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Intracystic Papillary Mammary Carcinoma Associated with An Invasive Component (About 2 Cases)

G Bassir*, K Fadil, Y Bencherifi, M Benhassou, M Ennachit and M El Kerroumi

Centre Mohammed 6 of cancer treatment Casablanca, Morocco

***Corresponding author:**

G Bassir,
Centre Mohammed 6 of Cancer Treatment
Casablanca, Morocco

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1. Summary

Intracity papillary carcinoma of the breast is a rare entity, representing 0.5 to 1% of all breast carcinomas, and mainly affects postmenopausal women. Although generally considered a lesion with a good prognosis, it can be accompanied by an invasive component, which significantly modifies therapeutic management. Here we report two cases of intracity papillary carcinoma associated with an invasive component. The first patient, aged 40, presented with a complex breast mass, whose histopathological examination revealed an intracity papillary carcinoma with an invasive focus. The second patient, aged 64, consulted for a solid cystic lesion with skin retraction; histological analysis revealed an invasive component associated with papillary -glandular proliferation.

Both patients exhibited high hormone receptor expression and a high proliferation index, indicating significant tumour activity. They were treated by lumpectomy.This article highlights the importance of early diagnosis, the impact of the invasive component on prognosis, as well as the therapeutic implications related to hormonal expression.

2. Abstract

Intraductal papillary carcinoma of the breast is a rare entity, accounting for 0.5 to 1% of all breast carcinomas, predominantly diagnosed in postmenopausal women. Although generally considered a lesion with a favourable prognosis, it can be associated with an invasive component, significantly altering therapeutic management.We report two cases of intraductal papillary carcinoma associated with an invasive component. The first patient, aged 40, presented with a complex breast mass; histopathological examination revealed an intraductal papillary carcinoma with an invasive focus. The second patient, aged 64, presented with a solid-cystic lesion with skin retraction; histological analysis showed an invasive component associated with a papillary-glandular proliferation.

Both patients exhibited strong hormone receptor expression and high proliferation indices, indicating significant tumour activity. They were treated by tenonectomy.This article highlights the importance of early diagnosis, the impact of the invasive component on prognosis, and the therapeutic implications of hormone receptor expression.

3. Introduction

Intracystic papillary carcinoma of the breast (ICPC) is a rare entity, representing approximately 0.5 to 1% of all breast carcinomas. It most commonly occurs in postmenopausal women, although cases have also been reported in younger patients. This pathology is characterized histologically by papillomatous proliferation within cystic cavities, often associated with low biological aggressiveness. Traditionally, CPIK is considered a lesion with a good prognosis, due to its well-differentiated nature and its tendency for limited local growth. However, the presence of an associated invasive component significantly modifies its clinical and therapeutic profile, increasing the risk of local recurrence and metastases. This factor requires treatment adaptation and more rigorous monitoring. The literature on intracystic papillary carcinoma with an invasive component remains limited, due to the rarity of this association. Nevertheless, several studies highlight the importance of early recognition of this invasive component to optimize management. Furthermore, hormone receptor expression and cell proliferation indices are key elements for prognosis and therapeutic decision-

making.Here, we report two clinical cases illustrating this pathology, highlighting the diagnostic, therapeutic, and prognostic aspects. Through these observations, we also discuss current data in the literature to better understand the particularities of this type of carcinoma and optimize patient management.

4. Observations

4.1. Case 1

A 40-year-old patient with no significant medical history consulted for a left breast nodule that had been evolving for 7 months. Clinical examination revealed a large left breast mass measuring 9 x 7 cm (Figure 1). Mammography and ultrasound revealed a rounded opacity and a cystic formation with a vascularized fleshy portion, classified as BIRADS 4 (Figure 2,3). A lumpectomy with resection of the tumour bed was performed. On section, the surgical specimen showed a cystic formation measuring 10 cm in length, with Citrine yellow serous content, an intact capsule and a wall of variable thickness, presenting in places an endocytic and exocytic vegetative appearance (Figure 4). The anatomopathological examination revealed an intracity papillary carcinoma with an invasive satellite focus. Immunohistochemistry shows hormone receptor positivity and a high Ki67 proliferation index, 60% for the papillary lesion and 70% for the invasive focus.

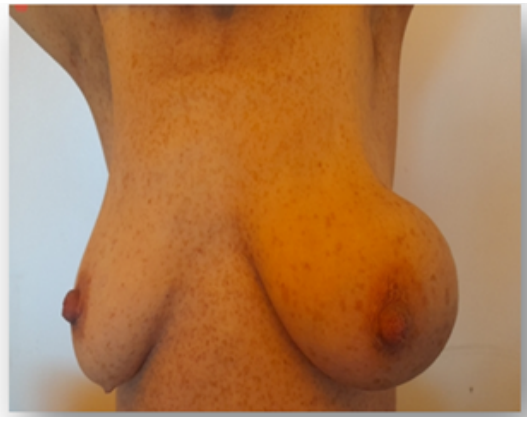

Figure 1: masse mammaire gauche occupant la totalité du sein.

