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Case Report

A rare case of lipofilling of the breast and cystic DCIS

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Abstract:
Background: Autologous fat grafting for primary breast augmentation has become a standard procedure among plastic surgeons. Sometimes the fat graft take fails and subsequent tissue alterations can interfere with the diagnostics of pathological changes.
Methods/ Results: A 49-year-old patient presented with a palpable mass in her left breast 7 years after lipofilling augmentation. The ultrasound examination showed small cystic lesions. Fine needle aspirations and a core biopsy was non-diagnostic. The cystic lesion reappeared, and a surgical excision revealed the diagnosis of an intermediate grade DCIS.
Conclusion: After lipofilling, any suspicious lumps might need more vigilant observation, as common benign post-lipofilling findings like cysts or calcifications may hide malignant pathology.

Keywords: Breast, Lipofilling, DCIS

Introduction

Autologous fat grafting for primary breast augmentation or secondary corrections is nowadays seen as a routine procedure among plastic surgeons. The common complications of lipofilling are fat necrosis, oil cyst formation and calcifications, which are frequent and benign [1].

Case presentation

A 49-year-old female presented with a 2-month history of a palpable mass in her left breast. The patient had undergone lipofilling for augmentation of the breasts 7 years prior. The initial mammography revealed several opacities of up to 5cm in diameter, but no suspicious calcifications. BI-RADS 2 right side, BI-RADS 4 left side. On the subsequent ultrasound, both breasts showed multiple small cystic lesions, some of which were indicative of oil cysts with acoustic shadowing. The palpable mass corresponded with two adjacent cystic lesions, the larger of which measured 4x3.3x4.5cm. This intracystic solid mass displayed well-circumscribed margins and no acoustic shadowing. Another adjacent cystic lesion measuring 3.3x2.7x3.2cm, also had well-circumscribed margins and no acoustic shadowing. It was filled with low-level internal echoes suspicious of

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intracystic debris, shown in Figure 1. The suspected diagnosis was a complex cyst, and fine needle aspiration (FNA) was performed on both cysts. A core biopsy was attempted on the solid intracystic area, but the content proved mucinous and no cell sample could be obtained. The cytological result showed content of a cystic lesion without any malignant cells.

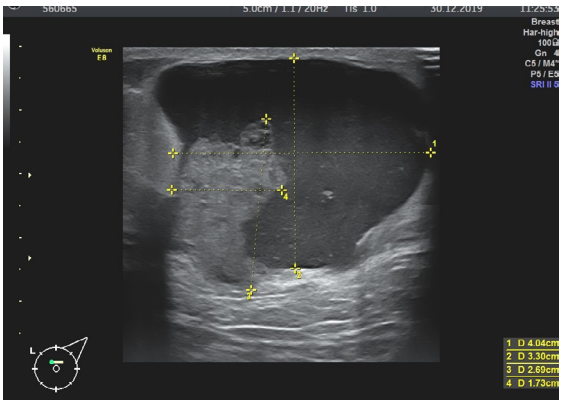

Figure 1. Ultrasound of the cystic lesion at first diagnosis

3 months after first diagnosis the cyst had filled up again, measuring 6.5x4.3x6.6cm on ultrasound, with an intracystic mass of 1.7x1.6x2.5cm at the cyst edge. Another Fine needle aspiration (FNA) was performed to relieve the strain and 80ml of mucous-bloody liquid was obtained. The cytological result was identical. We discussed definitive surgical removal with the patient, but she was still hesitant at this point.

Four weeks later, the cyst reappeared even larger at 8x4.6x7.7cm and the intracystic mass measured 2.8x2cm, shown in Figure 2. The surgery was scheduled and another FNA of 120ml was performed. An MRI showed a small cystic lesion located at the 12 o'clock position in the left breast with a heterogeneous contrast enhancing content, BI-RADS 3 left side, BI-RADS 2 right side. Six months after diagnosis of the cyst, excision biopsy was performed to obtain a definitive histological diagnosis. The resulting defect was closed by a therapeutic mammoplasty. The histological examination was complicated by extensive hemorrhagic infarction of the tissue. Architecturally it resembled intraductal papilloma, and papillary DCIS was proposed. However, immunochemistry could not confirm this diagnosis because the lesion strongly expressed basal cytokeratins normally seen in papillomas as well as in usual ductal hyperplasia (UDH), shown in Figure 3 and Figure 4. Therefore, the definitive diagnosis of DCIS, although the morphology was suggestive, could not be established with certainty. The histological slides underwent two independent external consultations, and after careful consideration between the histological features and the unusual immunophenotype, the outcome was intermediate grade DCIS with aberrant expression of basal cytokeratins arising from an intraductal papilloma.

