

## Background

- Surgical excision is considered standard of care for atypical ductal hyperplasia (ADH) given the reported 15-30% upstage rate in the literature to ductal carcinoma in situ or invasive breast cancer.
- With advancements in breast imaging, including digital breast tomosynthesis (DBT) and vacuum-assisted core needle biopsy (CNB), the recommendation for surveillance of benign, high-risk lesions has gained traction.
- We aimed to evaluate whether ADH upstage rate lowers with improved radiographic and sampling techniques and to identify patients with biopsy-proven ADH for whom surgical excision may be omitted.

## Methods

- Retrospective cohort study using institutional data from the Enterprise Data Warehouse across Northwestern Medicine Health System.
- Women  $\geq 18$  years old who underwent screening DBT between 2016-2024 followed by surgical excision for ADH diagnosed via stereotactic or ultrasound-guided CNB were included.
- Patients with ADH detected on MRI or sampled via MRI-guided biopsy, prior/concurrent history of breast cancer, or known pathogenic mutation were excluded.

Women  $\geq 18$  years old who had a screening DBT between 2016-24

Prior/concurrent history of breast cancer or with a known pathogenic mutation

ADH diagnosed by either stereotactic or ultrasound-guided CNB followed by surgical excision

MRI-guided imaging for detection or tissue sampling

n = 720

Upstage  
n = 84

Downstage  
n = 233

High Risk (ADH, ALH, LCIS)  
n = 403

## Results

Table 1. Demographics

	Upstage (n = 84)	Downstage (n = 216)	p-value
Age at biopsy*	58 (51, 68)	51 (45, 58)	<0.001
Menopausal status			<0.001
Pre-menopausal	18 (22%)	106 (50%)	
Post-menopausal	65 (78%)	107 (50%)	
Race/Ethnicity			0.016
Asian	5 (6.0%)	17 (8.1%)	
Black/AA	12 (14%)	28 (13%)	
Hispanic/Latino	7 (8.4%)	31 (15%)	
Pacific Islander	2 (2.4%)	0 (0%)	
White	57 (69%)	134 (64%)	
Unknown	1 (1.2%)	6 (0.03%)	
BMI*	26 (23, 30)	26 (22, 31)	0.12
Family history of BC	40 (48%)	144 (67%)	0.004
Breast Density			0.4
A	2 (2.4%)	2 (0.9%)	
B	26 (31%)	61 (27%)	
C	46 (55%)	145 (63%)	
D	10 (12%)	22 (9.6%)	

\* median (range)

Table 2. Upstage Findings

Upstage Cases n (%)	84 (11.7%)
Ductal Carcinoma in Situ	68 (81%)
Grade	
1	36 (53%)
2	26 (38%)
3	6 (8.8%)
Invasive Breast Cancer	16 (19%)
Ductal	12 (14%)
Lobular	3 (3.6%)
Tubular	1 (1.2%)
Stage T1	16 (100%)
T1mi	5 (31%)
T1a	6 (38%)
T1b	1 (6.3%)
T1c	4 (25%)
Grade	
1	12 (75%)
2	4 (25%)
3	0 (0%)
ER+	84 (100%)
PR+	77 (93%)

## Results

Table 3. Clinical Variables Associated With Upstage

	Odds Ratio	95% CI	p-value
Age at biopsy	1.05	1.03, 1.07	<0.001
Post-menopausal	3.31	1.95, 5.86	<0.001
Smoking history	1.95	1.19, 3.16	0.007
Family history of BC	0.61	0.39, 0.97	0.036

Table 4. Imaging Factors

	Upstage (n = 84)	Downstage (n = 233)	p-value
Calcifications	67 (80%)	182 (78%)	0.9
Fine	17 (20%)	15 (6.5%)	<0.001
Pleomorphic	15 (18%)	15 (6.5%)	<0.001
Asymmetry	12 (14%)	16 (6.9%)	0.039
Worrisome features	30 (55%)	70 (45%)	0.030
Multiple findings	17 (20%)	14 (6.0%)	<0.001
Lesion size (cm)*	9 (5, 12)	7 (4, 10)	0.013

\* median (range)

Table 5. Biopsy Details

	Upstage (n = 84)	Downstage (n = 233)	p-value
Modality			0.2
Stereotactic	66 (79%)	198 (85%)	
Ultrasound	18 (21%)	35 (15%)	
Number of cores*	6 (6, 6)	6 (6, 6)	0.2
Needle gauge			0.4
9	66 (80%)	192 (83%)	
10	0 (0%)	1 (0.4%)	
12	11 (13%)	27 (12%)	
14	6 (7.2%)	11 (4.8%)	
Biopsy device			0.4
Spring-assisted	16 (19%)	32 (14%)	
Vacuum-assisted	67 (80%)	198 (85%)	
Unknown	1 (1.2%)	2 (0.9%)	
ADH features			<0.001
Focal	20 (24%)	104 (45%)	<0.001
Bordering on DCIS	8 (9.5%)	0 (0%)	<0.001

\* median (range)

## Conclusions

- In our population of ADH detected by DBT and diagnosed with vacuum-assisted biopsy, the overall upstage rate is 11.7%, lower than reported in the literature.
- Age at biopsy, post-menopausal status, smoking history, family history of breast cancer, mammographic asymmetry, worrisome features on imaging, multiple imaging findings, larger lesion size, and fine and pleomorphic calcifications are suggestive of higher risk of upstaging.