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LOCALISATION OF COLUMNAR CELL LESIONS IN PATIENTS WITH INVASIVE BREAST CARCINOMA.

Pathology

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ABSTRACT

Various studies have found similarities of Columnar cell lesions (CCL) with DCIS and Carcinoma; hypothesising them as earliest preinvasive lesions of Breast cancer which are found routinely near the tumor. Whether they are always located near the tumor has also become an important question as decision of excision after trucut is affected. With aim to bridge the gap in knowledge, prevalence of CCL was studied in 37 of North Indian patients with Invasive Breast Carcinoma who did not receive neo-adjuvant chemotherapy. Other than routine, 4 additional sections within 2cm of tumor edges were taken. CCL's were identified in 26 cases (70.27%). Their frequency, type and distribution was studied and correlated with carcinoma. We found that CCL's are located not only in the vicinity of carcinoma but also in the uninvolved quadrants thus, correlating with low incidence of DCIS or IDC following their diagnosis on trucut biopsies.

KEYWORDS

Columnar cell lesions, Invasive Breast Carcinoma

INTRODUCTION:

Columnar cell lesions (CCL) of breast are entities characterized by enlargement of terminal duct lobular units (TDLU) with or without hyperplasia and /or atypia. These were first described in 1945 as 'Blunt duct adenosis'1and Azzopardi first described them in relation to cancer as 'Clinging Carcinoma'.[2]

Recent increase in recognition of these lesions in the biopsies for microcalcifications has raised a need to know their significance. Studies conducted have shown their various characteristics to be similar to DCIS and other invasive entities leading to the hypothesis that CCL may be the earliest morphological pre-invasive lesions of Breast cancer. [10]

This study is undertaken with aim to bridge the gap in knowledge about the localisation of these lesions. As,whether they are always located near the tumor has also become an important question affecting the decision of excision after trucut. Also, data from India is required as the epidemiology of breast cancer here, differs from that in West. [3]

MATERIAL AND METHODS:

The present study was conducted in the Departments of Pathology and Surgery, Maulana Azad Medical College and associated Lok Nayak Hospital. The study group included 37 cases of Breast Carcinoma who underwent mastectomy or lumpectomy without any previous chemotherapy.

The tissue received as mastectomy/lumpectomy was grossed routinely and additional 4 sections from within 2cm of all advancing edges of tumor were also taken. Formalin fixed paraffin embedded blocks were made after routine processing and stained with Haematoxylin & Eosin. The morphology was studied in detail and histological typing done with detailed analysis of other histological characteristics.

The tissue was explored for presence of CCL's and they were described according to extent, patterns, cytologic features, calcification with classification according to extended Schnitt and Vincent Salmon classification4 into Columnar Cell Lesions (CCC), Columnar Cell Hyperplasia (CCH), CCC with atypia, CCH with atypia, CCH with complex architecture and CCH with atypia with complex architecture.. Their location was noted and they were analysed semi quantitatively as Focal (only rare microscopic foci), Multifocal (multiple lobules or ducts in less than 50% of sections) and Extensive (multiple lobules or ducts in more than 50% of sections).[9]

RESULTS:

Study group patients had 50 years of mean age at presentation. 36 cases were of IDC (97.3%) and one patient had colloid carcinoma. Most common presenting complaint remained lump in breast in 35 (97.3%) patients. Most of the cases presented in stage II (22- 73%), followed by stage III (14- 21.6%) and one at Stage IV. 7 cases showed IDC NOS grade I while 19 and 10 showed Grade II and Grade III, respectively.

A large no., 26/37 cases (70.27%) showed presence of CCL's. The negative cases included Colloid Carcinoma. Different types of CCL's coexisted in 11 cases representing the spectrum of changes. Most frequent were CCC (14/37) followed by CCH (11/37). 9 cases (24.3%) showed CCC with atypia, CCH with atypia and CCH with atypia with complex architecture were seen in 2 cases each (Figure 1-5). CCL's were found extensively in 8.1% of cases, multifocal in 32.4% and focally in 29.7%. (Figure 6) 41% were localised in uninvolved quadrants and 33% were in vicinity of tumor. Rest were found within 2cm of tumor (27%).

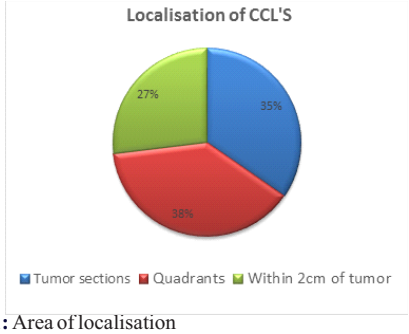


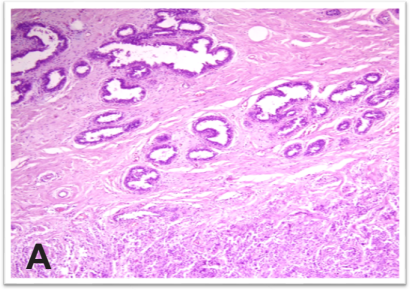
Figure 1: Area of localisation

Maximum cases, 19/26 (73%) showed presence of CCL's in the routine sections, however, in 7 cases (27%), they were isolated in the additional sections

TABLE 1 : EXTENT OF CCL'S

	CCC	CCH	CCC with atypia	CCH with atypia
FOCAL	4	3	1	3
MULTIFOCAL	3	3	5	1
EXTENSIVE		1	2	

In 57.7% cases with CCL, tumors were Grade 2 while in 50% of cases without CCL tumor was Grade 3. 53.8% (14/26) were Stage II at presentation, closely followed by Stage III (13/26) among cases showing CCL. Even cases without CCL presented maximally at Stage II (8/11).



