GLOBAL JOURNAL
OF MEDICAL RESEARCH - F: DISEASES
Volume 26 | Issue 1 | 2026 | Article ID: GJMR-155195 | Language: English

CATALOGING
LCC • RC280.B8

Primary Squamous Cell Carcinoma of the Breast: A Rare Case Report

Article Record

Dr. Welington Lombardi*
Universidade De Araraquara Uniara,
*Corresponding Author

Maria Clara Vieira Martinez

Isabella Franco Barbosa Pesce

Pietra Lopes Monti

Letícia Dalavale Fabretti

Roseane Rigo

Daniela Videira Botton

Thais Luiza Pavan Martins

Vitória Ribeiro Farinha

Carla de Freitas

Flávia Vicentin Silva

Luciana Borges Lombardi

RECEIVED	REVISED	ACCEPTED	PUBLISHED	PEER REVIEW
2026-01-29	2026-02-03	2026-02-12	2026-04-03	Double Blind

Abstract

Primary squamous cell carcinoma (SCC) of the breast is a rare type of cancer, representing between 0.06% and 0.2% of malignant breast tumors. The disease presents with rapid growth and an aggressive pattern, and the lack of well-defined therapeutic protocols hinders its treatment. The following is a case report of a 64-year-old patient referred due to the appearance of a nodule in her left breast with progressive growth. On physical examination, she presented with a large breast mass (>10 cm) and palpable axillary lymph nodes. Core biopsy identified the lesion as poorly differentiated carcinoma, staged as T4d N1 Mx (inflammatory). The patient was referred for neoadjuvant chemotherapy with paclitaxel and carboplatin, but experienced tumor progression during chemotherapy and was referred for a hygienic mastectomy. The histopathological result showed an invasive carcinoma with squamous differentiation, grade 3, ulcerated with invasion of the pectoral muscle and free margins (pT4b pNx pMx). Only after immunohistochemistry was it confirmed that it was, in fact, a keratinizing squamous cell carcinoma (SCC). Postoperatively, the patient returned with signs of surgical wound dehiscence and pleuropulmonary and mediastinal metastatic progression. After multidisciplinary and family discussion, exclusive palliative care was instituted. Primary SCC of the breast presents with an aggressive clinical picture and a challenging diagnosis, requiring histopathological and immunohistochemical confirmation. The gold standard of treatment includes surgery with free margins, but there is no consensus regarding adjuvant chemotherapy. The prognosis is guarded, especially in locally advanced or metastatic cases

primary breast carcinoma | rare breast neoplasms | squamous cell carcinoma of the breast

AI USE STATEMENT
No generative AI was used for analysis or results.

FUNDING
No external funding was declared for this work.

CONFLICT OF INTEREST
The authors declare no conflict of interest.

DATA AVAILABILITY
Not applicable for this article.

ETHICS
No ethics committee approval was required for this article type.

CONSENT
Not applicable for this article.

TRIAL REG.
Not applicable.

Crossref DOI: 10.34257/GJMRFVOL26IS1PG1

How to Cite: Author(s) (2026). Primary Squamous Cell Carcinoma of the Breast: A Rare Case Report. Global Journal of Medical Research, 26(1), 1-15. DOI: 10.34257/GJMRFVOL26IS1PG1

Global Journal (GJMR) - Section F
GJMR Volume 26 Issue 1

Primary Squamous Cell Carcinoma of the Breast: A Rare Case Report

Dr. Welington Lombardi[§], Maria Clara Vieira Martinez[§], Isabella Franco Barbosa Pesce[§], Pietra Lopes Monti[§], Letícia Dalavale Fabretti[§], Roseane Rigo[§], Daniela Videira Botton[§], Thais Luiza Pavan Martins[§], Vitória Ribeiro Farinha[§], Carla de Freitas[§], Flávia Vicentin Silva[§], and Luciana Borges Lombardi[§]

