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Epidemio-Clinical Profile and Management of Carcinoma in Situ of the Breast in the Department of Obstetrics and Gynecology II of the CHU HASSAN II of Fès: 2000-2024

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Abstract **Original Research Article**

Breast cancer is the most common cancer in women and is, therefore, a major public health problem. Among the different types of breast cancer, breast carcinoma in situ occupies a special place because of its pre-invasive nature. Ductal carcinoma in situ (DCIS) accounts for 85% to 90% of in situ breast cancers. Their incidence is increasing as a result of widespread screening. Lobular carcinoma in situ remains a rare lesion and is considered to be a cancer risk factor. Diagnosis of this cancer is quite difficult, and treatment is team-dependent, ranging from conservative treatment to mastectomy. The aim of our study was to describe the epidemiological and clinical characteristics of patients with carcinoma in situ isolated within the gyneco-obstetrics II department in Fez, as well as the therapeutic modalities. 19 patients were included; the mean age of our patients was 56 years, with extremes ranging from 34 to 88 years. The average consultation time was seven months; the mode of discovery was dominated by the discovery of a nodule on a breast self-exam in 13 patients (72%), followed by a pathological nipple discharge in 5 and a combination of two in one patient. The average tumor size was 3 cm, with extremes ranging from 1 cm to 5 cm. Combined screening with mammography and breast ultrasound was carried out in all our patients (100%), supplemented by MRI in 4 patients (high breast density) with a view to conservative treatment. Histology was dominated by ductal carcinoma in 17 patients (92%). The surgical procedure was conservative in 5 patients (28%) and radical in 13 (72%). 3 out of the 5 patients who had undergone conservative surgery underwent revision surgery (mastectomy) due to positive surgical margins (60%). 11 (61%) patients benefited from an axillary procedure essentially by sentinel lymph node biopsy which was negative (100%).

Keywords: Carcinoma in situ, Breast cancer, DCIS, Lobular carcinoma in situ, Breast self-exam.

INTRODUCTION

Carcinoma in situ (CIS) is a non-invasive breast cancer that encompasses a broad spectrum of pathologies. A distinction is made between ductal carcinoma in situ (DCIS) and lobular carcinoma in situ (LCIS). These pathologies range from low-grade lesions with an excellent prognosis to high-grade lesions that may progress to invasive carcinoma. Histologically, DCIS is defined by the abnormal proliferation of epithelial cells that do not extend beyond the basement membrane of the ductular-glandular system.

We report 19 cases of carcinoma in situ managed in our unit over a period from 1 January 2000 to 31/12/2024, detailing the epidemiological and clinical profile of these patients and the management provided.

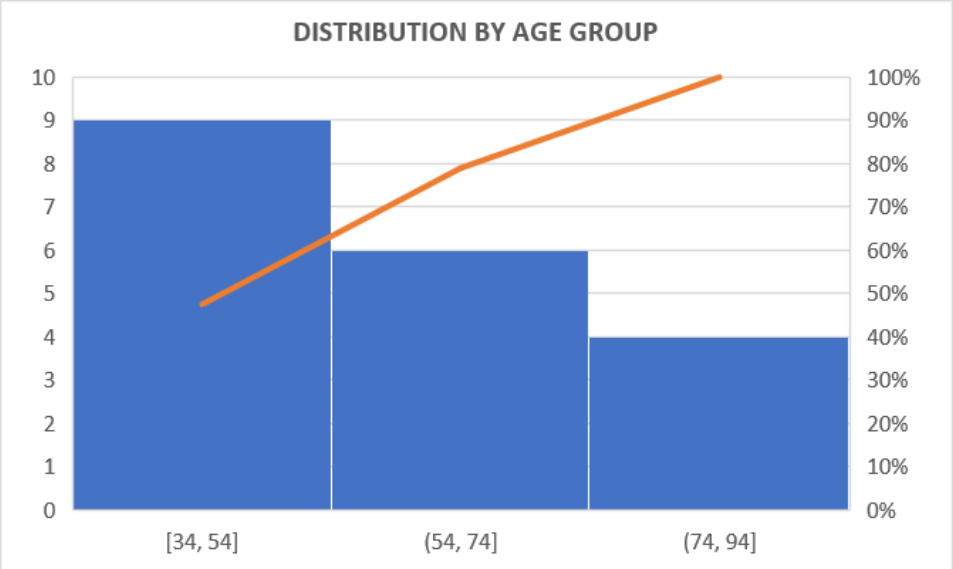
METHODOLOGY

We carried out a retrospective study over 5 years, from 2019 to December 2024, involving 19 women with isolated carcinoma in situ of the breast in the Department of Obstetrics and Gynecology II at the HASSAN II UNIVERSITY HOSPITAL in Fès. Association with invasive carcinoma was an exclusion criterion.