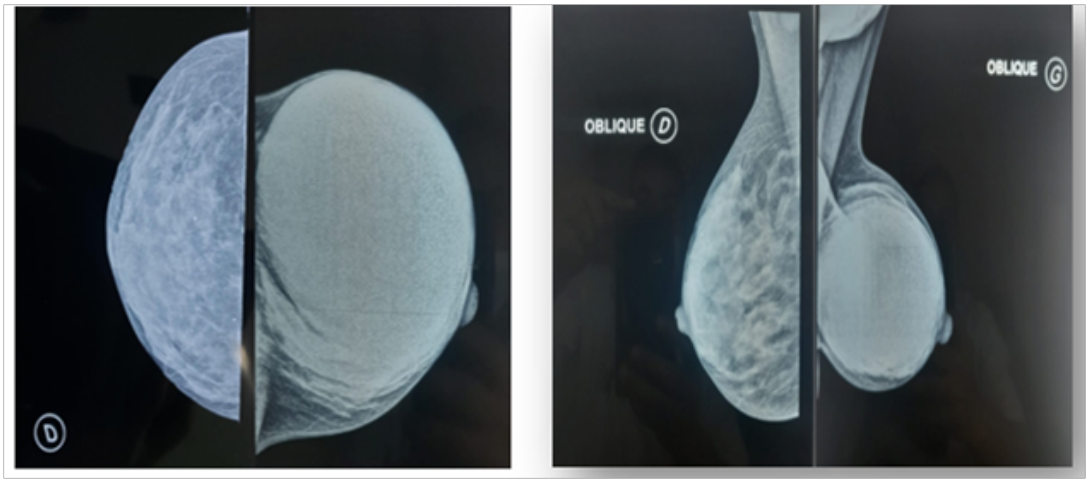

Figure 2: Mammographiebilaterale.

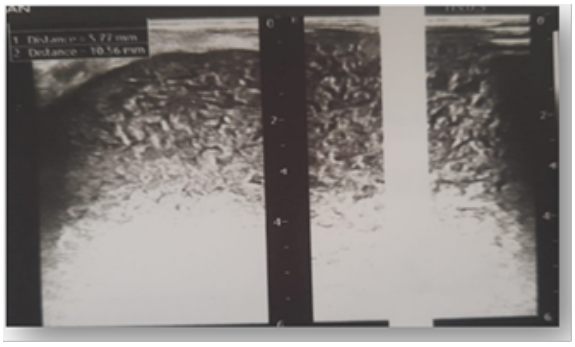

Figure 3: Echographiemammaire.

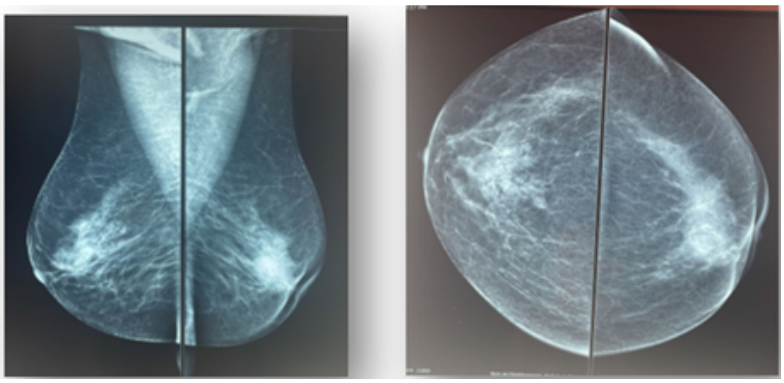

Figure 4: Mammographiebilatérale.

4.2. Case No2

A 64-year-old patient with no particular medical history consulted for a left breast nodule discovered on self-palpation 5 months ago. Clinical examination revealed a left para-areolar nodule measuring 4 x 3 cm, associated with skin retraction. Mammography showed retro- nipple opacity of a watery tone, accompanied by skin retraction and thickening of the areolar plate (Figure 5). Ultrasound revealed a para-areolar solidocystic lesion measuring 28 x 21 mm, with thickened septa and tissue components, classified BIRADS 4. Fine needle aspiration cytology suggested suspicious papillary proliferation, prompting surgical excision for histological confirmation. The lumpectomy, with a total volume of 7 cm in the long axis, revealed a 2.5 cm solidocystic lesion associated with skin retraction. Histological examination shows an intraductal tumor proliferation with papillary and glandular components, with foci of apocrine metaplasia. A focus of invasive carcinoma is identified at the resection margins, characterized by cells with moderate atypia and a mitotic index of 4 mitoses/2 mm². A high-grade in situ component (10%) is also observed. Immunohistochemistry reveals a strong expression of hormone receptors, with a Ki67 of 60% for the papillary lesion and 70% for the invasive component.