[§]Universidade De Araraquara Uniara,

Abstract

Primary squamous cell carcinoma (SCC) of the breast is a rare type of cancer, representing between 0.06% and 0.2% of malignant breast tumors. The disease presents with rapid growth and an aggressive pattern, and the lack of well-defined therapeutic protocols hinders its treatment. The following is a case report of a 64-year-old patient referred due to the appearance of a nodule in her left breast with progressive growth. On physical examination, she presented with a large breast mass (>10 cm) and palpable axillary lymph nodes. Core biopsy identified the lesion as poorly differentiated carcinoma, staged as T4d N1 Mx (inflammatory). The patient was referred for neoadjuvant chemotherapy with paclitaxel and carboplatin, but experienced tumor progression during chemotherapy and was referred for a hygienic mastectomy. The histopathological result showed an invasive carcinoma with squamous differentiation, grade 3, ulcerated with invasion of the pectoral muscle and free margins (pT4b pNx pMx). Only after immunohistochemistry was it confirmed that it was, in fact, a keratinizing squamous cell carcinoma (SCC). Postoperatively, the patient returned with signs of surgical wound dehiscence and pleuropulmonary and mediastinal metastatic progression. After multidisciplinary and family discussion, exclusive palliative care was instituted. Primary SCC of the breast presents with an aggressive clinical picture and a challenging diagnosis, requiring histopathological and immunohistochemical confirmation. The gold standard of treatment includes surgery with free margins, but there is no consensus regarding adjuvant chemotherapy. The prognosis is guarded, especially in locally advanced or metastatic cases

Keywords: *primary breast carcinoma, rare breast neoplasms, squamous cell carcinoma of the breast*

DOI: 10.34257/GJMRFVOL26IS1PG1

1. Introduction

Non-melanoma skin cancer is a significant public health problem, with an incidence increasing by 4% to 8% annually in developing countries[1]. Of new cancer cases registered, approximately 20% are located in the skin, making it the most frequent type of cancer in the world[2]. Primary squamous cell carcinoma (SCC) of the breast is considered a very rare malignant neoplasm, with an estimated prevalence between 0.06% and 0.2% of breast neoplasms[2,3]. Its occurrence is not well established, but it may be related to squamous metaplasia of the ductal epithelium or even originate from alterations during embryonic development[4]. Squamous cell carcinoma (SCC) presents rapid progression and a high invasive and metastatic potential when compared to basal cell carcinoma. Because it is an extremely rare neoplasm in the breast region, its clinical diagnosis becomes challenging[2].

According to the literature, the prevalence of SCC is associated with white women, ranging from 52 to 64 years of age[3]. Pure squamous cell carcinoma of the breast can originate from the epidermis, nipple, or even the epithelium of a deep epidermoid cyst or squamous metaplasia[5]. When it occurs in the breasts, the lesion can mimic breast cancer, with a desquamative and erythematous clinical presentation, of an irregular and verrucous lesion[2]. It is classified by the World Health Organisation (WHO) as a specific and distinct subtype of metaplastic tumour and presents the following criteria: 90% or more of the lesion composed of keratinising squamous cell carcinoma infiltrating mammary parenchyma; absence of other invasive neoplastic elements; no extensive involvement of the skin overlying the tumour and absence of primary neoplastic skin lesions[3].

In addition to its rarity, this carcinoma generally has a poor prognosis due to its aggressive nature and the lack of specific treatments, as there is no established protocol for it[3]. Core biopsy and immunohistochemistry are used for its diagnosis[4]. Any lesion that presents a clinical suspicion should be rigorously evaluated, with early biopsy requested to ensure an accurate diagnosis and avoid unnecessary radical therapies[2].

Regarding treatment, there is no consensus on the best clinical approach, but chemotherapy remains one of the options used. The chemotherapy regimen with cisplatin and fluorouracil has been described as an excellent option, with reasonable responses reported after its use[4]. However, surgical removal of the lesion remains the treatment of choice (gold standard), as it allows for complete histopathological examination of the tumour, evaluation of surgical margins, and assessment of prognostic factors such as perineural invasion. In cases of excision of small tumors, where the surgical margins are clear, i.e., 4 mm to 10 mm from the lesion, the cure rate is estimated at almost 99%[2].

Therapeutic approaches should be analysed and planned on a case-by-case basis, taking into account the patient's particular factors and preferences. Advanced cases of breast squamous cell carcinoma (SCC) may require mastectomy with axillary lymphadenectomy combined with adjuvant chemotherapy. However, in cases of primary breast SCC, removal with wide surgical excision is recommended, with lymph node dissection only necessary when there is clinical evidence of axillary spread. Histopathological confirmation, along with immunohistochemical evaluation and clinical history, is fundamental for the correct diagnosis of this rare type of tumour[2].

