

Breast Implant-Related Capsular Squamous Metaplasia and Carcinoma

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Introduction

Squamous cell carcinoma (SCC) has recently emerged as a concerning malignancy associated with breast implants. While still considered very rare, breast implant SCC has garnered significant attention due to the relatively poor prognosis. Theories have suggested that breast implant SCC may develop through a metaplastic intermediary process, and a clearer understanding of the causes of capsular squamous cell metaplasia may inform preventative strategies.

Figures

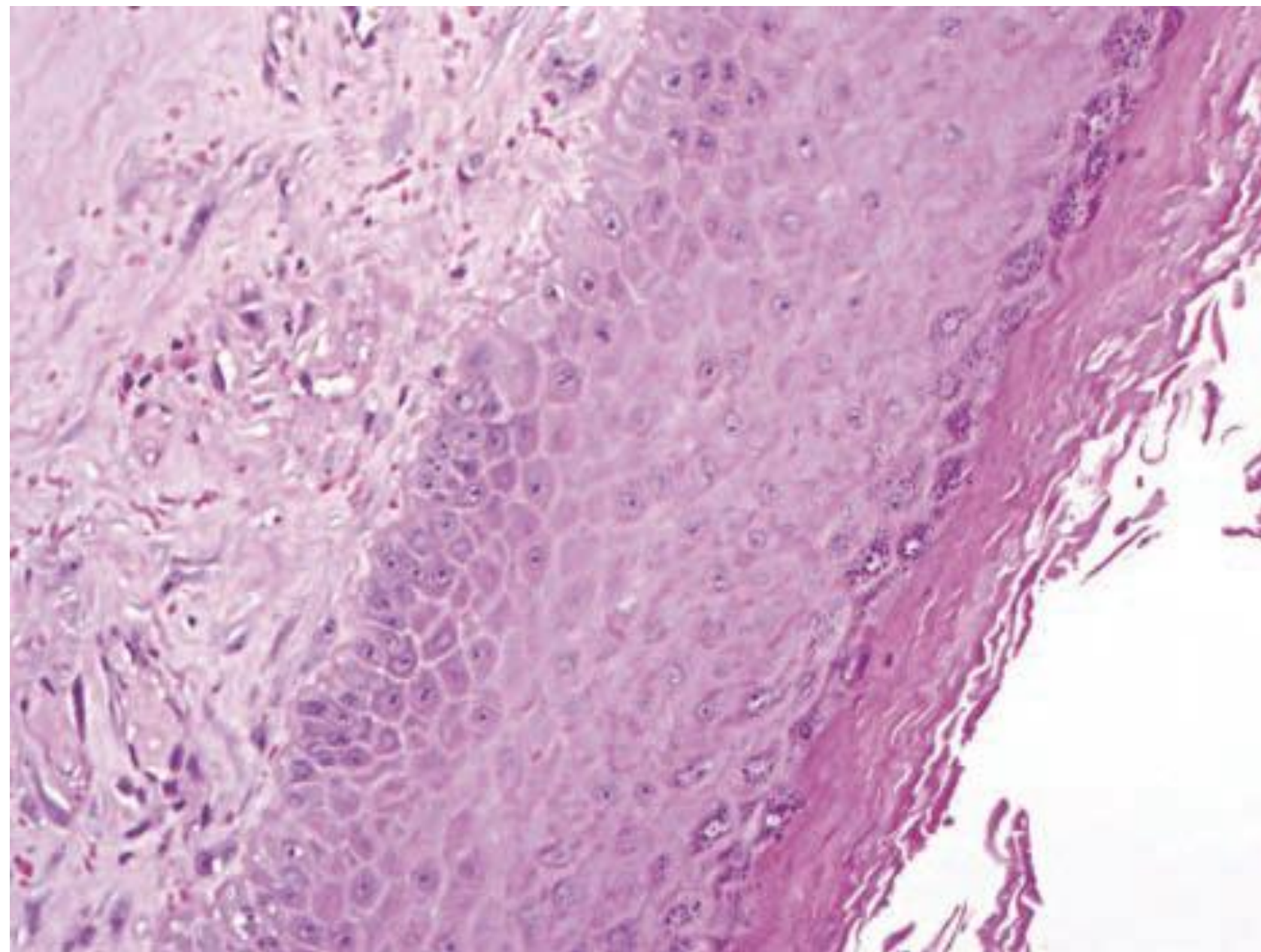


Figure 1: Example of post-capsulectomy specimen showing keratinizing squamous epithelium suggestive of squamous metaplasia¹

