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RESEARCH ARTICLE

OCCULT PRIMARY BREAST CARCINOMA PRESENTING AS ISOLATED CERVICAL LYMPHADENOPATHY: A COMPREHENSIVE MULTIMODAL MANAGEMENT APPROACH

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Abstract

Background: Occult primary breast carcinoma (OPBC) is an uncomm on clinical entity characterized by metastatic lymph node involvement in the absence of an identifiable primary lesion within the breast on clinical examination or imaging. In most patients, OPBC presents with axillary lymph node metastasis. Presentation as isolated cervical lymphadenopathy is extremely rare and may lead to diagnostic difficulty because it can resemble malignancies arising from other primary sites. This case report describes a rare presentation of occult breast carcinoma manifesting as isolated cervical lymphadenopathy in a postmenopausal woman.

Case Presentation: A 70-year-old postmenopausal woman presented with a painless swelling in the left posterior cervical region that had progressively enlarged over six weeks. Clinical breast examination, bilateral mammography, and contrast-enhanced breast magnetic resonance imaging did not reveal any primary breast lesion. Fine-needle aspiration cytology demonstrated metastatic adenocarcinoma. Ultrasound-guided core biopsy followed by immunohistochemical analysis showed strong estrogen receptor and progesterone receptor expression, GCDFP-15 positivity, CK7 positivity, and negative staining for TTF-1 and CK20, confirming a breast origin of the metastasis. The disease was staged as cT0 N3c M0 according to the AJCC 8th edition and classified as hormone receptor-positive, HER2-negative (Luminal A-like subtype).The patient underwent selective cervical lymph node excision followed by adjuvant anthracycline-taxane chemotherapy.

Subsequent treatment included bilateral whole breast and comprehensive nodal radiotherapy, endocrine therapy with letrozole, CDK4/6 inhibition with abemaciclib for two years, and adjuvant zoledronic acid.

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Outcome:-At 18 months of follow-up, the patient remains clinically and radiologically disease-free and has tolerated treatment well.
Conclusion:-Isolated cervical lymphadenopathy may represent a rare manifestation of occult breast carcinoma in postmenopausal women. Accurate diagnosis relies heavily on immunohistochemistry, and a multidisciplinary treatment strategy aligned with contemporary oncologic practice can achieve favorable short-term outcomes.

Introduction:-

Breast cancer remains the most frequently diagnosed malignancy among women worldwide, with approximately 2.3 million new cases reported in 2020 according to GLOBOCAN estimates [1]. Occult primary breast carcinoma (OPBC) refers to metastatic breast carcinoma detected in lymph nodes without an identifiable primary tumor in the breast on clinical examination or imaging. The condition was first described by Halsted in 1907 [2].OPBC accounts for approximately 0.3–1% of all breast cancers [3]. In most patients, the disease presents with axillary lymphadenopathy. Presentation as isolated cervical lymphadenopathy is exceptionally uncommon and may initially mimic malignancies arising from the head and neck region, thyroid carcinoma, lymphoma, or metastatic adenocarcinoma of unknown primary origin [4].Advances in imaging techniques, particularly contrast-enhanced breast magnetic resonance imaging, have improved the detection of small or otherwise occult breast lesions. Nevertheless, a subset of patients continue to present with nodal metastasis without a demonstrable primary tumor despite comprehensive imaging evaluation [6].The objective of this report is to highlight the diagnostic challenges associated with occult breast carcinoma presenting as isolated cervical lymphadenopathy and to describe the role of multidisciplinary multimodal management in this rare clinical scenario.

