Treatment Patterns and Outcomes in Breast Adenoid Cystic Carcinoma: Insights from a Large Retrospective Cohort

Alexandra Bili Newman[1], Flavia Bonini[2], Constance Albarracin[3], Senthil Damodaran[4], Lisa Licitra[5], Renata Ferrarotto[2]

[1]Division of Cancer Medicine, [2]Department of Thoracic-Head & Neck Med Oncology , [3]Department of Anatomical Pathology, [4]Department of Breast Medical Oncology at University of Texas MD Anderson Cancer Center, Houston, TX, USA, [5]Head and Neck Medical Oncology, Fondazione IRCCS Istituto Nazionale dei Tumori, Milan, Italy

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BACKGROUND

- Breast adenoid cystic carcinoma (ACC) comprises <1% of all breast cancers
- Characterized by dual epithelial and myoepithelial cell populations and frequently harbors MYB gene rearrangements
- Due to its low incidence, consensus management guidelines are lacking, leading to significant variability in treatment
- This study aims to describe patient demographics, tumor characteristics, treatment modalities, and clinical outcomes in a cohort of breast ACC patients seen at a single institution

METHODS

- **Study Design:** Single-center retrospective cohort study
- **Population:** All patients diagnosed with breast ACC and treated at our NCI-Designated Cancer Center between 2000-2025 with pathology reviewed at MDACC
- **Sample Size:** 51 patients
- **Data Collected:** Demographics, tumor characteristics, treatment modalities, and clinical outcomes

RESULTS

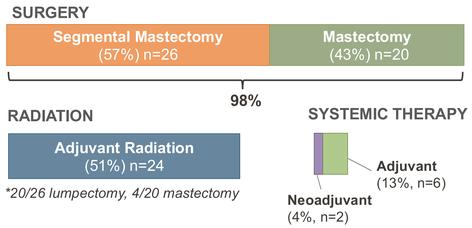
- Most patients (**92%**, n=47/51) presented with **localized disease**; 5 (9.8%) with localized disease had axillary lymph node (ALN) involvement at diagnosis

Median Age at Diagnosis	55
Stage at Diagnosis*	**n(%)**
T1	17 (33)
T2	27 (53)
T3	3 (6)
N0	42 (89)
N1	5 (11)
N2-3	0 (0)
Metastatic	4 (8)

*4 patients with unknown stage at time of diagnosis

- Histologic subtype was documented in 81% of cases with 35% exhibiting a solid/basaloid-only histology, which has classically been associated with more aggressive clinical behavior
- **18%** of patients with **ER-positivity** (defined as ≥1%), though no case exceeded 10% expression

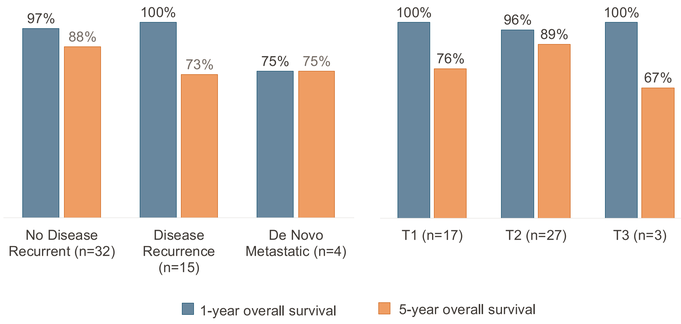
LOCOREGIONAL TREATMENT



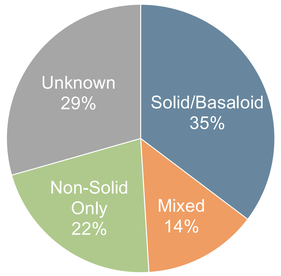
*20/26 lumpectomy, 4/20 mastectomy

- All but one patient with localized disease underwent surgery. ALN dissection was performed in 4% (n=2) of patients
- 15/47 (**32%**) patients presenting with localized disease had **disease recurrence** after definitive locoregional treatment (surgery +/- radiation). Of these **1/3 were locoregional recurrences** (n=5) and 2/3 were distant recurrences (n=10)
- Recurrence rates were similar across histologic subtypes (31% solid only, 30% non-solid only, 14% mixed)
- Recurrence rates rose with increasing T stage (T1 24%, T2 32%, T3 67%)

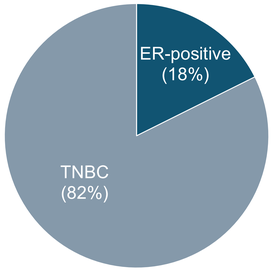
OVERALL SURVIVAL BY DISEASE STATUS AND TUMOR STAGE



HISTOLOGIC SUBTYPES



RECEPTOR STATUS



METASTATIC TREATMENT

1st line Metastatic Treatment Regimen	n
Carboplatin/Paclitaxel	2
Carboplatin/Gemcitabine	1
Sacituzumab govitecan	2
Anthracycline Based Regimen*	2
Abraxane	2
TC** + Pembro	1
Capecitabine	1
Enzalutamide	1
Anastrozole	1
Lenvatinib	1
Clinical Trial	2
Unknown	1
Total	**17**

*Doxil (n=1), Cisplatin/Doxorubicin/Cyclophosphamide (n=1),
**TC = Docetaxel/Cyclophosphamide

- 2 patients received neoadjuvant chemotherapy, both experienced recurrence (1 during NA treatment, and 1 with minimal treatment effect at surgery)
- Among the 6 patients who received adjuvant systemic therapy, treatments included endocrine therapy alone (n=1), endocrine + chemotherapy (n=1), chemotherapy + immunotherapy (n=1) and chemotherapy alone (n=3). 4/6 patients developed recurrence

- ER-positive tumors trended towards lower recurrence rates (11% vs 37% for ER-negative, p=0.14)
- 60% of patients with recurrence had received systemic therapy (either neoadjuvant or adjuvant)
- For localized disease, median time to recurrence was **35 months**, with **1 and 5-year survival** rates of **98%** and **82%**, respectively

CONCLUSIONS

- This represents the largest single-institution cohort of breast ACC reported to date, providing insight into contemporary treatment patterns and outcomes.
- Despite predominantly early-stage disease with favorable pathologic features, nearly **one-third** of patients experienced **recurrence**
- There is significant variability in management for both locoregional and advanced disease, underscoring the absence of evidence-based treatment guidelines
- These findings are consistent with existing data from ACC at other primary sites showing limited efficacy of systemic therapy in preventing disease recurrence, though limited by small patient population and confounding variables

TAKEAWAY POINTS

- Breast ACC is a rare triple-negative subtype with an indolent growth pattern and relatively favorable outcomes, distinguishing it from most other TNBC
- Treatment patterns for breast ACC vary significantly, with no clear consensus on systemic treatment in early-stage or metastatic disease
- Surgery continues to represents the mainstay of treatment with unclear role for adjuvant radiation or systemic therapy