CLINICAL CASE

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Cite as: Tenazoa-Villalobos J, Yan-Quiroz E, Burgos-García M, Llerena-Cobián G, Villarreal-González M, Díaz-Plasencia J. Vulvar basal cell carcinoma. Rev peru ginecol obstet. 2025;71(4). DOI: https://doi.org/10.31403/rpgo.v71i2821

Vulvar basal cell carcinoma
Carcinoma basocelular vulvar

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DOI: https://doi.org/10.31403/rpgo.v71i2821

ABSTRACT
Basal cell carcinoma, the most diagnosed malignant skin neoplasm, typically arises from hair stem cells in the hair fundibulum in the dermis, including the genital area. However, its appearance in the vulvar area is a rare occurrence. This area, being non-photexposed, is uncommon for the development of these neoplasms; the aetiology is related to genetic mutations rather than human papillomavirus infection. The case we present, of an 87-year-old woman with a tumour in the right labia majora, confirmed by incisional biopsy as basal cell carcinoma with a disease duration of 5 years, is significant in understanding and treating this condition with successful surgical management.
Keywords: Skin neoplasms, carcinoma basal cell, genital neoplasms female

RESUMEN
El carcinoma basocelular, la neoplasia cutánea de piel más frecuentemente diagnosticada, suele originarse en las células madre pilosas del fundíbulo piloso de la dermis, incluida la zona genital. Sin embargo, su aparición en la zona vulvar es poco frecuente. Al no estar fotoexpuesta, esta zona es poco frecuente para el desarrollo de estas neoplasias; la etiología se relaciona con mutaciones genéticas más que con la infección por el virus del papiloma humano. El caso que presentamos, de una mujer de 87 años con un tumor en el labio mayor derecho, confirmado mediante biopsia incisional como carcinoma basocelular, con un tiempo de enfermedad de 5 años, es de gran importancia para comprender y tratar con éxito esta afección mediante cirugía.
Palabras clave: Neoplasias cutáneas, carcinoma basocelular, neoplasias de los genitales femeninos

Introduction

Basal cell carcinoma (BCC) is the most prevalent form of skin cancer; however, it occurs less frequently than other gynecologic malignancies. Surgery remains the treatment of choice, achieving high rates of complete cure and an overall favorable prognosis; lymph node and distant metastases are very rare. The incidence of BCC is strongly associated with advancing age and cumulative sun exposure, with the majority of cases arising in areas subjected to ultraviolet A and B radiation, particularly the head and neck region. Nevertheless, BCC may also develop in sites typically protected from sunlight, including the perineum, buttocks, axillae, and inguinal region[1–4].

Vulvar squamous cell carcinoma represents the most prevalent type, accounting for 75% of cases, whereas vulvar basal cell carcinomas is uncommon, comprising only about 2% of cases[2, 5, 6]. The affected population consists of postmenopausal Caucasian women in their seventies. These tumors can be locally invasive and generally do not metastasize[7]. However, some studies report that vulvar BCC exhibits a more aggressive biological behavior, with a higher risk of recurrence and regional or distant metastasis[8].

We present the case of an 84-year-old woman diagnosed with vulvar basal cell carcinoma, successfully treated with surgery. Informed consent has been obtained from the patient for the publication of this report

Case report

An 87-year-old woman from Trujillo, with a gynecologic history of G4P4004 and a medical history significant for hypertension, presented with a five-year history of intense itching localized to the right labia majora, predominantly at night. The symptoms were accompanied by vulvar lichenification and a non-ulcerated, hyperpigmented nodule measuring 1 × 2 cm in the same region. The patient denied vaginal discharge or bleeding. She sought care at a health center, where she received symptomatic treatment and topical antifungal therapy without clinical improvement.

The patient was hospitalized in December 2023 at the Almanzor Aguinaga National Hospital in the cardiology department due to an acute myocardial infarction. During her hospitalization, an ulcerated nodule was noted on the right labia majora, with raised edges, measuring 4 x 1 cm (Figure 1A). The lesion was evaluated by dermatology and gynecology, which recommended a biopsy.

