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Huddled and Preternatural- Atypical Lobular Hyperplasia

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Editorial

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Abstract

Atypical lobular hyperplasia manifests as a clonal proliferation of dis-cohesive epithelial cells emerging from terminal duct lobular units. Neoplasm appears reminiscent of lobular carcinoma in situ (LCIS) although cellular quantification is reduced. Characteristically, the incidentally discovered lesion is associated with dysfunction or decimation of E-cadherin. Additionally designated as lobular intraepithelial neoplastic 1 (LIN1), tumefaction exemplifies a female preponderance. Typically, adult subjects are implicated. Tumefaction is commonly encountered within the fifth decade although no age of disease emergence is exempt. Atypical lobular hyperplasia is detected within<1% of core needle biopsies adopted for evaluating BI-RADS 4 lesions [1,2]. Atypical lobular hyperplasia may incriminate bilateral breasts wherein specific lesion localization is absent. Tumefaction exhibits loss of chromosome 16qand deletion of CDH1 genes with loss of function of E-cadherin, a Tran's membrane cell adhesion molecule. Alternatively, altered function of E-cadherin may occur. Exceptionally, various adhesion proteins are implicated wherein E-cadherin molecule appears stable [1,2]. Characteristically, atypical lobular hyperplasia is a diploid neoplasm. Tumefaction exhibits loss of heterozygosis (LOH) at chromosome 16q. A subset of neoplasms demonstrates methylation of CDH1 gene. Several tumefaction express loss of chromosome 22q and 16p, gain of chromosome 2p11.2, 5q32-33.1 (CSF1R), 6q, 11q13 or 14q32.33.

Keywords: Lobular; Hyperplasia; Neoplasm; Epithelial Cells; Ultrasonography

Abbreviations: TDLU: terminal duct lobular unit; AJCC: American Joint Committee on Cancer; DCIS: Ductal Carcinoma in Situ; MRI: Magnetic Resonance Imaging; SERM: Selective Oestrogen Receptor Modulators; AI: Aromatase Inhibitors.

Editorial

The low grade neoplasm emerging as a singular lesion or a familial condition expounds enhanced expression ESR1 and decimated expression of SFRP1 protein [1,2]. Frequently, atypical lobular hyperplasia is clinically concordant with lesions comprised of columnar cells and neoplasms depicting flattened epithelial atypia. Exceptionally, tumefaction is concurrent with low grade invasive carcinoma breast displaying calcification discerned upon mammography. Besides, the dense lesion or mass may be targeted within surgical tissue samples. Generally, a palpable tumefaction is absent [2,3].

Nearly one fifth (~19%) of lesions progress into invasive carcinoma breast within a meanduration of 15 years following initial disease discernment. The lesion is associated with ~5 time's possible occurrence of malignant metamorphosis. Invasive carcinoma breast may appear within bilateral breasts although proportionate metamorphosis is enhanced within ipsilateral breast delineating the lesion. Roughly half (~42%) of the neoplasms manifest as specific subtypes demonstrating superior prognostic outcomes [2,3]. Cytological smears exhibit loosely cohesive cellular clusters comprised of uniform epithelial cells imbued with occasional

intracytoplasmic lumens, frequently eccentric nuclei and minimal nuclear atypia [2,3]. Grossly, specific macroscopic features are absent. However, tumefaction may be associated with calcification characteristic of various coexistent pathologies [3,4].

Upon microscopy, neoplasm represents as a solid mass composed of dis-cohesive proliferation of monomorphic, miniature epithelial cells impregnated with pale pink cytoplasm, uniform elliptical nuclei and indistinct nucleoli. Few cells demonstrate plasmacytoid or signet ring cell appearance with intracytoplasmic vacuoles. Generally, the lesion is devoid of arcades, lumens or papillary projections [3,4]. Diagnostic criteria of Page et al designates atypical lobular hyperplasia as~lesion which distends ≥50% of acini within a lobule, appearing reminiscent of lobular carcinoma in situ although the morphological features may not be uniform within the entire lobule OR~lesion which comprehensively implicates the acini within a terminal duct lobular unit (TDLU), thereby simulating lobular carcinoma in situ although distension of acini is absent as the calibre of implicated acini is identical to the calibre of uninvolved acini [3,4]. Neoplasm may implicate ducts wherein cellular proliferation may surround the duct or appear as epithelial outpunching's configuring a 'cloverleaf' pattern. Lesion is devoid of intra cytoplasmic mucin. An accompanying inflammatory response may be minimal to absent (Figures 1&2). Ultra structural examination exhibits intra cytoplasmic lumens, microvilli with secretory droplets, my epithelial cells and basement membrane [3,4].

