



HISTOLOGICALLY AGGRESSIVE BREAST CANCER IN A YOUNG WOMEN

Pathology

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ABSTRACT

Primary neuroendocrine tumors of the breast are rare, aggressive cancers that are difficult to diagnose and treat. A 28-year-old female presented with a painless lump in her right breast since one month. Ultrasound showed a subacute abscess in the right infraclavicular region. Lumpectomy revealed poorly differentiated infiltrating ductal carcinoma and on immunohistochemistry triple-negative breast cancer was confirmed (ER, PR, HER-2/neu negative). Neuroendocrine differentiation was confirmed with positive markers for synaptophysin, chromogranin and CK5/6, emphasizing the need for immunohistochemical analysis for accurate diagnosis.

KEYWORDS

INTRODUCTION:-

Breast cancer is the most common cancer in India accounting for 28.2% of all female cancers¹. In young women breast cancer is rare, affecting only 8% of women under the age of 35². Recently, a significant increase in breast cancer rate has been observed among premenopausal subjects³. Although screening in carriers of the BRCA mutation allows early detection of breast cancer, approximately 90% of early-onset breast cancer occurs in noncarriers and only 10% are carrier of the BRCA mutation. Because women younger than 40yrs without identifiable risk factor do not generally undergo screening and most women who ultimately receive a breast cancer diagnosis do not have a first-degree family history of breast cancer or germline genetic mutation⁴. The effect of this delay in diagnosis are exacerbated by an over representation of more aggressive disease in the younger population.

CASE REPORT

A 28yr old female presents with chief complaints of painless lump in the right breast since one month which was insidious in onset and initially small in size and gradually progressed. No history of breast cancer, ovarian or colorectal malignancy in the family. She was found to have a subacute abscess in the right infraclavicular region on ultrasound scan.

Lumpectomy was done and for histopathological examination received single grey white to grey yellow globular soft tissue mass measuring 3.5x2.5x1.5cm. External surface- globular soft tissue mass covered by grey yellow fibrofatty tissue. Cut surface-Identified well circumscribed grey white area measuring 2x1.5x1.5cm. Also identified central necrosis. On microscopic examination (Figure1) revealed tumor cells were arranged in lobules and sheets and individual tumour cells were highly pleomorphic with increased nuclear to cytoplasmic ratio, scant amount of eosinophilic cytoplasm, vesicular nucleus and prominent nucleoli. Mitotic figures(18/10HPF) seen. Surrounding stroma shows lymphocytic infiltration which revealed a Poorly Differentiated Infiltrating Ductal Carcinoma.

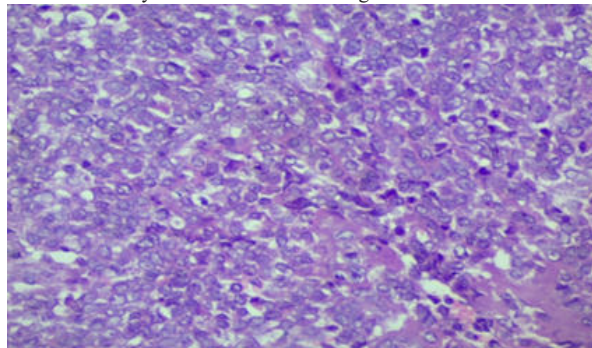


Figure-1: Infiltrating Ductal Carcinoma (H & E, 100x)

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Further Immunohistochemistry (ER,PR and HER-2/neu) revealed Triple negative breast cancer.

Due to the suspicious area showing potential neuroendocrine differentiation, we also performed synaptophysin and chromogranin along with CK5/6

Figures 2 and 3 provide immunohistochemical evidence supporting the diagnosis of neuroendocrine tumors, with Figure 2 showing diffuse cytoplasmic staining for Synaptophysin and Figure 3 showing diffuse cytoplasmic staining for Chromogranin. Both Synaptophysin and Chromogranin are markers commonly used to identify neuroendocrine differentiation, confirming the diagnosis

