca), and under microscopic examination, it may display wart-like features [9,10]. This study focuses on three patients across different age groups who presented with varied clinical features, including warty lesions and irregular raised flat plaque-like lesions on different parts of the body. Each case presented unique clinical challenges, necessitating differential diagnoses. However, upon conducting more extensive biopsies of the remaining lesions, pathological analysis confirmed the presence of invasive squamous cell carcinoma originating from a background of verrucous carcinoma. Below, detailed case presentations of these three distinct cases are provided.

Case Presentation

Case 1

A 58 years male ,Fitzpatrick skin type 3 ,auditor by occupation presented with an irregular asymmetrical lesion on his right leg of 6 month duration. It had begun as a small growth on right leg and slowly progressive , Recently had history of accidental trauma over the lesion . Associated with pain and not bleeding on touch. No past history of skin cancers or skin diseases.

On examination . A Tender and non-pruritic, inflammed ,ulceroproliferative lesion 8x 5cm was seen on shin of his right leg. (Figures 1). A edge wedge biopsy of the lesion over right leg was taken initially showed suspicious of verrucous carcinoma .hence was taken up for wide local excision of ulceroproliferative growth and split skin graft was placed over raw area (Figures 2,3) ,the specimen was sent for Histopathological examination .

Microscopic evaluation of the tissue specimen on right leg stained with hematoxylin and eosin (H&E) showed extensive hyperkeratosis , bulbous acanthosis ,papillomatosis ,suspicious foci of invasion ,with keratin pearls suggestive well diffentiated squamous cell carcinoma originating from background of verrucous carcinoma margins free of tumor - superior:1cm away ,lateral : 1 cm away, inferior :1cm away, medial :1cm away , depth :1mm away with no lymphovascular or perineural invasion involvement .

Case 2

A 54 years male ,Fitzpatrick skin type 4 , farmer by occupation ,with complaints of an irregular asymmetrical wart like lesion on his right forearm of 1year duration. It started as a small wart on right forearm and slowly progressive to current size.not Associated with pain and not bleeding on touch.no history of previous trauma. No past history of skin cancers or skin diseases

On examination. A non tender and non-pruritic, ulceroproliferative lesion 4x 3 cm was seen on his right forearm flexor region (Figures 4). A edge wedge biopsy of the lesion over right forearm was taken initially showed as verruca .hence was taken up for wide local excision of ulceroproliferative growth and primary closure was done (Figures 5,6) ,the specimen was sent for Histopathological examination .

Microscopic evaluation of the tissue specimen on right forearm stained with hematoxylin and eosin (H&E) showed extensive hyperkeratosis ,papillomatosis ,with keratin pearls suggestive well diffentiated squamous cell carcinoma originating from background of verrucous carcinoma with margins free of tumor and no lymphovascular or perineural invasion involvement .

Case 3

A 45 years female , Fitzpatrick skin type 3 ,housewife by occupation presented with an irregular asymmetrical lesion with surrounding discolouration on her right shoulder of 8 months duration. It was initially a small wart on right shoulder and later slowly progressed to current size.Not associated with pain and not bleeding on touch.no history of previous trauma. No past history of skin cancers or skin diseases.

On examination A painless and non-pruritic, ulceroproliferative lesion 4x 3 cm was observed on her right shoulder region with surrounding hypopigmentation (Figure7). A edge wedge biopsy of the skin lesion was taken initially showed as verrucous carcinoma .hence was taken up for wide local excision of ulceroproliferative growth and split skin graft was placed over raw area was done (Figure 8) ,the specimen was sent for Histopathological examination .

Microscopic evaluation of the tissue specimen on right shoulder stained with hematoxylin and eosin (H&E) showed keratin pearls extensive hyperkeratosis ,papillomatosis, suggestive well diffentiated squamous cell carcinoma originating from background of verrucous carcinoma with margins free of tumor and no lymphovascular or perineural invasion involvement .

DISCUSSION:

A rare type of well-differentiated squamous cell carcinoma, Cutaneous verrucous carcinoma (CVC) is known for its tendency to invade nearby tissues. It typically affects areas like the mouth, throat, esophagus, and various parts of the skin [11]. There are four main types based on its location: 1) gastrointestinal VC , 2) ano-genital VC , 3) foot VC, and 4) VC occurring on other sites [12].

From a visual standpoint, VC appears as soft, papillary skin lesions that slowly invade adjacent tissues. Under the microscope, it shows superficial changes resembling warts such as acanthosis, hyperkeratosis, and benign papillomatosis. Deeper sections exhibit broadened squamous rete pegs with blunt, pushing borders reminiscent of a club shape [2,3,5,13].

Distinguishing VC from other conditions like simple warts and invasive squamous cell carcinoma is crucial. Grossly, VC lesions appear as white-gray, non-ulcerative, soft nodules with a cauliflower-like surface, similar to verruca vulgaris (common warts). However, microscopic examination reveals distinctive features such as pushing borders and endophytic projections resembling elephant feet, setting VC apart from verruca vulgaris. Other variants of squamous cell carcinoma should also be considered, but features such as the lack of atypia and non-infiltrative borders help differentiate VC [2,3,5,13].