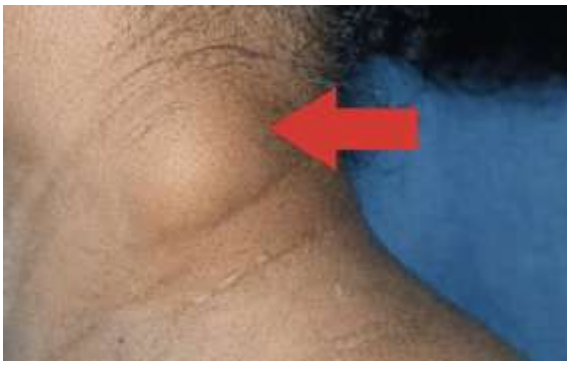
Case Report:-

Clinical Presentation:-

A 70-year-old postmenopausal woman (natural menopause at 52 years) presented with a painless swelling on the left side of the neck that had gradually increased in size over six weeks. She denied dysphagia, odynophagia, hoarseness of voice, fever, night sweats, or unintentional weight loss. There was no prior history of malignancy, radiation exposure, or family history of breast or ovarian cancer.

Clinical Examination:-

General examination was unremarkable with an ECOG performance status of 0. Local examination revealed a firm, non-tender, mobile lymph node measuring approximately 2.5 × 2.0 cm in the left posterior cervical triangle corresponding to Level V lymph nodes.

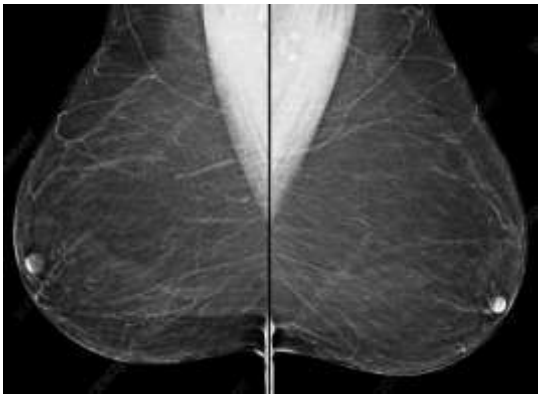


No additional cervical, supraclavicular, or axillary lymphadenopathy was detected. Bilateral breast examination did not reveal any palpable masses or skin changes. ENT evaluation including nasopharyngoscopy did not identify any suspicious primary lesion.

Investigations:-

Laboratory investigations including complete blood count, renal function tests, and liver function tests were within normal limits. Serum CA 15-3 level was mildly elevated at 38 U/mL.Contrast-enhanced computed tomography of the neck and thorax demonstrated a single enlarged left Level V lymph node without evidence of necrosis. No primary lesion was identified in the head and neck region, thorax, or breasts. Axillary lymphadenopathy was not

observed.Bilateral mammography was reported as BI-RADS category 1,indicating no radiological evidence of malignancy.



Dynamic contrast-enhanced breast MRI did not identify any suspicious lesion. Fine-needle aspiration cytology revealed metastatic adenocarcinoma. Ultrasound-guided core biopsy demonstrated metastatic adenocarcinoma replacing nodal architecture.

Immunohistochemistry results are summarized below:

Table 1. Immunohistochemical Profile

Marker	Result	Interpretation
ER	Strongly positive (>80%)	Supports breast origin
PR	Positive (>60%)	Supports breast origin
GCDFP-15	Positive	Suggestive of breast origin
CK7	Positive	Consistent with breast epithelial origin
HER2	Negative (1+)	Luminal A-like molecular subtype
TTF-1	Negative	Excludes lung and thyroid primary
CK20	Negative	Excludes gastrointestinal primary

The immunoprofile confirmed metastatic carcinoma of breast origin.

Diagnosis and Staging:-
A diagnosis of occult primary breast carcinoma with isolated left cervical nodal metastasis was established. According to the AJCC 8th edition staging system, the disease was staged as cT0 N3c M0 [5]. The tumor demonstrated ER positivity, PR positivity, and HER2 negativity consistent with a Luminal A-like molecular subtype.

Management:-
The case was discussed in a multidisciplinary tumor board.

Surgery:-
Selective excision of the involved cervical lymph node was performed. Histopathological examination confirmed metastatic adenocarcinoma consistent with breast origin without extranodal extension.

Chemotherapy:-
Adjuvant anthracycline-taxane chemotherapy was administered using the AC-T regimen consisting of doxorubicin (60 mg/m²) and cyclophosphamide (600 mg/m²) every three weeks for four cycles, followed by paclitaxel (175 mg/m²) every three weeks for four cycles.

