MEDS Clinical Medicine (2025)
Clausius Scientific Press, Canada

DOI: 10.23977/medsc.2025.060112
ISSN 2616-1907 Vol. 6 Num. 1

A case of male vulvar acantholytic squamous cell Carcinoma

Xiaohua Wu[1,a], Qian Guo[1,b], Chan Zhao[2,c,*]

[1]First Clinical School of Medicine, Shaanxi University of Chinese Medicine, Xianyang, China
[2]Department of Dermatology, Baoji Hospital of Traditional Chinese Medicine Affiliated with Shaanxi University of Chinese Medicine, Baoji, China
[a]1519368593@qq.com, [b]847677822@qq.com, [c]shan4567@163.com
**Corresponding author*

Keywords: Acantholytic squamous cell carcinoma of the vulva, MOS surgery, case report

Abstract: ASCC lacks specific clinical and imaging features, its clinical presentation is similar to that of other skin cancers such as basal cell carcinoma and preoperative diagnosis is difficult. The diagnosis depends on postoperative histopathological examination, often supplemented by immunohistochemistry. Surgical resection is the main treatment, but the prognosis is controversial. It accounts for about 4. 9% of all squamous cell carcinoma cases. It is more common in the elderly, and males have a significantly higher incidence rate than females. It mainly occurs in the head and neck and other exposed sites. ASCC in the vulva is rare, but it is highly aggressive, with a high risk of metastasis and poor prognosis. This article reports a case of vulva. A 54-year-old man with ASCC was reported. By analyzing the clinical features, pathogenesis, etiology, differential diagnosis, treatment and prognosis of ASCC, we aimed to provide reference for clinical management.

Acantholytic squamous cell carcinoma (ASCC) is a rare histological variant of squamous cell carcinoma, accounting for 2%to 4% of all squamous cell carcinomas. The disease commonly occurs in sun-exposed areas such as the head and neck, but it is relatively rare in non-sun-exposed sites like the vulva.

1. Case Report

A 54-year-old male patient complained of erythema and pruritus in the scrotum 8 years ago (2016) without obvious cause. After self-treatment with topical drugs, the effect was poor, and the disease recurred repeatedly. Two years ago, he visited our department and was treated with topical pimelolimuscream and pursamaranth lotion, which improved after treatment. Scrotal erythema and pruritus worsened 3 months ago, without obvious cause, he visited our outpatient clinic on August 03, 2020. He was given topical drugs such as triamcinolone acetonide and econazole cream, recombinant bovine basic fibroblast growth factor gel, calamine lotion, and pursanthus lotion. On October 16, 2020, a biopsy of the erythematous skin on the right scrotum was performed. Histopathological examination showed skin neoplastic changes. On October 24, 2020, the patient visited our outpatient clinic for further systematic diagnosis and treatment. The outpatient was

admitted to our department as "skin tumor". The admission symptoms are as follows: There was a 1. 2*3cm dark erythema on the right penile root with unclear boundary, thickened skin lines, and dry surface. There was a suture in the center of the lesion without obvious erosion or exudation. Patchy pale erythema was seen on the scrotum surface with unclear boundary. The initial diagnosis on admission was skin tumor of unknown origin.