Therefore, the rarity of this case, its diagnostic difficulty, and the uncertainties regarding the best treatment to be instituted justify the writing of this article.

2. Case Report

Female patient, 64 years old, black race, G3P3C0A0, menarche at age 15, menopause at age 53, with no prior use of hormone replacement therapy. She reported being a chronic smoker, with no other reported comorbidities or relevant family history.

The patient was referred to the Mastology Service with a history of a palpable nodule in the left breast, associated with progressive growth. On physical examination, the left breast was larger than the right, due to a large nodule in the left breast, measuring more than 10 cm, associated with an ulcerated lesion, local skin thickening, and the presence of palpable lymph nodes in the ipsilateral axillary region (Figure 1).

Regarding the complementary exams, the patient brought a recent mammogram, classified as BIRADS 3 (Breast Imaging Reporting and Data System), which described a solid, hypoechoic, oval nodule with circumscribed margins, located at the junction of the medial quadrants of the left breast, measuring 4,5 x 4,0 x 4,3 cm.

In light of the clinical findings, a core biopsy of the lesion guided by ultrasound was requested, whose anatomopathological examination revealed a poorly differentiated, solid carcinoma. Immunohistochemistry revealed a triple-negative pattern, with negative estrogen receptor (ER), progesterone receptor (PR), and human epidermal receptor (HER2) and a proliferation antigen (Ki-67) of 70%.

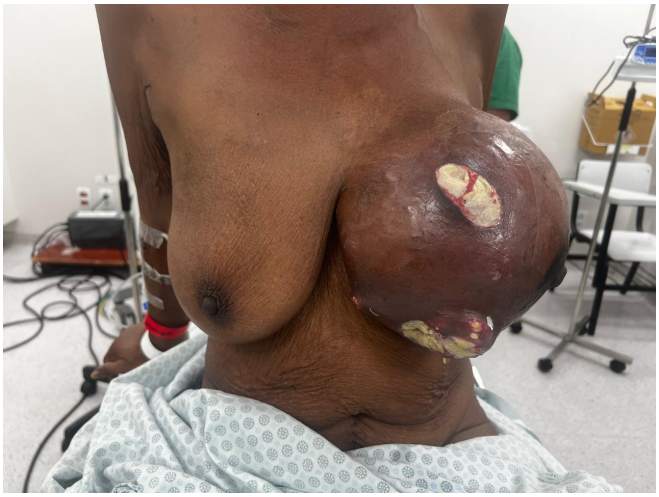


Figure 1. Physical examination showing a large tumor lesion in the left breast, with significant distension and ulceration of the skin, with associated secretion.

Source: author's own.

The chest CT scan showed a small solid subpleural nodule in the posterior basal segment of the left lower lobe, measuring 0.7 x 0.7 cm, suggestive of secondary pleuropulmonary involvement. Breast ultrasound showed a heterogeneous nodular formation, difficult to measure, occupying the entire left mammary parenchyma, associated with the presence of ipsilateral axillary lymphadenopathy, measuring 2.6 x 1.2 cm, which is atypical. Both bone scintigraphy and abdominal tomography were negative for secondary lesions.

Due to the size of the lesion, the patient was referred to the Oncology Service for neoadjuvant chemotherapy. Treatment with paclitaxel and carboplatin was chosen because this combination is widely recommended and used in advanced cases of breast and gynecological neoplasms and, as neoadjuvant chemotherapy, significantly increases the complete pathological response. However, after four cycles with this weekly protocol, the patient showed a poor response and significant tumour progression and was then submitted to hygienic mastectomy surgery.

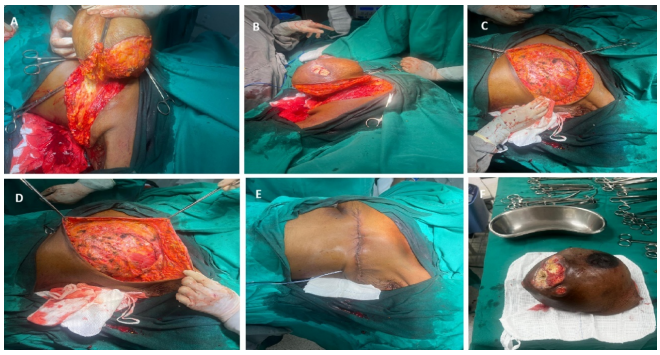


Figure 2. Radical mastectomy of the left breast, Halsted type (A, B and C). Intercostal muscle, without the pectoralis major muscle, is already excised (D). Final closure with skin suture and Portovac drain (E). Final view of the surgical specimen (left breast).