Radiotherapy:-
Following chemotherapy, bilateral whole-breast external beam radiotherapy was delivered at a dose of 50 Gy in 25 fractions. Comprehensive nodal irradiation included left cervical levels II–V, the supraclavicular region, axillary levels I–III, and the internal mammary chain.

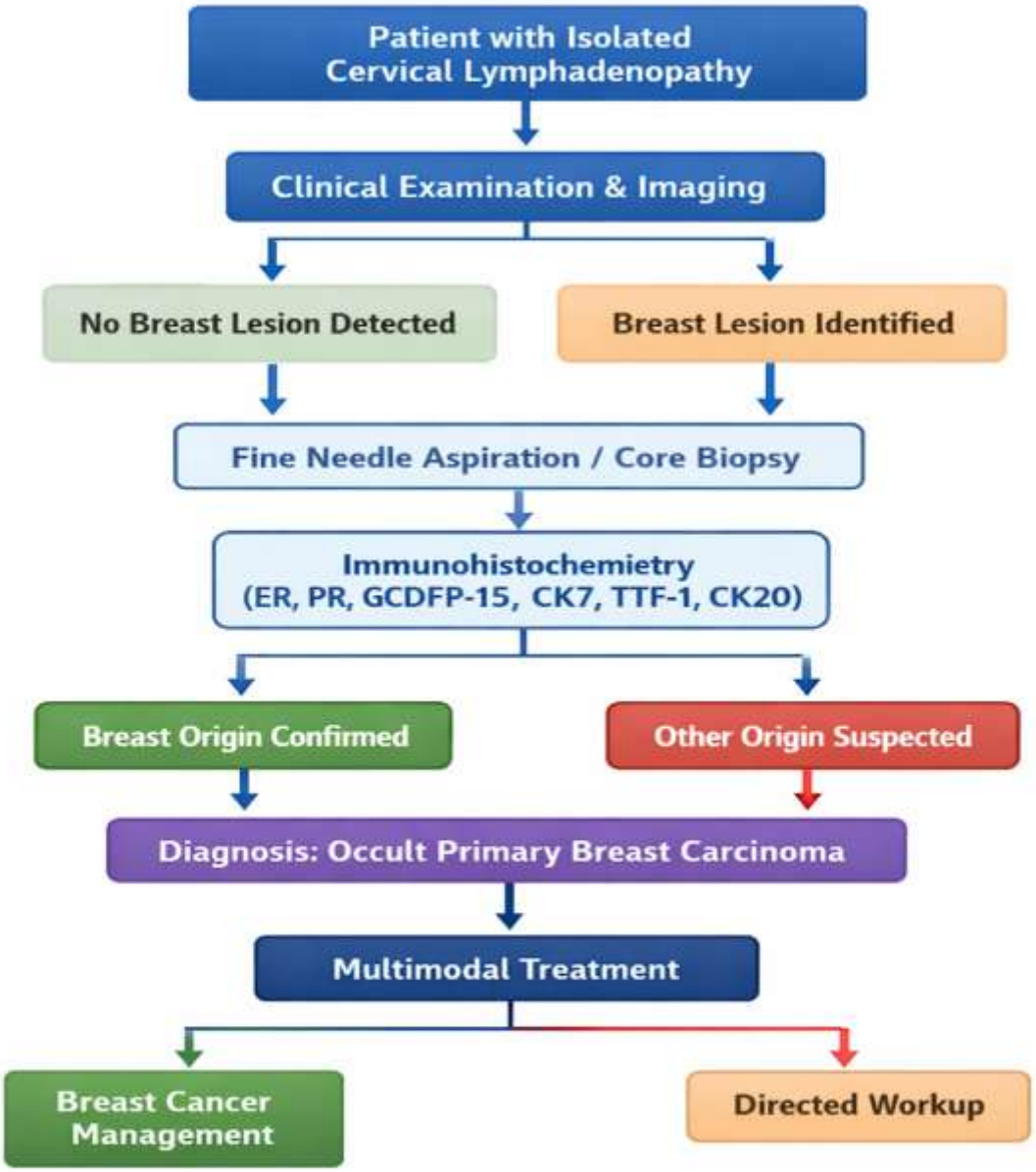
Endocrine Therapy:-
Letrozole 2.5 mg daily was initiated after radiotherapy with a planned duration of at least five years.