Perfect relevant inspection check after admission, routine blood routine, routine urine, dung, c-reactive protein, liver and kidney function, ion four, blood lipid, serum glucose, glycosylated hemoglobin, syphilis, AIDS and quantitative blood coagulation four, D - dimer, two of tumor, thyroid function, determination of ethylene-propylene liver quantitatively, carbohydrate antigen 199, neuron specific enolization enzyme not seen obvious abnormity. Electrocardiogram showed that sinus rhythm electrocardiogram was normal. Cardiac color Dopplerultrasound showed that in the resting state: there was no obvious abnormality in cardiac structure and blood flow. Left ventricular systolic function and diastolic function were normal. The examination of superficial organs [breast and axillary lymph nodes] showed that there was no obvious abnormality in bilateral breasts, and no obvious abnormal enlarged lymph nodes were detected in bilateral armpits. Examination of superficial organs [inguinal lymph nodes] showed that there were no abnormal enlarged lymph nodes in the bilateral inguinal region. Abdominal ultrasound [kidney, ureter and bladder] showed prostatic hyperplasia and calculi, and no obvious abnormalities were found in both kidneys and bladder. Chest CT scan showed no clear lesions. Abdominal ultrasound examination (liver, gallbladder, pancreas and spleen) showed that there were no obvious abnormalities in liver, gallbladder, pancreas and spleen. The examination of the superficial organs [scrotum, bilateral testis and epididymis] showed left varicocele, and there was no obvious abnormality in the bilateral testis and epididymis.

Exclusion of surgical contraindications, "skin malignant tumor resection + random skin flap transfer and reconstruction + skin biopsy" was performed on October 27, 2024-October 27. MOS surgery was performed, and the contrast blue light was not clear under the control conditions. Wood light blue light was used to irradiated the development boundary, and the boundary was enlarged by 2. 5cm before the resection. (2024-10-3109:03) Rapid paraffin and diagnosis [Rapid Paraffin and diagnosis of Skin Tumors (single site)] examination showed that: 1. (Scrotal skin) part of the skin tissue, multiple 3 atypical epithelial hyperplasia in the basal layer of the epidermis, formation of neoplastic nests in the superficial dermis, loose atypical cells, poor adhesion, and intercellular cleft formation. The features of epithelial neoplasia were consistent with early superficial acantholytic squamous cell carcinoma (SCSCC). The margins and bases of the tissue were generally normal. It is recommended to pay attention to the follow-up observation after operation. 2. Multiple epidermal cysts (scrotal skin). Immunohistochemical results: CK7 (-), CK5/6 (+), EMA (+), CEA(-), S100 (-), Ki67 (10%+), P53 (5%+, wild-type expression pattern), P16 (+), P63 (+), HMB45 (-), Melan A(-), CAM5. 2(-). Nlrlln special staining results: PAS (-). After operation, the scrotum surgical site suture was in place, the wound was closed neatly, no redness, swelling, abnormal secretion was observed, the surface was covered with white dry excipients, local swelling of the foreskin, and no obvious swelling of the scrotum. He was discharged from the hospital on November 1, 2024. The sutures were removed 20 days after the operation on November 16, 2024. Mild edema of the penile foreskin was observed, no purulent secretion was observed at the suture of the incision, and the anastomosis grew well. Up to January 25, 2025, he patient recovered well and no signs of recurrence were found in imaging examination. Now, the patient is stillunder close follow-up.

2. Discussion

2.1 Clinical and Pathological Features

ASCC usually presents as red or fleshy-colored nodules that may be accompanied by surface thickening, ulceration, erosion, or crusting. At the vulvar site, the lesion may be aggravated by friction or infection, resulting in local pain or bleeding. ASCC is pathologically characterized by acantholysis, the formation of adenoid or tube-like lacunae, and a significant reduction in the expression of tumor cell adhesion molecules such as E-cadherin and CD138. In addition, ASCC cells often exhibit pleomorphism with frequent mitotic figures, suggesting a high degree of malignancy. ASCC is characterized by extensive acantholysis of malignant epithelial cells, resulting in pseudovascular or pseudoglandular appearance, and is therefore also referred to as adenoid squamous cell carcinoma and pseudoglandular squamous cell carcinoma. ASCC can relapse, metastasise, and be associated with other concurrent malignancies. Compared with traditional squamous cell carcinoma, ASCC has a higher male to female ratio. Histopathology showed epithelial cell proliferation extending into the dermis, forming lobular, columnar, and insular structures [1].

