Influence of Cancerization of Lobules on the Pathological Outcomes in Mastectomy Specimens

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Introduction

- Cancerization of lobules (COL) is defined as the involvement of lobular acini by ductal carcinoma in situ (DCIS).
- Whether it represents a morphological variation of DCIS or a secondary extension into lobules is debatable.
- The relation between COL and the probability of invasion is conflicting among different studies. We assessed if COL is a predictor of adverse pathological outcomes in mastectomy specimens [1-2].

Methods

- We reviewed the clinicopathological data of patients who underwent partial or total mastectomy for DCIS with or without invasion during a 3-year period (January 2015 until December 2017).
- Pathological parameters and follow-up data were collected. The slides were reviewed and re-evaluated for COL.
- Blocks/slides with COL were stained immunohistochemically for E-cadherin and p120 catenin to confirm the ductal nature of the process **(Figure 1)**.
- Differences between categorical values were assessed by chi-square/Fisher exact test.

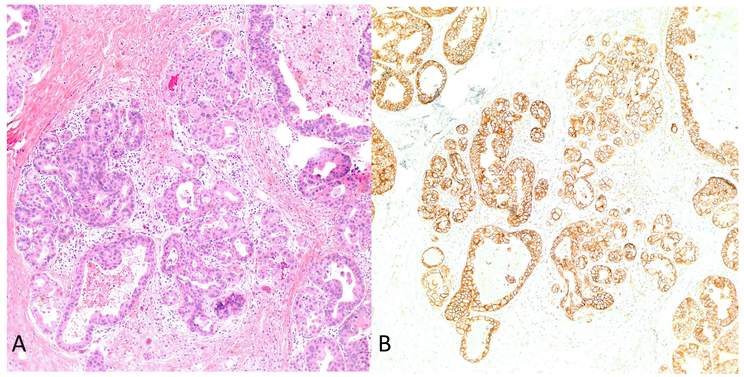

Figure 1. A. Intraductal carcinoma, extending into lobules (H&E, 100X). B. P120 immunohistochemical stain showing diffuse and strong membranous staining.

Results

Table 1. Clinicopathological outcomes of mastectomy specimens with COL vs. without COL.

Clinicopathological features	Without COL (n=98)	With COL (n=73)	*P*-value
Extensive Intraductal component (n=106)			
No	54 (85.7%)	15 (34.9%)	**<0.001***
Yes	9(14.3%)	28 (65.1%)	
% of blocks/slides with DCIS (n=171)			
≤30%	83 (84.7%)	28 (38.4%)	**<0.001***
>30%	15 (15.3%)	45 (61.6%)	
Necrosis (n=171)			
Absent	43 (43.9%)	18 (24.6%)	**0.008***
Present/Focal	29 (29.6%)	20 (27.4%)	
Present/Comedo	26 (26.5%)	35 (48.0%)	
Margin status for DCIS (n=171)			
Present with 2 mm	14 (14.3%)	24 (32.9%)	**0.004***
More than 2mm away	84 (85.7%)	49 (67.1%)	
DCIS grade (n=166)			
1	18 (19.3%)	4 (5.5%)	**0.006***
2	58 (62.4%)	44 (60.3%)	
3	17 (18.3%)	25 (34.2%)	
Invasion (n=171)			
Absent	35 (35.7%)	30 (41.1%)	0.566
Present	63 (64.3%)	43 (58.9%)	
Invasive carcinoma type (n=106)			
IC, NST	61 (96.8%)	37 (86%)	0.150
ILC	1 (1.6%)	0 (0%)	
TC	0 (0%)	3 (6.8%)	
IMC	1 (1.6%)	2 (4.6%)	
ILC AND TC	0 (0%)	1 (2.3%)	
Invasive carcinoma grade (n=103)			
1	16 (26.2%)	10 (23.8%)	0.615
2	40 (64.6%)	26 (61.9%)	
3	5 (8.2%)	6 (14.3%)	
Margin status for invasive component (n=106)			
Negative	63 (100%)	40 (93.0%)	0.083
Positive	0 (0.0%)	3 (7.0%)	
pT (n=171)			
is	35 (35.7%)	30 (41.1%)	0.522
1mi	2 (2.0%)	2 (2.7%)	
1a	6 (6.1%)	6 (8.2%)	
1b	21 (21.4%)	14 (19.2%)	
1c	22 (22.4%)	11 (15.1%)	
2	10 (10.2%)	8 (10.9%)	
3	0 (0.0%)	2 (2.7%)	
4a	0 (0.0%)	0 (0.0%)	
4b	2 (2.0%)	0 (0.0%)	

Results

Clinicopathological features	Without COL (n=98)	With COL (n=73)	*P*-value
pN (n=171)			
x	34 (34.7%)	21 (28.7%)	0.801
0	49 (50.0%)	39 (53.4%)	
0 (i+)	1 (1.0%)	0 (0.0%)	
1a	7 (7.1%)	7 (9.6%)	
1mi	4 (4.0%)	5 (6.8%)	
2a	2 (2.0%)	1 (1.4%)	
3a	1 (1.0%)	0 (0.0%)	

Abbreviations: COL: Cancerization of lobules; DCIS: Ductal carcinoma in site; IC, NST: Invasive carcinoma, no special type; ILC: Invasive lobular carcinoma; TC: Tubular carcinoma; IMC: Invasive mucinous carcinoma.

- 171 mastectomies were identified including 65 specimens with pure DCIS and 106 specimens with DCIS and invasive carcinoma. COL was identified in 73 specimens **(Table 1)**.
- COL was significantly associated with adverse pathological factors including higher DCIS grade (p-value=0.006), Comedo necrosis (p-value=0.008), presence of DCIS within 2mm of surgical margins (p-value=0.004), a higher percentage of blocks/slides with DCIS (p-value<0.001) and extensive intraductal component (EIC) (only applicable in cases with invasion) (p-value<0.001).
- Invasion was seen in approximately two thirds of the cases regardless of the presence of COL, with no statistical significance.
- Ninety-eight patients achieved 60 months of follow-up, of which only one patient developed local DCIS recurrence. COL and EIC were present. Four other patients developed metastatic disease related to the invasive carcinoma.

Conclusions

- While other studies have hypothesized that COL may be associated with a worse pathological outcome at mastectomy, this study shows that it is indeed a measure of a higher disease burden representing EIC; however, it is not associated with an increased risk of invasive carcinoma.

References

[1] Renshaw 2002, PMID: 11800645.
[2] Go et al. 2010, PMID: 20081814.