CDK4/6 Inhibition:-
Abemaciclib 150 mg twice daily was commenced concurrently with endocrine therapy for a planned duration of two years based on eligibility criteria from the monarchE trial [13–16].

Bisphosphonate Therapy:-
Zoledronic acid 4 mg intravenously every six months was initiated for bone protection and reduction of skeletal recurrence risk [17–20].

Follow-Up:-
At 18 months of follow-up, the patient remains clinically and radiologically disease-free. Treatment was well tolerated. Mild arthralgia associated with letrozole and low-grade diarrhea related to abemaciclib were managed conservatively. Bone mineral density remained stable.

Discussion:-
Occult primary breast carcinoma represents an uncommon presentation of breast cancer accounting for less than 1% of cases [3]. Most patients present with axillary lymph node involvement, whereas isolated cervical nodal metastasis is rarely reported.



Diagnostic Algorithm for Occult Primary Breast Carcinoma with Cervical Lymphadenopathy

Differential Diagnosis:-

Cervical lymphadenopathy due to metastatic adenocarcinoma requires careful evaluation to exclude alternative primary malignancies. Differential diagnoses include metastatic thyroid carcinoma, lung adenocarcinoma, lymphoma, and gastrointestinal malignancies. In the present case, immunohistochemistry played a decisive role in identifying the tissue of origin. Strong ER and PR expression together with GCDFP-15 positivity and absence of TTF-1 and CK20 staining strongly supported breast origin while effectively excluding pulmonary, thyroid, and gastrointestinal primaries.The exact pathogenesis of OPBC remains uncertain. Proposed mechanisms include

spontaneous regression of a microscopic primary tumor or persistence of disease below the detection threshold of current imaging modalities. Even high-resolution breast MRI cannot completely exclude microscopic multifocal disease.

Treatment Rationale:-
Management generally parallels that of high-risk node-positive early breast cancer. Anthracycline-taxane chemotherapy remains a well-established adjuvant regimen and has demonstrated improved survival outcomes in node-positive disease [27,28].The addition of abemaciclib reflects evolving evidence in high-risk hormone receptor-positive, HER2-negative disease. The monarchE trial demonstrated improved invasive disease-free survival when abemaciclib was combined with endocrine therapy in patients with high-risk early breast cancer [14–16].Adjuvant bisphosphonate therapy such as zoledronic acid provides both bone protection during aromatase inhibitor therapy and a reduction in the risk of bone recurrence in postmenopausal women [20].Bilateral breast irradiation was considered appropriate because the laterality of the primary tumor could not be determined despite comprehensive imaging.

Limitations:-
As this report describes a single patient, the findings cannot be generalized. Larger studies and longer follow-up are required to better understand long-term outcomes and optimal management strategies for occult breast carcinoma presenting with cervical lymph node metastasis.

Summary:-
- Occult primary breast carcinoma accounts for less than 1% of breast cancers.
- Isolated cervical lymphadenopathy represents a rare clinical presentation.
- Immunohistochemistry is essential for determining tumor origin.
- Multidisciplinary multimodal management improves outcomes.
- CDK4/6 inhibitors and bisphosphonates play an important role in high-risk hormone receptor-positive disease.

Conclusion:-
Occult primary breast carcinoma may rarely present as isolated cervical lymphadenopathy. A high index of suspicion and targeted immunohistochemical evaluation are essential for establishing an accurate diagnosis. Multidisciplinary management incorporating surgery, chemotherapy, radiotherapy, endocrine therapy, CDK4/6 inhibition, and bisphosphonate therapy can achieve favorable short-term outcomes in selected high-risk patients.
Further studies with longer follow-up are required to better define the long-term outcomes and optimal management strategies for this rare clinical entity.

Conflict of Interest:-
None declared.

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Ethical Statement:-
Written informed consent was obtained from the patient for publication.
Institutional ethical approval was waived as this study represents a single case report without experimental intervention.

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