For each patient, we studied epidemiological data, including age, parity, hormonal status, circumstances of discovery, consultation period, tumor size, lymph node involvement, imaging appearance, histological type and grade, type of surgery, final histology, and adjuvant therapy.

RESULTS

The average age of our patients was 54 years, with a minimum age of 34 years and a maximum of 88 years. the most represented age group is 34-54 years.



The majority of women were multiparous (60%) and menopausal (72%), while five patients were sexually active (27%). None of our patients had undergone mammography screening.

The average consultation time was 7 months, and about 38% of the patients exceeded 06 months. No toxic antecedents were found in our case series.

With regards to comorbidities, 10% of our patients presented with hypertension, and 35% presented with diabetes; no personal or family history of breast cancer was reported in our series, and there was no evidence of smoking.

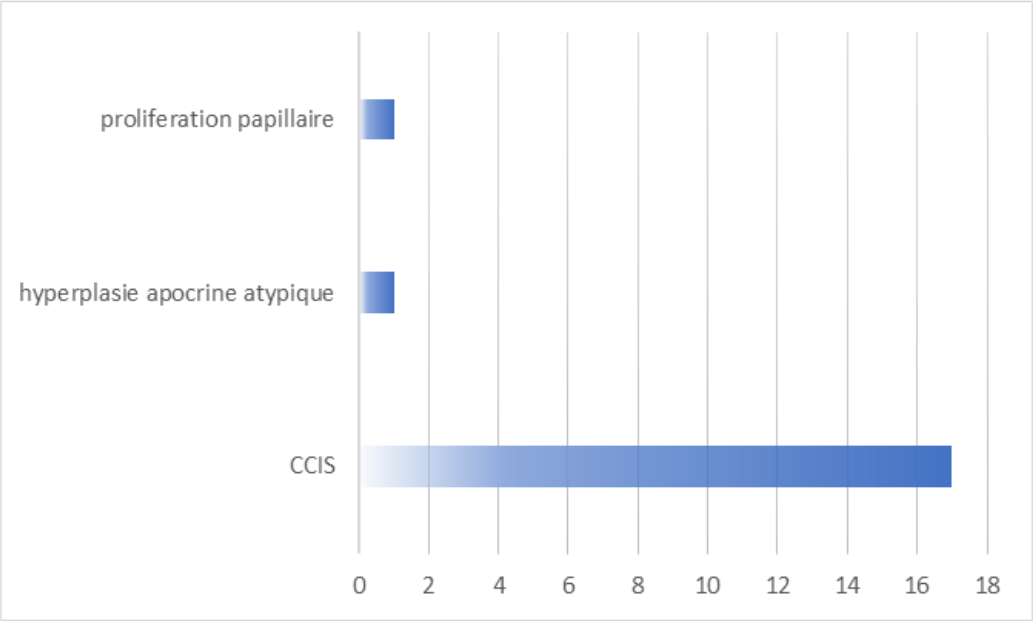
The clinical symptom at discovery was dominated by the discovery of a nodule on a breast self-exam in 13 patients (72%), followed by a pathologic nipple discharge in 5 and a combination of the two symptoms in 1 patient. None of the patients came through screening.

Symptoms	**Numbers**
Nipple discharge	4
Masse	1
nodule +nipple discharge	1
Nodule	13
Total général	**19**

Palpation revealed unifocality in all our patients, with only one patient presenting with a nodule in both breasts; concerning the location, the superior-lateral quadrant and the lateral quadrant junction represent the most frequent areas in our series, with 30% and 30%, respectively. Clinically, no lymph node involvement was detected. The average tumor size was 3 cm, with extremes ranging from 1 cm to 5 cm.