Source: author's own.

The histopathological examination revealed invasive carcinoma with squamous differentiation, ulcerated, grade 3, measuring 17.0 x 12.0 x 10.0 cm, with focal angiolymphatic invasion, infiltration of the pectoral muscle and free margins (pT4b pNx pMx) (Figure 3).

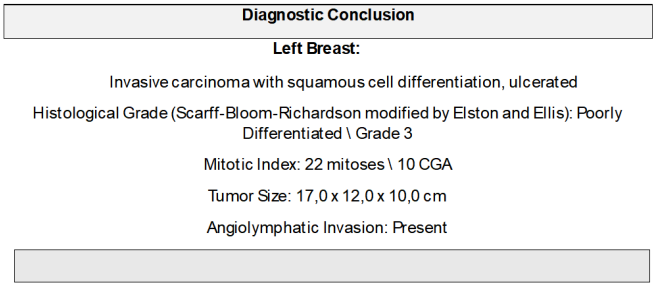
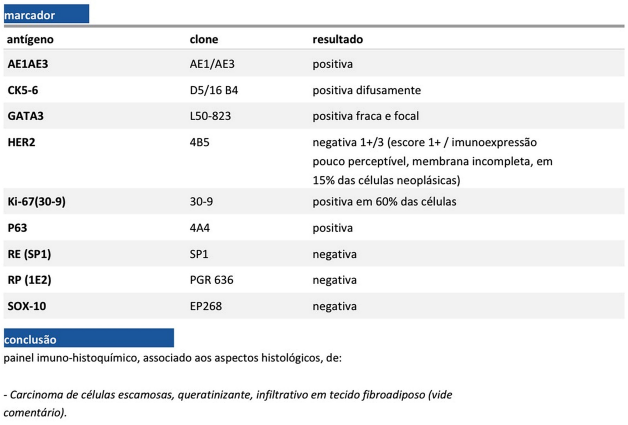


Figure 3. Histopathological examination of the surgical specimen showed invasive carcinoma with Ulcerated Squamous Cell Differentiation.

Source: author's own.

Only after performing immunohistochemistry on the surgical specimen was the diagnosis of keratinising squamous cell carcinoma (SCC) definitively confirmed (Figure 4).

In the immediate postoperative period, the patient developed dehiscence of the surgical wound, in addition to disease progression in the anterior mediastinum and pleura. The case was discussed with the Clinical Oncology and Radiotherapy teams, and it was decided to perform palliative radiotherapy in the anterior hemithorax, followed by capecitabine as a second-line treatment. Upon conducting a new chest CT scan for therapeutic planning, a mass was found in the sternal region, with a significant increase in tumour volume. The adoption of exclusive palliative care was discussed with the patient and her family, and it was agreed that no further interventions would be performed.



marcador

antígeno	clone	resultado
AE1AE3	AE1/AE3	positiva
CK5-6	D5/16 B4	positiva difusamente
GATA3	L50-823	positiva fraca e focal
HER2	4B5	negativa 1+/3 (escore 1+ / imunoexpressão pouco perceptível, membrana incompleta, em 15% das células neoplásicas)
Ki-67(30-9)	30-9	positiva em 60% das células
P63	4A4	positiva
RE (SP1)	SP1	negativa
RP (1E2)	PGR 636	negativa
SOX-10	EP268	negativa

conclusão

painel imuno-histoquímico, associado aos aspectos histológicos, de:

- Carcinoma de células escamosas, queratinizante, infiltrativo em tecido fibroadiposo (vide comentário).

Figure 4. Immunohistochemistry panel confirming the diagnosis of keratinising squamous cell carcinoma.

Source: author's own.