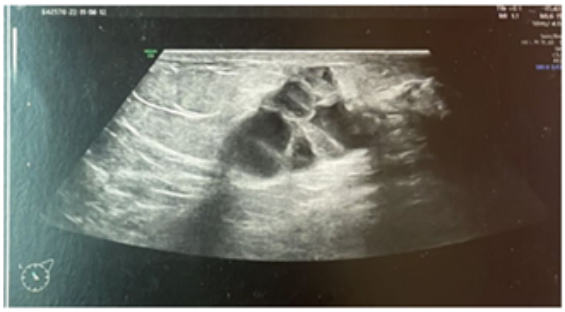

Figure 5: Echographiemammaire.

5. Discussion

Intracystic papillary carcinoma (ICPC), also called encapsulated papillary carcinoma, is a rare malignant ductal tumor , representing approximately 0.5 to 1% of all breast carcinomas [1-3]. It typically occurs in postmenopausal women, with a mean age reported between 55 and 67 years depending on the series [2,4]. However, cases in younger patients have been described, as in our first observation. In nearly 50% of cases, the tumour is located in the central, retro areolar region [4], and its size can vary from 1 to 14 cm [5], as observed in our series (10 cm and 2.5 cm).Clinically, CPIK most often presents as a breast nodule, sometimes old, with a recent increase in volume. It may be accompanied by signs of skin ulceration or retraction, and in approximately 20 to 30% of cases, by bloody nipple discharge [2,3]. Breast imaging, including mammography and ultrasound, typically reveals a well-circumscribed, oval or lobulated mass, with a cystic component containing a solid portion appended to the internal wall. On ultrasound, these are often complex cysts with echogenic content, reflecting the presence of debris or spontaneous bleeding [6,7]. Colour Doppler can confirm the tissue nature of the solid component by visualizing a central vascular pedicle, as observed in our two cases [7]. This vascularized character helps to distinguish papillary carcinomas from benign lesions such as papillomata or remodelled cysts.However, cytological evaluation of papillary lesions is often of little use due to the frequency of false negatives [3,5]. Fine needle aspiration cytology may yield bloody fluid, but does not always allow a decision to be made between benign, atypical, or malignant proliferation. A targeted biopsy of the solid portion remains preferable, although it may be of little use. In our series, cytology was richly cellular in one case, while the biopsy was of little use.Histopathologic ally, CPIK is distinguished by a complex papillary architecture, often embedded in a fibrous capsule. It belongs to the spectrum of intraductal papillary tumours, ranging from benign papilloma to invasive

papillary carcinoma, including atypical papilloma and high-grade in situ lesions [8,9]. It is not uncommon to observe several of these components within the same tumour, reflecting a continuum of tumour progression. The distinction between pure CPIK and CPIK with an invasive focus is crucial, as it significantly modifies the prognosis and management [4,10]. In both our observations, an invasive component was identified, highlighting the importance of exhaustive analysis of the surgical specimen, particularly at the margins.Immunohistochemistry plays a central role in assessing the biological profile of the tumour. In both our cases, intense expression of hormone receptors (ER, PR) and a high Ki67 index (60–70%) indicate significant proliferative activity. This profile, although hormonally sensitive, suggests a more aggressive evolutionary potential, which requires appropriate management [6,7,14].Treatment of CPIK with an invasive component is primarily based on complete surgical excision, often by widened tenonectomy. The search for healthy margins is essential. Adjuvant radiotherapy is often recommended, particularly in the case of an invasive focus or narrow margins [12]. Adjuvant hormone therapy may be considered in the case of positive hormonal expression, while chemotherapy remains reserved for high-risk forms, depending on histoprognostic factors [14].Finally, the rarity of CPIK with invasion justifies the publication of well-documented clinical cases. Recent molecular biology studies have identified shared mutations between CPIK, ductal carcinomas in situ, and invasive ductal carcinomas, suggesting clonal progression [9,15]. These data could, in the long term, pave the way for targeted therapeutic strategies.

6. Conclusion

Intracystic papillary carcinoma of the breast associated with an invasive component represents a rare but clinically and biologically significant form of the breast tumour spectrum. While its clinical presentation can mimic benign lesions or tumours with a better prognosis, its invasive component requires diagnostic vigilance and appropriate therapeutic management.Our two observations illustrate the diagnostic complexity of this entity, where imaging, although suggestive, remains insufficient to characterize invasion, and where fine needle aspiration cytology or biopsy may not reflect the histological heterogeneity of the tumour. These limitations confirm that surgical excision remains, to date, the key step in establishing a definitive diagnosis and adapting the therapeutic strategy.

Histologically, the frequent coexistence of benign, atypical, in situ, and invasive papillary elements reflects continued tumour progression, likely driven by underexplored molecular mechanisms. The strong hormonal expression and high proliferation indices observed in our cases highlight the importance of systematic immunohistochemical assessment, which guides both prognosis and adjuvant therapeutic choices.Thus, invasive PIKC cannot be considered a simple variant of papillary carcinoma, but rather a separate entity, requiring precise recognition, individualized treatment, and rigorous monitoring. The development of new genomic characterization approaches could, in the coming years, refine our understanding of this tumour and allow the emergence of targeted therapies better adapted to its biological profile.

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