2.2 Pathogenesis

Acantholysis of ASCC is associated with a decrease in adherent hydatidiform mole between cells and extracellular matrix. Its specific etiology is still unclear and may be related to gene mutations or changes in expression regulation. Studies have shown that ASCC express lower levels of desmoglein 3 and E-cad herin compared to conventional squamous cell carcinomas, with approximately 89% of ASCC cases showing deficiency of at least one desmoglein and 65% showing deficiency of two or more proteins [2], [3], [4].

2.3 Etiology

The etiology is multifactorial and multi-mechanism, involving a variety of factors such as ultraviolet exposure, HPV infection, abnormal cell adhesion molecules, chronic inflammation, immunosuppression, chemical exposure, smoking and alcohol consumption, and genetic factors. HPV infection may reduce the risk of ASCC by activating the immune system and eliminating potential cancerous cells. The acantholysis characteristics of HPV infection may be related to the abnormal cell adhesion molecules caused by HPV infection. ASCC constitutes 2-4%of all squamous cell carcinomas and primarily occurs in sun-exposed areas such as the head and neck. It is less common in non-sun-exposed areas like the vulva, and some studies suggest a link with radiothe rapy in a minority of cases. However, the specific histogenesis of vulvar ASCC remains unclear. Some studies have found an association between vulvar ASCC and lichen sclerosis, also known as vulva White spot, which was a potential comorbidity in our patient [5], [6].

2.4 Differential Diagnosis

Due to its low incidence and diverse morphology, it must be distinguished from traditional squamous cell carcinoma, adenocarcinoma, adenosquamous carcinoma, mucoepidermoid carcinoma and angiosarcoma. Immunohistochemical examination is very important for its accurate diagnosis[7].

2.4.1 Basal cell carcinoma (BCC)

Basal cell carcinoma (BCC) is one of the most common skin malignancies and occurs mostly in

sun-exposed areas, such as the face, neck, and hands. It typically presents as a pearl-like translucent nodule with a smooth surface, often accompanied by telangiectasia. It grows slowly and rarely metastasizes, but can infiltrate locally. ASCC is more common at the junction of skin and mucosa, such as vulva and oral cavity. They appear as red or fleshy-colored nodules, which may be accompanied by ulceration, erosion, or crusting on the surface. It is highly invasive and prone to local invasion and metastasis. Its clinical presentation may be similar to ASCC, but histopathological examination shows that BCC is mainly composed of basal-like cells and lacks acantholytic features. In addition, dermoscopy has high sensitivity and specificity in the diagnosis of BCC, and can be used as a primary screening method.

2.4.2 Common-type SCC

ASCC belongs to a special subtype of squamous cell carcinoma and needs to be differentiated from other squamous cell carcinoma (SCC) subtypes. For example, common-type SCC usually shows hyperkeratosis and cellular pleomorphism, whereas ASCC is characterized by acantholysis and lacunar formation. Histopathological examination is the gold standard for differential diagnosis.

2.4.3 Vulvar lichen sclerosus

Other Benign lesions of the vulva Benign lesions of the vulva, such as vulvar lichen sclerosus and vulvar eczema, may be clinically similar to ASCC, but pathological examination can confirm the diagnosis. For example, vulvar lichen sclerosus is characterized mainly by epidermal atrophy and liquefaction degeneration of basal cells, whereas ASCC is characterized by acantholysis and infiltration of tumor cells.

2.5 MOS

Modified Mohs microsurgery (MOS) is suitable for skin cancer in high-risk areas of ASCC, such as the face and external genitalia. It is an effective method for the treatment of ASCC. Its high cure rate, accurate resection and protection of normal tissues are especially suitable for high-risk sites and recurrent tumors. Complete removal of the tumor is confirmed by pathological examination, and the cure rate can reach more than 99%. Through layer by layer resection and microscopic examination, the surrounding normal skin can be retained to the maximum extent, and the postoperative scar can be reduced. The treatment strategy of ASCC is constantly developing. In addition to traditional surgical resection, the combination of chemotherapy and radiotherapy, targeted therapy, immunotherapy and other emerging methods provide more options for patients. In the future, multidisciplinary comprehensive treatment should be explored to find the best combination of surgery, chemotherapy, radiotherapy and immunotherapy to improve the treatment effect and prognosis of patients.