3. Discussion

Primary squamous cell carcinoma of the breast is very rare, with a prevalence of 0.06% to 0.2% in malignant breast neoplasms[2,3]. It is called primary pure squamous cell carcinoma when the malignant cells are all of the squamous cell type, there is no relation with the skin, and if there is no indication for a primary location somewhere else in the body[5]. Furthermore, it has a rapid and aggressive course, with a recurrence rate of 25% and metastasis in 50% of cases[3,6]. SCC typically progresses rapidly and is highly invasive, most frequently found on exposed body surfaces most frequently seen in the sun and is uncommon in the breasts[2].

For a more accurate diagnosis, it is essential to differentiate between squamous cell carcinoma (SCC) of the skin and primary squamous cell carcinoma of the breast, which differ in their epidemiology and histopathology. The former is more prevalent in black individuals and in males, and its most common clinical manifestation is an erythematous-squamous or slightly raised plaque. Furthermore, it can present as an ulcerated lesion with irregular borders or as an exophytic nodular lesion, similar to that presented in the case described[6]. The latter is prevalent in white women and may originate from the epidermis, nipple, or even the epithelium of a deep epidermoid cyst or squamous metaplasia[3,5]. It is important to distinguish this type from mixed tumours, where some patches of squamous cells can be found in adenocarcinoma of the breast and from metastasis of squamous cell carcinoma that originated elsewhere. The etiology and pathogenesis of squamous cell carcinoma of the breast is still unclear. It has been suggested that it may be a very extreme form of squamous cell metaplasia, developing into an adenocarcinoma[7].

The clinical presentation may be painful breast inflammation or a tumor that is always larger than that of breast adenocarcinoma, similar to that found in the case described[8].

Regarding imaging studies, there are no typical findings on mammography, and ultrasound may show a complex cyst or an inflammatory process[5]. In our case, mammography showed only one solid, hypoechoic nodule with circumscribed margins, located at the junction of the medial quadrants of the left breast, measuring 4,5 cm. The patient did not undergo breast ultrasound. It is still debatable whether investigations such as PET scans, in search of distant metastases or a primary squamous tumour site, should be performed[9].

For a more precise diagnosis, a core needle biopsy should be performed, as it provides a greater amount of material (tissue) to be analysed[6]. Regarding the diagnosis, immunohistochemical examination should always be performed, as it allows confirmation of the squamous nature of the tissue and differentiation from other types of breast carcinomas, such as metaplastic carcinoma[5]. This differentiation is of great importance, as primary squamous cell carcinoma of the breast behaves more aggressively than other breast cancers[5].

Squamous cell carcinoma of the breast may require surgery with wide excision to obtain clear margins, as occurred in the reported case[2]. Regarding lymph node dissection, it should only be indicated when there are signs of axillary invasion, either clinically or by ultrasound[2].

Treatment is not specific due to the lack of an established protocol; however, one possible treatment involves adjuvant hormonal therapy with tamoxifen, which is essential when patients are positive for estrogen and progesterone receptors[3]. Squamous cell carcinomas are generally hormone receptor-negative[8,10]. For patients with negative expression of these receptors, conventional chemotherapy is necessary, as used in the aforementioned case[5].

Postoperative chemotherapy should be recommended and, similar to other cases reported in the literature, the combination of paclitaxel and carboplatin appears to be the best option currently[5]. This chemotherapy regimen is used in advanced cases of breast, ovarian, and lung cancer. Both cisplatin and carboplatin interact with DNA, inhibiting cell growth (paclitaxel) and damaging tumor DNA (carboplatin), with a high rate of pathological complete response when used in neoadjuvant chemotherapy[11]. They have a mechanism of action similar to bifunctional alkylating agents, destroying rapidly dividing tumor cells[12].

Regarding radiotherapy, it is recommended to administer it as adjuvant therapy, however the radiosensitivity of squamous cell carcinomas is still uncertain. The 5-year survival rate is around 67%[13].

Therefore, primary squamous cell carcinoma of the breast is an uncommon finding. Its existence and possible evolution from an apparently benign lesion remain uncertain. For its definitive diagnosis, we emphasize the importance of histopathological examination and immunohistochemistry. Regarding treatment, the role of surgery is well established, but the role of adjuvant therapy is not yet well defined[5].