An incisional biopsy was performed on the upper edge of the ulcerated lesion on the right labia majora, with the following results: pigmented basal cell carcinoma, with an expansive and infiltrative pattern, ulcerated; extending into the deep reticular dermis up to 5 mm; focal neoplastic infiltration of a lymphatic vessel; negative for perineural invasion. After stabilization of her cardiac condition, the patient was discharged in February 2024 and attended the gynecologic oncology clinic, where a 6x5 cm lesion was found on the right labia majora; it was mobile, painful to the touch, and without discharge. No inguinal lymphadenopathy is palpable. Further imaging studies were ordered: Soft tissue ultrasound (04/01/2024): Right inguinal region: 10 x 5mm lymph node with fatty hilum. In the left inguinal region, a 35 x 17mm hernial sac is observed, with no lymphadenopathy. Non-contrast pelvic CT scan (April 20, 2024): A 58 x 49mm hyperdense lesion originating in the right labia majora, with an infiltrative appearance, infiltrating the adjacent subcutaneous tissue; it does not cross the midline or contact the muscular plane. No lymphadenopathy. (Figure 1B)

She was admitted to the operating room, where a wide local excision was performed, followed by reconstruction with primary closure of the surgical wound. Intraoperative findings revealed a 5x6 cm crater-like ulcerated lesion on the right labia majora, with raised, heterochromatic edges, involving its proximal third and the mons pubis. Postoperatively, she progresses favorably and is discharged on the third day, with the surgical wound in good condition, showing no signs of inflammation or discharge. (Figure 2)

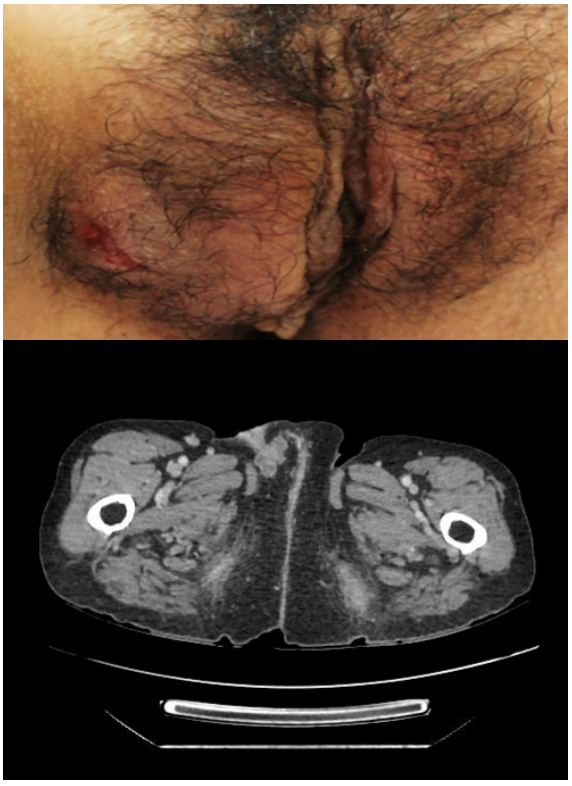

Figure 1. A. Macroscopic appearance of a lesion on the right labium majus, ulcerated and with raised edges, measuring 4 × 1 cm. Figure B. Non-contrast pelvic CT scan. An infiltrative hyperdense lesion is observed involving the subcutaneous tissue, with hypodense areas that do not extend beyond the midline (arrowheads); no lymphadenopathy or metastases are evident.

She is subsequently evaluated with the pathological anatomy results, which reveal (Figure 3): nodular and infiltrative basal cell carcinoma, ulcerated. 13 mm thick, extending to the hypodermis. Negative for lymphovascular invasion, positive for perineural invasion. Surgical margins: free of neoplasia. Ber-EP4 immunohistochemistry: positive.

Subsequently, the patient was seen in the outpatient clinic for a follow-up visit, during which the surgical scar was found to be in good condition; she reported no urinary dysfunction or paresthesias, sphincter control was preserved, and no signs of recurrence were observed.

