Predicting invasive disease and lymph node (LN) involvement in patients with preoperative diagnosis of ductal carcinoma in situ (DCIS)

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PREAMBLE

There is 20-25%¹ histological under-representation of invasive disease on biopsy.

- The debate on the relevance of axillary staging technique for a malignancy without metastatic potential is long-standing and unresolved.
- Axillary node positivity in this group of patients with pre-operative diagnosis of DCIS ranges from 3-13%¹.

Without improvement in pre-operative sampling, one can argue for axillary staging in select subset of patients who are at risk of harbouring invasive disease.

The clinical factors which are consistently associated with:

- An upgrade to invasive disease after definitive surgery:
  - Palpable tumour,
  - Core needle biopsy,
  - Size of abnormality on imaging > 5 cm;
- Nodal involvement:
  - Palpable disease
  - Large abnormality on imaging.

TWO metaanalyses have shown that nodal positivity in pure DCIS is 3.7-4%, with questionable survival benefit in these patients²,³

METHODOLOGY

- We performed a retrospective audit of patients undergoing a mastectomy as primary treatment following a diagnosis of DCIS at our centre between January 2016 to September 2020 (n=99).
- We included patients diagnosed with DCIS that had normal conventional imaging following a microdochectomy for pathological nipple discharge, as well.

We interrogated our data to identify predictors of invasiveness and LN involvement.

RESULTS

- Twenty-nine of 99 patients (29.29%) were found to have invasive disease on final histopathology.
- Median pathological size of the DCIS was 60 mm (range: 10 to 180 mm).
- Nine patients (9.09%) had LN involvement (9.09% of total cohort and 31% of invasive disease patients)

Clinico-pathological factors of Invasive disease

<table>
<thead>
<tr>
<th>(out of 29 invasive Ca)</th>
<th>Low</th>
<th>Intermediate</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade on Core Bx</td>
<td>1</td>
<td>9</td>
<td>19</td>
</tr>
<tr>
<td>Grade on Final</td>
<td>0</td>
<td>4</td>
<td>25</td>
</tr>
<tr>
<td>Distortion</td>
<td>7 (24.1%)</td>
<td>6 (8.5%)</td>
<td></td>
</tr>
<tr>
<td>No distortion</td>
<td>22 (75.86%)</td>
<td>64 (91.5%)</td>
<td></td>
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</table>

Table 1

Factors considered in developing nomogram
1. Size ≥ 50 mm
2. Core Vs US
3. Distortion on imaging
4. Density on imaging
5. ER Status
6. Grade of DCIS

Possible limitations:
1. Small sample size
2. Unvalidated

Application of THREE published nomograms did not adequately predict invasiveness in our patients ⁴,⁴.

INTERMEDIATE GRADE (IG) DCIS

- On core biopsy 22 patients (22.23%) had IG DCIS.
- Upgrade to Invasive disease was seen in 9 (40%) out of which 5 had high grade in final specimen while 4 remained intermediate with Invasive disease.
- Five of 22 patients had distortion on imaging while 11 had mass lesion – Inconsistent features.
- One had micro & one had macro metastatic disease in LN.

Applying clinicopathological predictors to isolated ‘IG DCIS’ group doesn’t help us in predicting for or against invasive disease or LN involvement, although upgrade is observed in significant population.

CONCLUSIONS

1. Only variables that have been consistent across the literature in predicting invasive disease are:
   a) Size > 50 mm (on imaging)
   b) Vacuum assisted biopsy
2. Our audit has shown “Distortion on imaging” as a statistically significant variable to harbour invasiveness
3. For lesions more than 50 mm on imaging a vacuum assisted biopsy might help the most in predicting invasiveness in patients undergoing mastectomy as primary treatment.
4. Further research into methods of delayed SLN biopsy, to accommodate this cohort of patients, to avoid immediate and avoidable SLN biopsy in 71% of patients is worth exploring.

References

1. Lisa A. Newman et al - Ductal Carcinoma In Situ and Microinvasive/Borderline Breast Cancer - DOI:10.1007/978-1-4493-2035-8

NO conflicts of interest to declare.
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