In this particular case, the patient began treatment with neoadjuvant chemotherapy, showing a poor response with disease progression, and subsequently underwent radical breast surgery due to the size of the initial lesion, with clear surgical margins. Despite all the treatment instituted and due to the aggressive nature of the neoplasm, the patient soon experienced significant mediastinal recurrence, considered inoperable, and was referred for palliative and supportive care.

REFERENCES

[1] Pătrașcu, V. *et al.* Histopathological and clinical-progressive profile of skin carcinomas: study on 1688 cases. **Romanian Journal of Morphology and Embryology**.*[S.l.]*, v. 51, n. 1, p. 171-180, 2010. Available at: https://www.researchgate.net/profile/Virgil-Patrascu/publication/41623720_Histopathological_and_clinical-progressive_profile_of_skin_carcinomas_Study_on_1688_cases/links/0912f5023dbef510d1000000/Histopathological-and-clinical-progressive-profile-of-skin-carcinomas-Study-on-1688-cases. Accessed on: October 28, 2025.

[2] Melo Neto, B. *et al.* Epidermoid carcinoma of the skin mimicking breast cancer: case report. **Anais Brasileiros de Dermatologia.** *[S.l.]*, v. 88, n. 2, p. 250-252, 2013. Available at: https://www.scielo.br/j/abd/a/Bn4sZTxRRSQYghkf6W8VFDC/?lang=en. Accessed on: October 28, 2025.

[3] Cardoso L. G. F. *et al.* Metaplastic squamous cell carcinoma of the breast: a case report and literature review. **Archives of Health**. v. 5, n. 3, p. 01-06, 2024. Available at: https://ojs.latinamericanpublicacoes.com.br/ojs/index.php/ah/article/view/208. Accessed on August 11, 2025.

[4] Pereira R. J. *et al.* Squamous cell carcinoma of the breast: a case report. **Brazilian Journal of Gynecology and Obstetrics.** v. 21, n. 7, 1999. Available at: https://www.scielo.br/j/rbgo/a/f4XHtr6CVJvww7DMzC6Ytky/?format=html&lang=pt. Accessed on August 11, 2025.

[5] Bhosale S.J. *et al.* Squamous cell carcinoma of the breast. **American Journal of cases reports**. *[S. l.]* v. 14, p. 188-190, 2013. Available at: https://amjcaserep.com/abstract/full/idArt/883934. Accessed on August 11, 2025.

[6] Ortiz, J. *et a*l. Primary squamous cell carcinoma of the breast: a case review. **CIMEL Ciencia e Investigación Médica Estudiantil Latinoamericana**. v.12 n. 2, 2007. Available at: https://www.redalyc.org/pdf/717/71712210.pdf. Accessed on: September 8, 2025.

[7] Stevenson JT, Graham DJ, Khiyami A, Mansour EG. Squamous cell carcinoma of the breast: a clinical approach: Ann Surg Oncol, 1996; 4; 367-74, pmid: 8790849.

[8] Gupta G, Malani AK, Weigand RT, Rangenini G. Pure primary squamous cell carcinoma of the breast: A rare presentation and clinicopathologic comparison with usual ductal carcinoma of the breast: Pathol Res Pract, 2006; 6; 465-69, pmid: 16497446.

[9] Healy CF, Feeley L, Leen E, Walsh TN. Primary squamous cell carcinoma of the breast: value of positron emission tomography scanning in confirming the diagnosis: Clin Breast Cancer, 2006; 5; 413-15, pmid: 17239268.

[10] Siegelmann-Danieli N, Murphy TJ, Meschter S. Primary pure squamous cell carcinoma of the breast: Clin Breast Cancer, 2005; 3; 270-72, pmid: 16137440.

[11] Perez EA, Hartmann LC. Paclitaxel and carboplatin for advanced breast cancer. Semin Oncol. 1996 Oct;23(5 Suppl 11):41-5. PMID: 8893899.

[12] Cancer Research UK. Paclitaxel and carboplatin (PC, Carbo-Taxol). Available at: https://www.cancerresearchuk.org/about-cancer/treatment/drugs/pc-paclitaxel-carboplatin. Last reviewed: January 17, 2025. Accessed on: February 7, 2026.

[13] Behranwala KA, Nasiri N, Abdullah N. Squamous cell carcinoma of the breast: clinico-pathologic implications and outcome: Eur J Surg Oncol, 2003; 29; 386-89, pmid: 12711295.