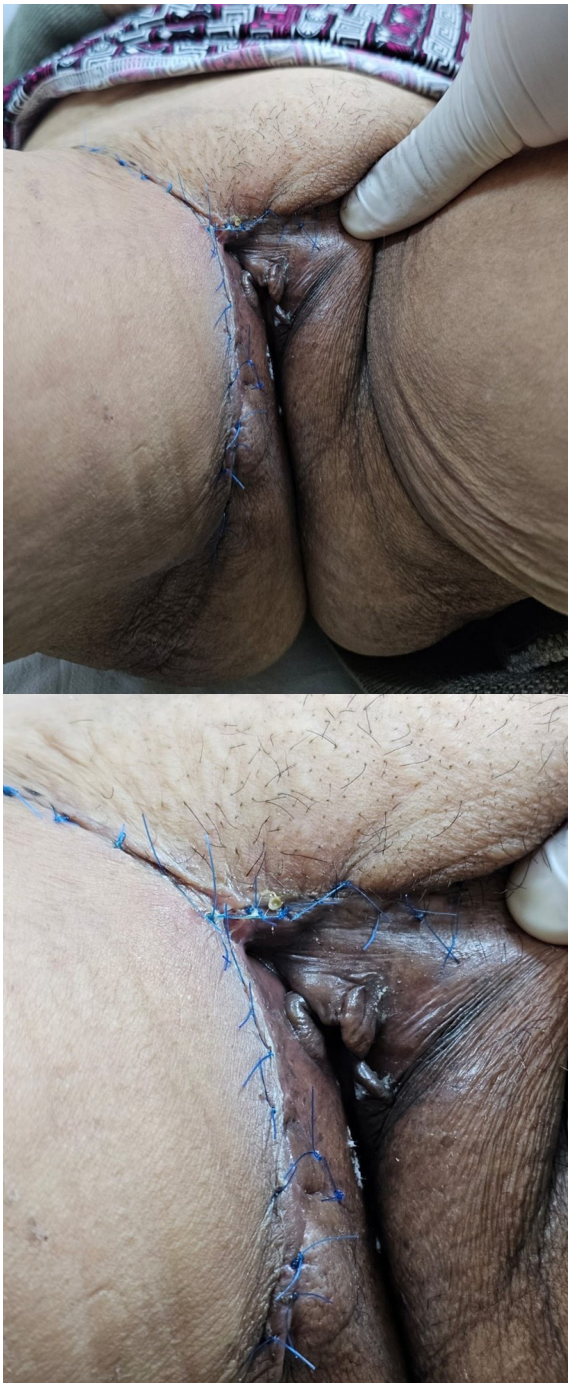

Figure 2. Wide local excision with primary closure of the margins; the extent of the excision involves the right labium majus and extends toward the perineal region and the mons pubis. There are no signs of inflammation or macroscopic lesions. The urethra and vaginal canal are spared.

Discussion

Vulvar CCB is a rare condition; the cluster of symptoms can persist for many years. Certain risk factors, such as HPV infection and mutations in tumor suppressor genes, including p53 and the patched protein homolog (PTCH) are linked to the development of this tumor. The origin may be mediated by human papillomavirus (HPV) infection, with genotypes 16 (78%) and 33 (7%) being the most common. There is also a form of vulvar basal cell carcinoma independent of HPV, linked to chronic inflammatory and autoimmune processes, lichen sclerosus, and vulvar intraepithelial neoplasia; in which p53 gene mutations are expressed more frequently[9–13].

Clinically, it presents as a "rodent-like ulcer" with raised, papillary edges; the color ranges from pearly to hyperpigmented and gray. Patients generally report pruritus, which is the predominant symptom, followed by bleeding, pain, and discomfort. Histopathological examination is a method that confirms the diagnosis; clinical suspicion alone is not sufficient to perform a procedure. Surgical options for vulvar CCB include radical vulvectomy, wide or simple local excision, and Mohs surgery[14].

It should be noted that BCC is associated with arsenic exposure, immunosuppression, xeroderma pigmentosum, and nevus-associated basal cell carcinoma syndrome (formerly known as Gorlin-Goltz syndrome). There are different types of basal cell carcinoma. In this case, a nodular growth pattern is evident. This is because it exhibits lobulated and nodular masses of basaloid cells, which are found in nests and are monomorphic, with scant cytoplasm and round nuclei containing dense chromatin[15–17].

Vulvar BCC affects women over the age of 70, with a particular prevalence among those with low socioeconomic status and limited access to healthcare services. Diagnosis is generally delayed due to the slow progression of the disease and its atypical location. It is worth noting that many patients do not seek a healthcare professional in a timely manner, and this is the main reason for the delay in diagnosis[4,18].