The clinical presentation of Cutaneous VC is commonly a gradual-growing warty plaque or mass [11] commonly diagnosed by biopsy. As our observation here all 3 patients presented with duration of lesion more than 6 months which was consistent with the previous studies[12] . Similarly male predomnance[13]. Pathogenesis of CVC and SCC are different in terms of exposure to ultraviolet B which is not as important etiology as in SCC [14].

Although the exact cause of verrucous carcinoma is unknown, a number of risk factors, including as trauma, long-term inflammation, and inadequate local cleanliness, have been suggested [15,16].

Here one patient presented with the verrucous carcinoma of the lower leg which has been reported as least site to occur in previous studies. [17]. We observed that the majority of patients' lower leg lesions had crusted exudative surfaces and dark red basal, indicating that chronic inflammation is a significant factor in the development of CVC in lower limbs. [12]. Despite the modest number of cases in our study, we would want to highlight warty masses and plaques on the lower leg in clinical practice, particularly in patients with chronic venous ulcers.The skin on the lower legs is also prone to infection, which is frequently caused by poor local hygiene and mild trauma [18].

Due to its tendency to locally invade and potential for metastasis, surgical removal is typically recommended for treating cutaneous verrucous carcinoma. Preoperative treatments like photodynamic therapy and CO2 laser may be used to shrink the tumor. Additional options include chemotherapy, immunotherapy, cryosurgery, and intradermal interferon-α injections. The radiotherapy generally triggers anasplastic transformation hence not preferred [19,20,21].

CASE 1:

Figures: 1 -Clinical presentation of ulceroproliferative lesion 8x5cm in shin of right leg;

Figures: 2- Image showing in toto excised specimen ;

Figures: 3- Image showing intraoperative picture of spit skin grafting over the raw area over right leg.

CASE 2:

Figures: 4 -Clinical presentation of ulceroproliferative lesion 4x3 cm in Right forearm flexor region ;

Figures: 5- Image showing raw area post in toto excision of lesion ;

Figures: 6- Image showing intraoperative picture of primary closure of the raw area over right forearm.

CASE 3:

Figures: 7 -Clinical presentation of ulceroproliferative lesion 4x3 cm right shoulder region with surrounding hypopigmentation;

Figures: 8 - Image showing post-Split skin graft over the raw area over right shoulder.

Table 1: Master chart of the patient details and parameters

No	Age	Occupation	Fitz Patrick	History	Duration	Pre-disposing factors	Clinical examination	Treatment	Reconstruction	Biopsy	Follow up
1	*58/M*	*Auditor*	*3*	An irregular asymmetrical lesion on his right leg.Recent H/o trauma over right leg.H/o pain present , no discharge.	6 months	*nil*	A Tender and non-pruritic, inflammed, ulcero-proliferative lesion 8x 5cm was seen on shin of his right leg.	WIDE LOCAL EXCISION	SPLIT SKIN GRAFT	Hyperkeratosis, bulbous acanthosis ,papillomatosis ,suspicious foci of invasion ,with keratin pearls suggestive well diffentiated squamous cell carcinoma arising from background of verrucous carcinoma	*3 Months*
2	*54/M*	*Farmer*	*4*	An irregular asymmetrical wart like lesion on his right forearm ,no h/o Pain,no h/o trauma,no h/o discharge	1 year	*nil*	A non tender and non-pruritic, ulceroproliferative lesion 4x 3 cm was seen on his right forearm flexor region	WIDE LOCAL EXCISION	*PRIMARY SUTURING*	Extensive hyperkeratosis , papillomatosis ,with keratin pearls suggestive well diffentiated squamous cell carcinoma arising from background of verrucous carcinoma	*4 months*
3	*45/F*	*Housewife*	*3*	An irregular asymmetrical lesion on her right shoulder.with surrounding discolouration, No h/o pain , no h/o trauma ,no h/o discharge	8 months	*nil*	A non tender and non-pruritic, Hypopigmented lesion 15 X 7 cm with a ulceroproliferative lesion of 4x3 cm within it in right shoulder region	WIDE LOCAL EXCISION	*SPLIT SKIN GRAFT*	keratin pearls with extensive hyperkeratosis ,papillomatosis, suggestive well diffentiated squamous cell carcinoma arising from background of verrucous carcinoma	*3 Months*

CONCLUSION

In conclusion, verrucous carcinoma (VC) is a distinct type of squamous cell carcinoma distinguished by its localized and gradual growth. However, the potential for VC to develop into more aggressive forms of SCC necessitates careful clinical management and ongoing monitoring. Identifying risk factors such as chronic irritation, human papillomavirus infection, or genetic predispositions can aid in early detection and intervention.

The progression from VC to SCC presents significant clinical challenges, including diagnostic complexities, considerations for prognosis, and decisions regarding treatment strategies. While VC generally has a favorable prognosis due to its gradual progression, cases showing advancement underscore the importance of vigilant surveillance and timely intervention. This review aims to clarify the underlying mechanisms, risk factors, and clinical implications of VC transitioning into SCC, thereby enhancing our understanding and guiding optimal patient care.

Effective management strategies, such as wide excision and biopsy, as exemplified in our cases, should be carefully planned to ensure appropriate treatment and favorable outcomes for patients.

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CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

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