Combined screening with mammography and breast ultrasound was carried out in all our patients (100%), supplemented by MRI in 4 patients (high breast density) with a view to conservative treatment.

Histology was dominated by ductal carcinoma in 16 patients (92%), one patient with a diagnosis of atypical hyperplasia and another with a finding in favour of papillary proliferation; no lobular carcinoma was found in our series. Intermediate grade was found in 11 patients (61%) versus high grade in 5 patients (27%).



The surgical procedure was conservative in 5 patients (26%) and radical in 13 (74%). 3 out of the 5 patients who had undergone conservative surgery underwent revision surgery (mastectomy) due to positive surgical margins (60%). 11 (57%) patients benefited from an axillary procedure essentially by sentinel lymph node biopsy which was negative (100%).

The definitive histological type was DCIS with a predominance of the micro-papillary form (60%) followed by the cribriform form in 30% and a high grade in 40% of cases.

Micro-invasion and micro-infiltration were not observed in any patient.

Types de chirurgie	Nombres	Pourcentage
Lumpectomy	5	26%
Mastectomy	14	74%
Post-Lumpectomy Mastectomy	3	

Radiotherapy was indicated in 2 patients and hormone therapy in 4 patients with positive hormone receptors. No recurrence was noted in our case series.

DISCUSSION

Ductal carcinoma in situ (DCIS) is a neoplastic disease whose incidence has risen steadily over the last 30 years. Ductal carcinoma in situ (DCIS) of the breast accounts for 85% to 90% of in situ breast cancers, compared with lobular carcinoma in situ (LCIS), which accounts for only 2-3% of in situ breast cancers and is currently considered to be a pre-cancerous condition that does not necessarily undergo subsequent infiltrative transformation [1]. Carcinoma in situ (CIS) can be distinguished from invasive carcinomas by the absence of visual infiltration of the breast stroma and the fact that the basement membrane remains intact. These lesions are asymptomatic and frequently diagnosed during mammographic screening, particularly as microcalcifications [2].

Currently, DCIS accounts for 20-25% of all new cases of breast cancer diagnosed and 17-34% of breast neoplasms detected by mammography [3]. The median age of onset for DCIS is 55 years, approximately 3 to 5 years younger than that for invasive breast cancer (NST) [4], which corresponds to the average in our series of 54 years.

There are multiple risk factors for the development of DCIS including demographic, reproductive, biological, and behavioral risk factors. It is clear that the incidence of DCIS, like invasive carcinoma, is age-related. The incidence increases after the age of 50; several studies have shown that the incidence is 2.5 per 100,000 in women aged 30 to 40 years, rising steadily to reach a peak of 96.7 per 100,000 women aged 65 to 69 years [5]. Other risk factors have been demonstrated, in particular hormonal replacement (HRT), genetic mutation and the patient's lifestyle.

More than 90% of DCIS are detected by mammography, essentially by the discovery of microcalcifications (80-85% of cases) of variable morphology, topography, and extension [4]. In our series, CIS was revealed by nodules and nipple discharge, explained by the inadequacy of an organized screening program in our country, unlike in developed countries; this indicates that the majority of our patients consulted at an already advanced stage of their tumor.

Since the risk of metastasis is theoretically zero, palpation of the axillary fossa was normal. In our study, no axillary or supra-clavicular adenopathy was found.

Breast ultrasound provides additional information, particularly in young women with dense breasts that are difficult to analyze [4]. Breast ultrasound and mammography were performed on all our patients.

MRI is indicated in the case of clinical signs like bloody nipple discharge or Paget's disease, as well as in women with dense breasts or at high genetic risk (with or without mutation), or when there is a radio-clinical discrepancy [4, 6]. The quality of surgery depends on the accuracy of the initial radiological work-up, with the main aim of achieving complete removal of the tumor in a single operation if possible.

The diagnosis can be confirmed by micro-biopsy (14 Gauges) or macro biopsy under suction (8-11 Gauges); the latter samples are much more reliable (with less risk of underestimating an infiltrative lesion) and representative for pathologists. The risk of underestimating an infiltrative lesion is around 20% and is correlated with the size of the lesion, the intermediate or high nuclear grade, and for some, the absence of hormone receptors [7]. No macro biopsy was performed in our series because it was unavailable.