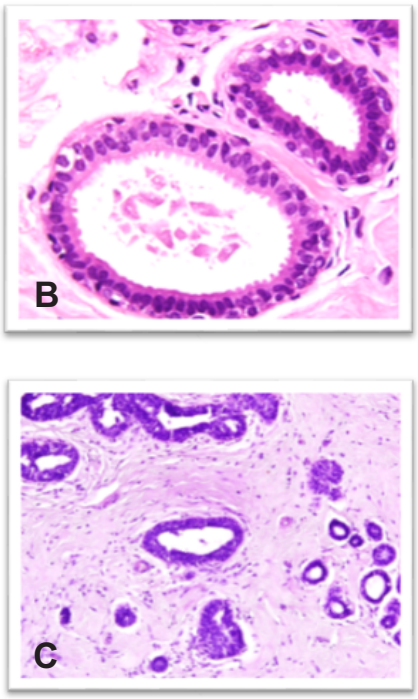


Fig. 2: A.Columnar Cell Hyperplasia adjacent (HE stain, 40x). Multiple dialated ducts near the tumor lined by single to multiple layer of nuclei without atypia and oriented perpendicularly. B. Columnar Cell Change(HE stain,400x). Ducts lined by single layer of cells having uniform, ovoid to elongated nuclei oriented perpendicular to basement membrane; nucleoli absent or inconspicuous. Cytoplasm is amphophilic, non-granular with apical snouts. Lumen shows presence of calcification. C.CCH with Atypia (HE stain,100X). Dilated ducts lined by multiple layer of atypical cells with round irregularly oriented nuclei having vesicular chromatin, some with prominent nucleoli. Cytoplasmic apical snouting is not seen.

DISCUSSION:

Although various studies have helped to characterize Columnar cell lesions, still certain aspects remain untouched like, where are they exactly found in relation to tumor. We observed presence of different types of CCL's in a whopping 26 of our 37 cases, i.e. 70.27%. The only case of Colloid Carcinoma included in the study did not show any CCL's. similar to Leibel et al and Abdel Fateh et al.5,6 However, H.Seema and T Rajlakshmi found them in only 30.2% of IDC7 and Goldstein and O' Malley reported them as cancerisation of small ectatic ducts in 6.23% 8 Additional sections taken within 2cm of tumor added 7/26 (27%) cases to our findings increasing the total percentage by 18.9%.

More than one type of CCL's were found in 11 cases with CCC and CCH being most frequent, similar to findings of Demiralay et al.9 However, Abdel Fatah et al found CCH with atypia as most commonly followed by CCC. 6 This is contrasting, as CCL's with atypia are considered to be precursors of carcinoma, and not CCL's without atypia.

None of the studies have mentioned clearly the exact area of localisation of CCL's however, they mentioned them to be present near tumor.5-10, In present study, CCL's were more frequent in the uninvolved quadrants (41%) than immediate tumor vicinity (33%). Another 26% (7/27) were found within 2cm of tumor. Although, in total lesions found near tumor are more frequent (59%), but we also need to search for them in other areas. Also, it explains the results of various studies on core needle biopsy, showing low percentage of DCIS or invasive carcinoma on subsequent excision. [10]

4/7 cases showing CCL's within 2cm of tumor fell into the category of CCL's with atypia (FEA) and 3/11cases with CCL's with atypia in uninvolved quadrants. Their implication in follow up of patients undergoing breast conservation surgery is not yet known.11,12 However, longitudinal studies suggest low progression of these lesions into advanced forms .13-16 Thus, long term follow up should suffice.

High incidence of CCL's in Breast carcinoma is suggestive of the precursor role of these lesions. Though, a definitive role of only those showing atypia is suggested by genetic studies9,17-19, longitudinal studies conducted by Boulus et al15 and Aroner et al16 showed no significant difference among risk of carcinoma between cases of CCL's with or without atypia. Thus, they may be included among the non-obligate precursors of Cancer.

In order to find CCL's, we took additional sections from near the advancing edges of tumor within an area of 2cm, raging in no. from 4-8. In 26% of cases, CCL's were found only in these areas. Among other findings in these sections was presence of vascular tumor emboli in 2 of the studied 38 cases. So, to find out the presence of CCL's these sections appear useful. But use of these sections as a routine is not recommended in view of the high Cost benefit ratio and non-specific prognostic implication of presence of CCL's in longitudinal studies 13-16

SUMMARY

- Columnar cell lesions without atypia are more common type.
- CCL's are frequently found in cases of breast carcinoma, near as well as away from tumour.
- Their high incidence is supportive of their nature as non-obligate precursors of carcinoma

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