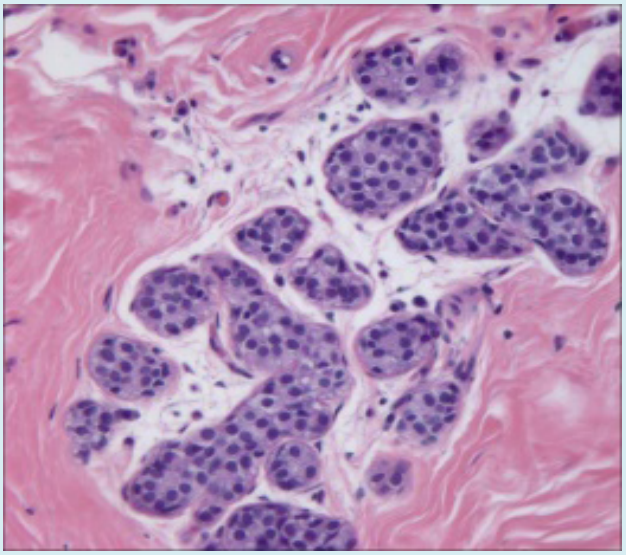

Figure 1: Atypical lobular hyperplasia demonstrating solid sheets of proliferating, dis-cohesive, monomorphic epithelial cells imbued with pale pink cytoplasm, uniform ovoid nuclei and indistinct nucleoli [5].

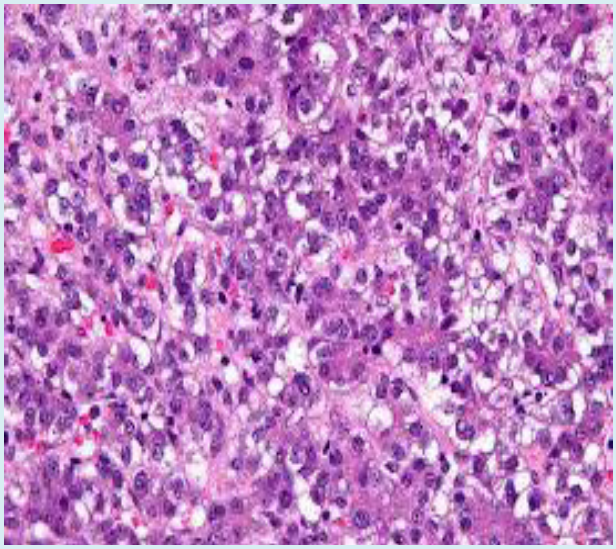

Figure 2: Atypical lobular hyperplasia delineating solid sheets of proliferating, dis-cohesive, monomorphic epithelial cells impregnated with pale pink cytoplasm, uniform elliptical nuclei and inconspicuous nucleoli [6].

Staging of carcinoma breast as per American Joint Committee on Cancer (AJCC) 8th edition [3,4].

Primary Tumour

- TX: Primary tumour cannot be assessed.
- T0: No evidence of primary tumour.
- Tis: Tumour appearing as ductal carcinoma in situ, Paget's disease, encapsulated papillary carcinoma and solid papillary carcinoma .
- Tis (DCIS) appearing as ductal carcinoma in situ devoid of invasive carcinoma.
- Tis (Paget) appearing as Paget's disease devoid of invasive carcinoma.
- T1mi: Tumour ≤ 1 millimetre magnitude.
- T1a: Tumour > 1 millimetre and ≤ 5 millimetre magnitude.
- T1b: Tumour > 5 millimetre and ≤ 10 millimetre magnitude.
- T1c: Tumour > 10 millimetre and ≤ 20 millimetre magnitude.
- T2: Tumour > 20 millimetre and ≤ 50 millimetre magnitude.
- T3: Tumour > 50 millimetre magnitude.
- T4a: Tumour extension into chest wall and devoid of infiltration into pectoralis muscle.
- T4b: Tumour associated with oedema as peau d'orange, cutaneous ulceration and ipsilateral satellite
- cutaneous nodules.
- T4c: Tumour demonstrating features of T4a and T4b.

- T4d: Tumour demonstrating inflammatory carcinoma which implicates > 1/3 of cutaneous surface of
- breast and is discerned upon clinical examination. Regional lymph nodes.
- NX: Regional lymph nodes cannot be assessed.
- N0: Regional lymph node metastasis absent.
- N0(i-): Regional lymph node metastasis absent upon histological assessment or immunohistochemistry.
- N0(i+): Regional lymph nodes depicting isolated tumour cells or a cluster of tumour cells ≤ 0.2 millimetre diameter or < 200 cells.
- N0(mol+): Regional lymph nodes delineating tumour cells upon reverse transcriptase polymerase chain reaction (RT-PCR) and non-discernible upon light microscopy.
- N1mi: Regional lymph nodes with micro-metastasis or tumour deposit > 0.2 millimetre and ≤ 2.0 millimetre or ≤ 0.2 millimetre and > 200 cells.
- N1a: Regional lymph node metastasis within one to three 3 axillary lymph nodes with minimally a singular tumour deposit > 2.0 millimetre diameter.
- N1b: Regional lymph node metastasis into internal mammary sentinel lymph node with tumour deposit > 2.0 millimetre diameter.
- N1c: is constituted of combined N1a and N1b N2a: Regional lymph node metastasis into 4 to 9 axillary lymph nodes with minimally a singular tumour deposit > 2.0 millimetre diameter.
- N2b: Regional lymph node metastasis within clinically palpable internal mammary lymph nodes and axillary lymph nodes devoid of tumour deposits.
- N3a: Regional lymph node metastasis into ≥ 10 axillary lymph nodes with minimally a singular tumour deposit > 2.0 millimetre magnitude or metastasis into infra-clavicular lymph nodes.
- N3b: Regional lymph node metastasis into internal mammary lymph nodes as discerned upon imaging and tumour stage appearing as N1a or N1b.
- N3c: Regional lymph node metastasis into ipsilateral supraclavicular lymph nodes.