3. Treatment and Prognosis

This case was representative of ASCC with positive immunostaining for cytokeratin (CK5/6) and p63. Immunohistochemical studies have shown that the expression of Ki-67, p40 and CK5/6 in ASCC is closely related to the invasion and prognosis of ASCC. High Ki-67 expression indicates a high rate of cell proliferation, whereas positive expression of p40 and CK5/6 correlates with the squamous cell carcinoma phenotype. In addition, the positive expression of vimentin in ASCC may reflect the dedifferentiation characteristics of tumor cells, further enhancing their invasiveness. There is no established treatment guideline for ASCC due to its rarity. Surgical resection is the preferred treatment for cutaneous and labial ASCC, with a relatively low rate of local recurrence

and metastasis, combined with radiotherapy or chemotherapy when necessary. The extent of surgery should be determined according to the size of the tumor and the depth of invasion.

However, preoperative exclusion of other pathologies is crucial, and treatment should be individualized based on patient age and fertility desires. Prognosis for ASCC is controversial, with some studies suggesting a more aggressive behavior compared to conventional squamous cell carcinoma, while others argue that prognosis is more dependent on tumor size, depth of invasion, differentiation, and perineural invasion rather than histological subtype.

References

[1] Shetty, D., Suresh, A., Acharya, S., Desai, A., Anehosur, V., & Kumar, N. (2022). Acantholytic variant of squamous cell carcinoma in the mandible: A rare entity and a brief review. Stomatologija, 24(1), 26–32.

[2] Barron, C. R., Paczos, T. A., Varghese, S., & Smoller, B. R. (2022). Acantholytic Squamous Cell Carcinoma Arising From Lichen Sclerosus: A Rare Case Affecting Vulvar Skin. International journal of gynecological pathology : official journal of the International Society of Gynecological Pathologists, 41(2), 122–125. https://doi. org/10. 1097/PGP. 0000000000000794.

[3] Griffin, J. R., Wriston, C. C., Peters, M. S., & Lehman, J. S. (2013). Decreased expression of intercellular adhesion molecules in acantholytic squamous cell carcinoma compared with invasive well-differentiated squamous cell carcinoma of the skin. American journal of clinical pathology, 139(4), 442–447. https://doi. org/10. 1309/AJCPTN4BNJYIRUWO.

[4] Bayer-Garner, I. B., & Smoller, B. R. (2001). The expression of syndecan-1 is preferentially reduced compared with that of E-cadherin in acantholytic squamous cell carcinoma. Journal of cutaneous pathology, 28(2), 83–89. https://doi. org/10. 1034/j. 1600-0560. 2001. 280204. x.

[5] Lasser, A., Cornog, J. L., & Morris, J. M. (1974). Adenoid squamous cell carcinoma of the vulva. Cancer, 33(1), 224–227. https://doi. org/10. 1002/1097-0142(197401)33:1<224::aid-cncr2820330133>3. 0. co;2-6.

[6] Raut, T., Keshwar, S., Jaisani, M. R., & Shrestha, A. (2021). Adenoid (Acantholytic) Squamous Cell Carcinoma of Mandibular Gingiva. Case reports in dentistry, 2021, 5570092. https://doi. org/10. 1155/2021/5570092.

[7] Ogawa, T., Kiuru, M., Konia, T. H., & Fung, M. A. (2017). Acantholytic squamous cell carcinoma is usually associated with hair follicles, not acantholytic actinic keratosis, and is not "high risk": Diagnosis, management, and clinical outcomes in a series of 115 cases. Journal of the American Academy of Dermatology, 76(2), 327–333. https://doi.org/10.1016/j. jaad. 2016. 09. 024.