The pathologist must specify: the architectural type (micro-papillary, cribriform, massive, or comedocarcinoma); the nuclear grade (low, intermediate, or high); and the presence or absence of necrosis. Assessment of hormone receptors (estrogen receptors, ER and progesterone receptors, PR) and overexpression of HER2 is not routinely performed but could have prognostic value [8].

The nuclear grade is considered to be the most significant predictor of progression and recurrence after conservative breast surgery, and the presence of necrosis within the ducts is also a negative factor, as it is thought to be a prognostic factor for local recurrence [2].

In 2015, the French National Cancer Institute (INCa) published new recommendations for managing DCIS. They are based on surgical removal of the lesions, by lumpectomy with a negative surgical margin of ≥ 2 mm, or by mastectomy in the case of extensive and/or multifocal lesions. There is no indication for surgical abstention in the management of DCIS, in favor of active surveillance, since DCIS can progress to invasion in 14-53% of cases [6].

In the case of conservative treatment with insufficient margins (margins strictly less than 2 mm), revision surgery is necessary with 2 possible modalities: re-excision with satisfactory margins followed by irradiating the entire breast or mastectomy [9]. Cumulative data indicate that a positive surgical margin is an independent risk factor for tumor recurrence in a multivariate analysis [165]. Radiotherapy reduces but does not eliminate, the risk of recurrence of ISCC in patients with positive margins.

Pure DCIS does not metastasize to the lymph nodes, but there is a risk of finding one or more (micro-) invasive foci on the final pathological specimen. This risk is mainly correlated with lesion size (especially over 4 cm) and high nuclear grade [4]. Sentinel lymph node biopsy is only indicated if: there is a suspected micro-invasion on biopsy, outright mastectomy, and is optional if there is associated mass (clinically or imaging). The presence of necrosis or a high nuclear grade on a non-extensive CIS are not indications for performing a sentinel lymph node biopsy [9].

Again, according to INCa 2015, in the case of lumpectomy with margins > 2 mm, additional radiotherapy is systematically given to the whole breast [6]. There is no indication for adjuvant radiotherapy in the case of total mastectomy unless the margins are affected and There is no indication for radiotherapy in conventional lobular carcinoma in situ treated by conservative surgery, except for pleomorphic/necrotic lobular carcinoma in situ [9].

Concerning hormone therapy, the latest INCa recommendations conclude that there is insufficient evidence to date to recommend tamoxifen hormone therapy after conservative surgery or mastectomy for DCIS [6]; it remains a controversial subject in the literature. Some authors [10] recommend reasonable use of tamoxifen in young patients with high-risk DCIS treated conservatively, subject to the presence of positive hormone receptors. Others do not recommend the routine use of tamoxifen, partly because of the lack of benefit in terms of overall survival and partly because of the significant side effects (endometrial cancer (0.8 versus 0.3%) and thromboembolic events (1.8 versus 0.8%) [11].

Clinical surveillance is done yearly and radiological surveillance (mammographic) is done 6 months after radiotherapy, followed by annual mammography and ultrasound to detect any recurrence. The standard treatment for recurrence (in situ or infiltrating) is total mastectomy [6].

To date, the commonly accepted risk factors for local recurrence are clinical: age under 40 or 50 years depending on the study, clinical mode of detection, and histological: large tumor size, high nuclear grade, presence of necrosis, positive or insufficient surgical margins, associated atypical hyperplasia lesions, and lobular carcinoma in situ. The tumor size risk factor is controversial, with some studies considering that beyond 15 to 20 mm there was a risk of recurrence, while in other studies the tumor size factor was no longer found to be a risk factor once the surgical margins were negative [12].

CONCLUSION

Ductal carcinoma in situ now accounts for around 15% of breast cancers. Their therapeutic management aims to prevent the development of invasive cancer while avoiding the potential over-treatment of patients. The two main treatments for DCIS are surgery and radiotherapy, both of which are currently evolving. The role of hormone therapy has not been established. The first-line treatment is conservative surgery combined with radiotherapy, with mastectomy indicated if the lesion is extensive in the case of small breasts or after consulting with the patient. Regardless of the treatment is recommended, surgical margins greater than 2mm must be respected.

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