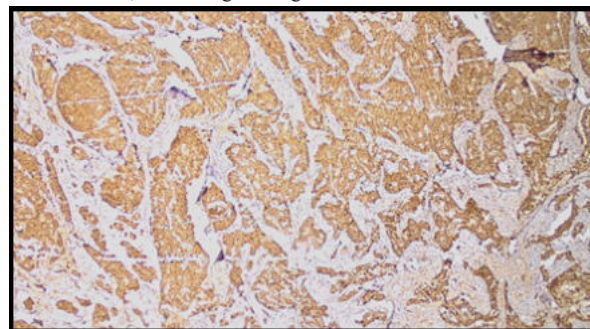


Figure-2: Synaptophysin-Positive (IHC, 100x)

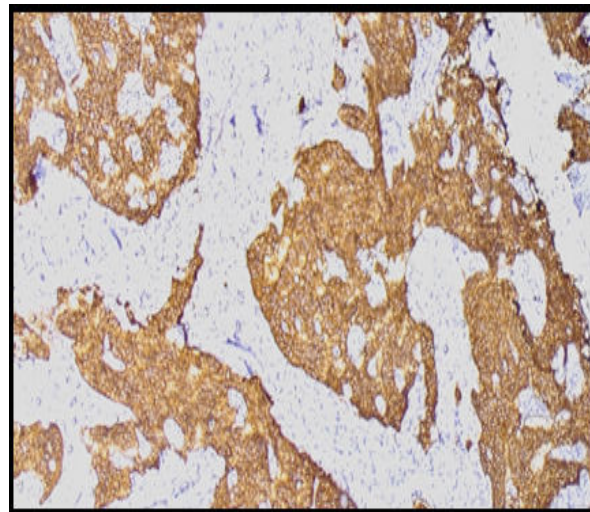


Figure-3: Chromogranin -Positive (IHC, 100x) CK5/6-Positive.

The BRCA1 and BRAC2 gene testing were done, and the results were NEGATIVE.

DISCUSSION

Younger women with breast cancer tend to be diagnosed at more advanced stages, resulting in a poorer prognosis compared to older women. While they typically receive similar treatments, such as mastectomy or breast-conserving surgery with radiation therapy, younger women face a higher risk of local recurrence after breast-conserving therapy. This highlights the need for careful consideration and tailored treatment approaches for younger patients.

While chemotherapy regimens may be similar across age groups, younger women with breast cancer have unique needs. Fertility preservation before treatment is a critical consideration, as chemotherapy can impact reproductive health. Genetic testing is also vital, as it can inform treatment decisions. Furthermore, younger women and their families often require psychological support and counseling to cope with the emotional and lifestyle implications of a breast cancer diagnosis.^{3,4}

Primary neuroendocrine carcinoma (NEC) of the breast is an exceptionally rare tumor, making up less than 0.1% of all breast cancers. It has a poor prognosis, particularly in younger patients. Due to the lack of distinct imaging characteristics, diagnosis relies heavily on immunohistochemical analysis to differentiate pure NEC from composite forms, highlighting the importance of thorough pathological evaluation for accurate diagnosis.⁵

CONCLUSION

The diagnosis in this case was complicated by variations in clinical presentation and radiological findings. This case underscores the importance of histopathological analysis and immunohistochemistry in reaching an accurate diagnosis, emphasizing the crucial role these diagnostic tools play in resolving complex cases.

REFERENCES

1. Sathishkumar K, Sankarapillai J, Mathew A, Nair RA, Gangane N, Khuraijam S, Barmon D, Pandya S, Majumdar G, Deshmene V, Zomawia E, Bhutia TW, Jerang K, George PS, Maliye S, Laishram R, Das G, Shah A, Debbarma S, Koyande S, Pachua L, Sherpa A, Jongkey G, Chaturvedi M, Das P, Santhappan S, Mathur P. Breast cancer survival in India across 11 geographic areas under the National Cancer Registry Programme. *Cancer*. 2024 May 15;130(10):1816-1825.
2. Gogia A, Raina V, Deo SV, Shukla NK, Mohanti BK. Young breast cancer: A single center experience. *Indian J Cancer*. 2014 Oct-Dec;51(4):604-8.
3. Radecka B, Litwiniuk M. Breast cancer in young women. *Ginekol Pol*. 2016;87(9):659-663.
4. Gao Y, Samreen N, Heller SL. Non-*BRCA* Early-Onset Breast Cancer in Young Women. *Radiographics*. 2022 Jan-Feb;42(1):5-22.
5. Salemis NS. Primary neuroendocrine carcinoma of the breast: a rare presentation and review of the literature. *Intractable Rare Dis Res*. 2020 Nov;9(4):233-246.