Vulvar BCCs are slow-growing, invasive, and destructive lesions with a risk of lymph node, lung, bone, and skin involvement. This is because the skin of the vulva is thinner and is associated with aggressive subtypes (infiltrating, sclerosing, and basal cell), which typically measure more than 2 cm[15]. This malignant neoplasm is a condition associated with chronic irritation, and although the presence of HPV DNA has been demonstrat-

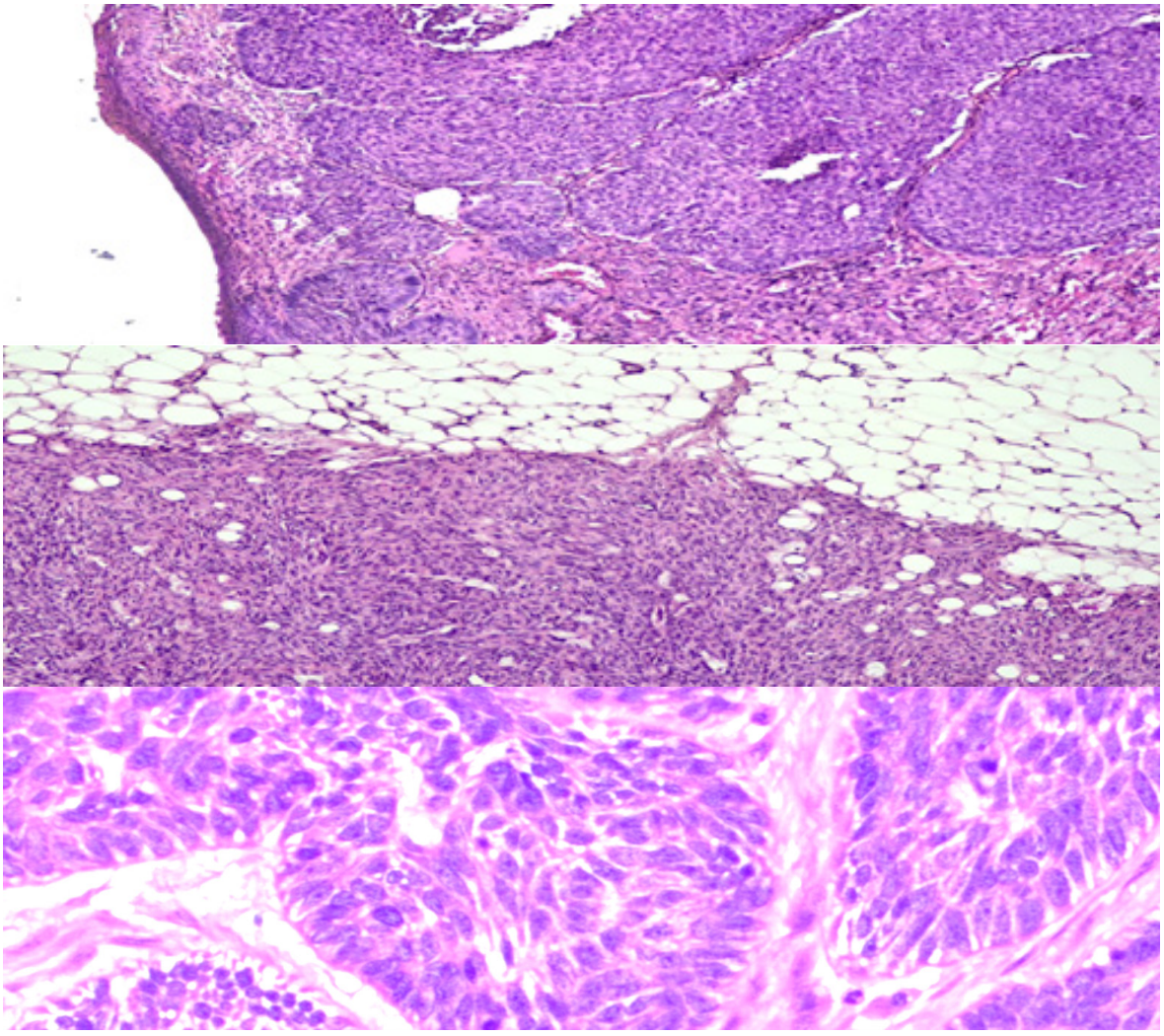

Figure 3. Histopathology, hematoxylin and eosin staining. A. 40X. The microscopic image shows a nodular proliferation consisting of basaloid cells lacking cytoplasm, with rounded nuclei containing dense chromatin; some cells exhibit cystic degeneration, forming lobules or nodules (arrows) with various points of contact with the thinned epidermis. Most fields show peripheral nuclear palisading, as well as tumor-stromal clefts (asterisk). Variable mitoses were evident in different fields and areas of necrosis, with mild to moderate pleomorphism. B. 40X. The neoplasm is seen to extend into the hypodermis (brackets), with loss of the nuclear palisade and reduced lobulation as infiltration increases. C. 100X. Basaloid proliferation presents as nests with a peripheral palisade appearance (arrow).

ed in BCCs appearing in other extragenital areas, not all cases of genital BCC show the presence of HPV DNA[8].