Methods

Pathology reports after all capsulectomies performed at Harbor-UCLA between Jan 2014 to Jan 2024 (CPT codes 19370, 19380, 19371, 19328, 19330) were examined for presence of squamous metaplasia or carcinoma (Figure 1). Patient and surgical factors were collected. Student’s t-test and Fischer’s exact test were performed for the analysis of continuous and discrete variables, respectively. A case report in a patient who developed BIA-SCC treated at our institution was also described.

Results

One hundred forty-six breast implant capsules had pathology reports and were included in this study. Eight (5.5%) patients had explanted capsules with squamous metaplasia on pathology, with three patients having bilateral squamous metaplasia. History of postoperative hematoma ($p<0.0005$), capsular contracture ($p=0.0023$), and elevated BMI ($p=0.008$) were significant predictors for squamous metaplasia in univariate analysis. After multivariate logistic regression, hematoma ($p<0.0005$) and capsular contracture ($p=0.0006$) remained as significant predictors for presence of squamous metaplasia.

Case Report

63 year old female, with a PMHx fibrocystic disease, s/p bilateral mastectomy with implants in 1983 at an outside institution, who presented after a fall three months prior with concern for ruptured implants, s/p bilateral capsulectomy and implant removal. Pathology returned positive for invasive keratinizing squamous cell carcinoma from the right breast capsule, as well as keratinaceous material with squamous pearls, perivascular lymphocytic infiltrate, and intact breast implants. Patient underwent combination radiation and chemotherapy with cisplatin. Unfortunately, patient noted to have recurrence on the right chest wall with invasion into the ribs and pleural space. Patient underwent excisional biopsy for right chest wall mass for symptomatic relief, and ultimately declined further intervention.

Discussion

Prompt intervention for hematoma and capsular contracture may be beneficial for prevention of metaplasia and consequently breast implant associated-squamous carcinoma. Similarly, selective screening for SCC may be warranted in patients with these risk factors.

References

1. Alikhan MB, Nassar A, Mansoor I. Squamous metaplasia on the breast implant capsule. *Int J Surg Pathol*. Dec 2010;18(6):570-4. doi:10.1177/1066896908329587
2. Glasberg SB, Sommers CA, McClure GT. Breast Implant-associated Squamous Cell Carcinoma: Initial Review and Early Recommendations. *Plast Reconstr Surg Glob Open*. Jun 2023;11(6):e5072. doi:10.1097/gox.0000000000005072
3. FDA. *UPDATE: Reports of Squamous Cell Carcinoma (SCC) in the Capsule Around Breast Implants - FDA Safety Communication*. March 2023. Accessed December 2025. <https://www.fda.gov/medical-devices/safety-communications/update-reports-squamous-cell-carcinoma-scc-capsule-around-breast-implants-fda-safety-communication>
4. ASPS. FDA provides update on Breast Implant Associated-Squamous Cell Carcinoma (BIA-SCC). December 2025. <https://www.plasticsurgery.org/for-medical-professionals/publications/psn-extra/news/fda-provides-update-on-breast-implant-associated-squamous-cell-carcinoma>
5. Rogges E, Petrino MM, Firmani G, Sorotos M, Santanelli di Pompeo F, Di Napoli A. Metaplastic carcinoma of the breast mimicking breast implant-associated squamous cell carcinoma: a challenging differential diagnosis. *Case Reports Plast Surg Hand Surg*. 2025;12(1):2486239. doi:10.1080/23320885.2025.2486239