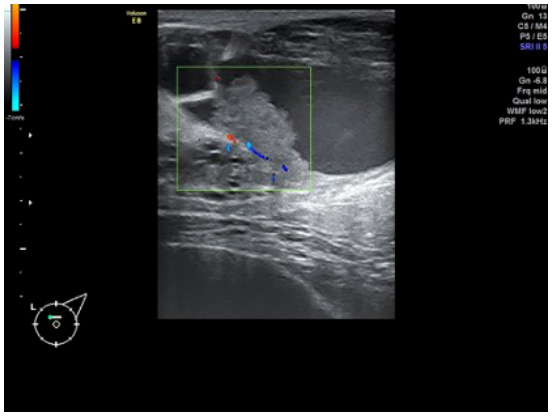

Figure 2. Colour-doppler ultrasound of the cystic lesion

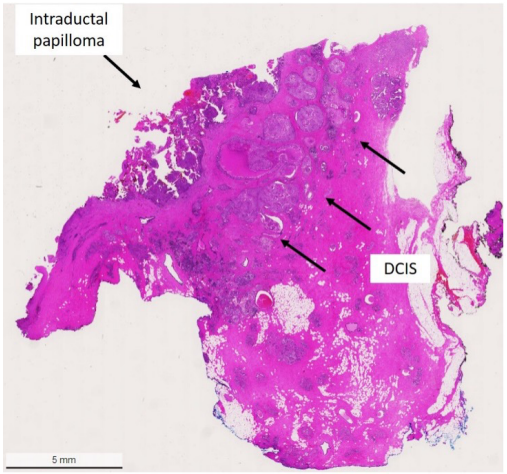

Figure 3. Histological appearance of a large hemorrhagic intraductal papilloma (left image) and abundant surrounding ductal carcinoma in situ (right image). Stain: hematoxylin & eosin

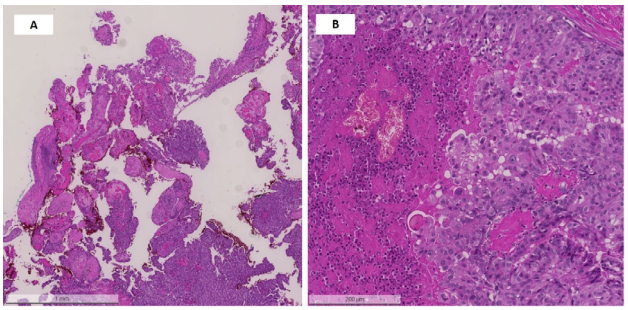

Figure 4. High magnification A) of the hemorrhagic intaductal papilloma and B) surrounding intermediate grade DCIS with central comedo like necrosis. Stain: hematoxylin & eosin

In a retrospective evaluation of mammography and ultrasound images that were taken before the lipofilling procedure, several cystic formations were identified in both breasts, the diagnosis at that time did not have any consequences. The patient was treated with postoperative radiotherapy, she developed no complications and no local recurrence.

Discussion

Autologous fat grafting for primary breast augmentation is regarded nowadays as a routine procedure by plastic surgeons worldwide as an alternative to implant surgery. The efficacy and safety of this procedure is supported by various studies [2,3]. Clinical data confirms the absence of a significant difference between lipofilling groups and control groups when comparing the incidence of locoregional events, distant metastases or death [4,5]. Typical complications of lipofilling are benign fat necrosis, oil cyst formation and calcifications. The failure of fat graft take can lead to these palpable masses, which may be difficult to differentiate from a malignancy. This leads to additional imaging and biopsies in 3- 15% of patients [6]. Calcifications on mammograms can be found in 0.7-4.9% of patients after lipofilling, and the incidence of fat necrosis after lipofilling in the breast has a frequency of 6.2% [2,7]. The clinical symptoms are variable. Oil cysts are the most frequent and occur early, with an overall prevalence of 4.5% [2,7].

Papillomas of the breast are benign neoplasms comprised of ductal epithelial cells. Any intraductal papilloma should be fully investigated as they may harbour an occult carcinoma, and papillomas have been observed to co-exist with the more common non-papillary forms of ductal carcinoma in situ or invasive ductal carcinoma [8]. Therefore, it is classified as a high- risk precursor lesion due to its association with atypia, DCIS and carcinoma.

The variable appearance of papillary lesions makes differentiation of benign from malignant pathologies difficult on imaging [9]. Tissue sampling with radiologic-pathologic correlation is warranted for diagnosis. In general, intraductal papillomas without atypical epithelial proliferation especially in more recent literature are rarely upgraded to higher grade lesions such as DCIS or invasive carcinoma. Therefore, a therapeutic vacuum-assisted biopsy with concordant imaging findings is usually sufficient, and open surgical excision biopsies are unnecessary [10-13]. However, several clinical studies showed that papillomas with atypical ductal hyperplasia may progress to intraductal carcinomas or co-exist with DCIS as seen in our patient, and therefore surgical excision of these B3 lesions is recommended [10,11].

Conclusion

Patients who received lipofilling might benefit from careful long-term monitoring, as common benign postoperative features such as calcifications and cysts may conceal cancer formation.

Statement of ethics

Written informed consent for publication of the case: written informed consent was obtained from the patient for publication of the details of their medical case and any accompanying images, the date of approval was 25/05/2020. The case report was reviewed and approved by the ethical forum of the Stiftung Diakoniewerk Neumünster on 08/07/2021 and the research was conducted ethically in accordance with the World Medical Association Declaration of Helsinki.

Conflict of interest

All authors declare that there were no conflicts of interest concerning this work.

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Data availability statement

The data that supports the findings of this study are not publicly available due to their containing information that could compromise the privacy of the patient, but are available from the corresponding author SL.

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