Imaging studies provide significant diagnostic value; in the case of magnetic resonance imaging, T2-weighted images show that CCBs exhibit greater hyperintensity than muscle and moderate hyperintensity compared to healthy skin, unlike squamous cell carcinoma, which is isointense and heterogeneous[19, 20]. On optical coherence tomography, these lesions are hypodense and rounded, surrounded by a hyperreflective halo and epidermal layer abnormalities, which constitute diagnostic features[21]. A recent non-inferiority study demonstrated that a definitive diagnosis using this method can obviate the need for biopsy in 66% of patients, minimizing delays in management and avoiding an invasive procedure[22].

Immunohistochemistry plays an important role in differentiating from other types (squamous and spinocellular carcinomas), and for this purpose, cell adhesion molecules (CAMs) are expressed, one of which is EpCAM, a surface glycoprotein highly expressed in non-squamous epithelial cancers. BerEP4 is an anti-EpCAM antibody and has been shown to be a highly sensitive marker for BCC. In the

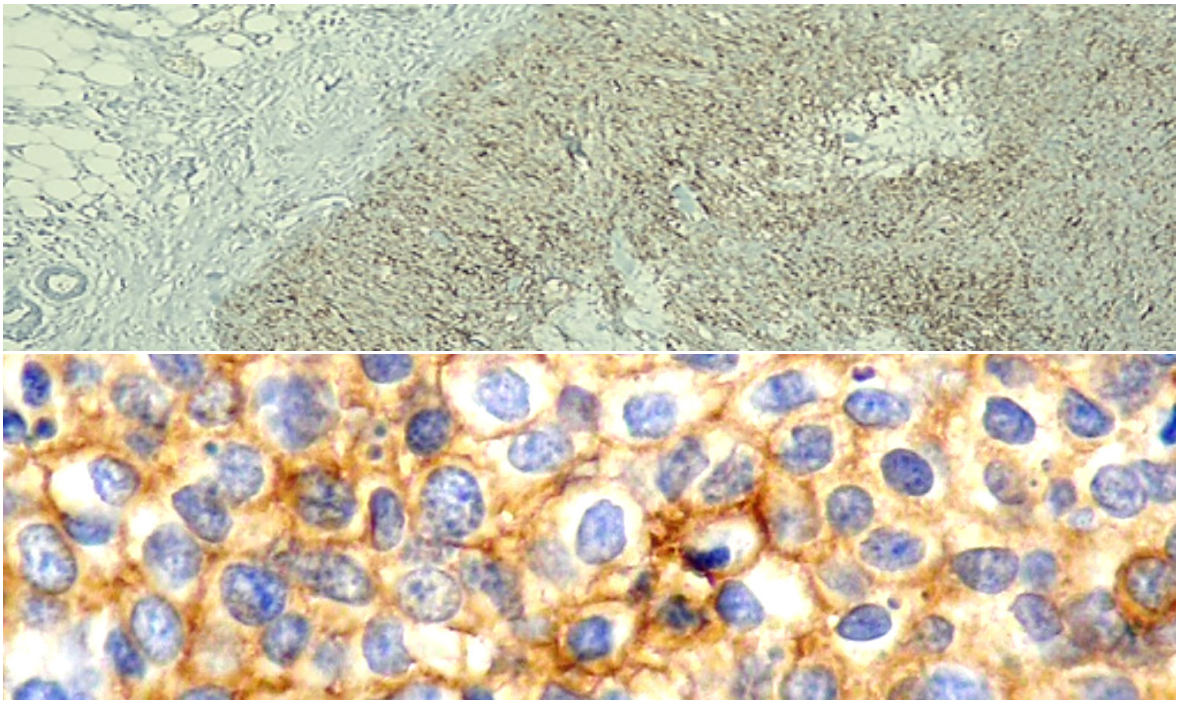

Figure 3. Immunohistochemistry. The Ber-EP4 marker is positive (star). D. 40X. E. 100X.

case of BCCs originating in the perineal skin, they tend to show more intense staining, so the diagnosis is established using this method[23, 24].