Distant Metastasis (M)

- M0: Distant metastasis absent.
- M1: Distant metastasis present with magnitude of histological tumour deposits > 0.2 millimetres.
- y: adoption of preoperative radiotherapy or chemotherapy.
- r: recurrent tumour stage.

Atypical lobular hyperplasia appears immune reactive to oestrogen receptors(ER), progesterone receptors (PR), and cytokeratin 34β E12 or p120 catenin. Tumour cells appear immune non-reactive to E cadherin, HER2, CK5/6, α catenin or β catenin [5,6]. Atypical lobular hyperplasia requires segregation from lesions such as atypical ductal hyperplasia, lobular carcinoma in situ or benign lobule with clear cell change [7,8]. Atypical ductal hyperplasia may be appropriately ascertained with histological assessment of core needle biopsy specimens. Additionally, tumefaction may be incidentally discovered upon mammography, ultrasonography or magnetic resonance imaging (MRI).

Classically, the incidentally discovered neoplasm appears devoid of specific radiographic features (7,8).

Upon magnetic resonance imaging (MRI), atypical lobular hyperplasia may appear concordant with calcification with non-mass image enhancement. Alternatively, neoplasm may be discerned upon histological evaluation of surgical tissue samples [7,8].

Adoption of cogent therapeutic strategies remains debatable. Surgical extermination of the neoplasm may be employed. Isolated lesions may not necessitate surgical eradication of the lesion [7,8]. Alternatively, lifelong tumour monitoring with extensive follow up upon regular intervals may be optimally employed. However, surgical excision is preferentially circumvented in lesions detected upon core needle biopsies or morphological assessment of tissue samples. Employment of selective oestrogen receptor modulators (SERMs) and aromatase inhibitors (AIs) may decimate possible occurrence of subsequent invasive carcinoma breast, especially within subjects depicting lesions of atypical hyperplasia as atypical lobular hyperplasia or atypical ductal hyperplasia or commingled lesions [7,8].

In contrast to lobular carcinoma in situ, proportionate possible occurrence of malignant metamorphosis is decimated.

However, the lesion expounds~5 times enhanced possible emergence of invasive carcinoma, a probability which is elevated within lesions confined to ipsilateral breast, in subjects < 50 years and neoplasms implicating the ductal system [7,8]. Tumefaction detected upon core needle biopsy may be appropriately subjected to surgical extermination. Besides, surgical excision may be adopted in order to circumvent subsequent emergence of in situ or invasive carcinoma breast. Proportionate subsequent occurrence of ductal carcinoma in situ (DCIS) or invasive carcinoma is observed within 6% to 8% subjects whereas invasive ductal or lobular carcinoma arises within 25% individuals [7,8].

However, surgical eradication may be circumvented in instances where radiographic or histopathological discordance indicates lack of excision of targeted lesion high risk lesions as atypical ductal hyperplasia may concur and

necessitate additional surgical intervention atypical lobular hyperplasia demonstrating features akin to ductal carcinoma in situ~atypical lobular hyperplasia with pleomorphic morphological features ~occurrence of diffuse lobular neoplastic discerned upon core needle biopsy specimens lesions where significantly augmented possible occurrence of carcinoma breast is absent, subsequent carcinoma breast is diffuse or malignant lesions may appear within either breast or away from site of surgical tissue sampling [7,8].

References

1. Myers DJ, Walls AL (2023) Atypical Breast Hyperplasia. Stat Pearls International Treasure Island Florida.

2. Vegunta S, Mussallem DM, Kaur AS, Sandhya P, Christine LK (2023) Atypical hyperplasia of the breast: Clinical cases and management strategies. Cleve Clin J Med 90(7): 423-431.

3. Su A, Zhang J, Liu J, Yaping Y, Zhou H, et al. (2023) Impact of Atypical Hyperplasia at Surgical Margins on breast cancer outcomes in patients treated with neoadjuvant chemotherapy. Front Oncol 13: 1202689.

4. Heller SL, Gao Y (2023) Update on Lobular Neoplasia. Radiographics 43(10): e220188.

5. Image 1 Courtesy: USCAP.com.

6. Image 2 Courtesy: Libre pathology.

7. Turkyilmaz Z, Sarisik E, Ozkurt E, Mustafa T, Selman E, et al. (2023) Evaluation of Benign Breast Diseases With or Without Atypical Epithelial Hyperplasia Accompanying Radial Scars. Eur J Breast Health 19(2): 166-171.

8. Gao Y, Bahl M (2023) Management of screening-detected lobular neoplasia in the era of digital breast tomosynthesis: A preliminary study. Clin Imaging 103: 109979.