Surgical indications are broad and can range from radical or simple vulvectomy to local resection or Mohs surgery, adhering to the principle of maintaining disease-free margins of up to 1 cm. Radiation may be applied in cases of margin involvement; however, it does not appear to influence survival. Furthermore, its utility is most significant in locally advanced or unresectable vulvar BCC, as it demonstrates excellent locoregional control, and tumor size is the sole risk factor for recurrence [25]. Chemotherapy is not indicated for localized disease. Surgical treatment is the widely accepted management of choice for localized primary vulvar BCC; according to the latest case reports (Table 1), the prognosis is excellent when performed effectively [16].

Conclusion

Basal cell carcinoma of the vulva is a rare tumor with an excellent prognosis when properly managed. We emphasize the importance of early diagnosis and management of the disease, which leads to excellent outcomes in terms of both prognosis and cosmetic results.

Article information

Received: September 4, 2025

Accepted: November 18, 2025

Published online: February 6, 2026

Conflicts of interest: The authors declare that they have no conflicts of interest.

Funding source: Self-funded.

Statement on the use of artificial intelligence (AI): The authors declare that no artificial intelligence (AI) tools were utilized in the preparation of this article.

Ethical considerations: The patient agreed to and signed a written informed consent form for the publication of this case report and the included images. The Ethics Committee of the Víctor Lazarte Echegaray Hospital approved the report.

Authors' contributions: JRTV, EFYQ, and MNAI were responsible for the patient's clinical management and collected the clinical data. JTV, EYQ, BGM, and LCG drafted the manuscript. BGM and LC described the pathology. JRT and EFYQ reviewed and approved the submission of the manuscript.

Table 1. Clinical and management details of cases of vulvar basal cell carcinoma reported in PubMed.

Author	Year	Clinical findings	Treatment
Aminimoghadam S, Marzban Z, Ghaemi M, Azizi S. (14)	2023	A 68-year-old woman with a 5-year history of the disease. Non-metastatic vulvar basal cell carcinoma, 14–15 mm in diameter, non-ulcerated. HPV DNA negative	Surgery: Yes Procedure: Wide local excision with a 1 cm margin and bilateral inguinal-femoral lymphadenectomy. Outcome: Favorable
Asilian A, Moeine R, Hafezi H, Shahriarirad R.(26)	2022	A 77-year-old multiparous woman presenting with vulvar itching and discomfort; she has had this condition for 2 years and has a well-defined, pink, erosive lesion measuring 10 x 4 cm on the right labium majus. No lymphadenopathy. Incisional biopsy: vulvar BCC	Surgery: Yes Procedure: Slow Mohs micrographic surgery with clear margins
Rudd JC, Li C, Hajiannasab R, Khandalavala J, Sharma P. (27)	2021	A 51-year-old woman presenting with vaginal irritation, itching, and a burning sensation for 1 year. A 1.5-cm bilateral vulvar lesion, firm in consistency, with superficial red ulcerations, located below the mons pubis. Biopsy performed on Saturday: superficial and nodular vulvar BCC.	Surgery: Yes Procedure: Wide local excision with primary closure.
McEnery-Stonelake ME, Clark MA, Vidimos AT. (15)	2020	An 80-year-old Caucasian woman with a 6-month history of illness, presenting with a pearly pink plaque on the left vulva measuring 1.8 x 1.5 cm. History of treatment with Perilamp: 10 minutes, twice daily, following the birth of each of her 5 children. Incisional biopsy: vulvar BCC.	Surgery: Yes Procedure: Mohs surgery with clear margins
Renati S, Henderson C, Aluko A, Burgin S. (4)	2019	An 83-year-old woman with a 40-year history of lichen sclerosus. Two months ago, she developed a 5-mm eroded papule on the right labium majus, labium minus, and clitoris, with a sclerotic appearance. Incisional biopsy: vulvar BCC.	Surgery: Yes Procedure: Mohs surgery with clear margins
Comstock JR, Woodruff CM, Yu SS, Kornik RI. (28)	2018	A 44-year-old woman with a history of lichen sclerosus dating back more than 10 years. She has had pain, irritation, and erythema in the left labium majus for 6 weeks. A pink macule measuring 0.5 × 0.7 cm is evident on the left labium majus. Incisional biopsy: vulvar BCC.	Surgery: Yes Procedure: Mohs surgery with clear margins

BCC: Basal cell carcinoma

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