Research & Reviews: Medical and Clinical Oncology

Metaplastic Spindle Cell Carcinoma: A Rare and Aggressive Breast Cancer Subtype

Johny Preston*

Department of Public Health, Haramaya University, Hawaasa, Ethiopia

Opinion Article

Received: 29-Aug-2024, Manuscript No. MCO-24-149339; **Editor assigned:** 02-Sep-2024, PreQC No. MCO-24-149339 (PQ); **Reviewed:** 16-Sep-2024, QC No. MCO-24-149339; **Revised:** 23-Sep-2024, Manuscript No. MCO-24-149339 (R); **Published:** 30-Sep-2024, DOI: 10.4172/medclinoncol.8.03.006.

***For Correspondence:**
Johny Preston, Department of Public Health, Haramaya University, Hawaasa, Ethiopia

E-mail: preston.21@gmail.com

Citation: Preston J. Metaplastic Spindle Cell Carcinoma: A Rare and Aggressive Breast Cancer Subtype. Med Clin Oncol. 2024;08:006.

ABOUT THE STUDY

Metaplastic spindle cell carcinoma (MSCC) is a rare and aggressive subtype of breast cancer that is characterized by a unique histological composition, primarily featuring spindle-shaped cells. This form of carcinoma poses distinct clinical challenges due to its unusual presentation, histopathological characteristics, and treatment options. Understanding the defining features of MSCC is important for accurate diagnosis and effective management.

Metaplastic spindle cell carcinoma is classified under metaplastic breast carcinomas, a heterogeneous group of tumors that exhibit differentiation toward various non-glandular elements. MSCC typically consists of a predominance of spindle-shaped cells, which may be accompanied by other components such as squamous cells or chondroid tissue. These tumors often arise in the background of conventional invasive ductal carcinoma but may also present *de novo*.

The World Health Organization (WHO) recognizes MSCC as a distinct subtype due to its specific histological features and clinical behavior. This carcinoma is generally categorized as a high-grade tumor, associated with an aggressive clinical course and poorer prognosis compared to more common breast cancer subtypes.

Histopathological features

The histopathological evaluation of metaplastic spindle cell carcinoma reveals several key characteristics:

Spindle cell morphology: The predominant feature of MSCC is the presence of spindle-shaped cells that resemble fibroblasts. These cells typically have elongated nuclei and scant cytoplasm, giving the tumor a distinctive appearance. The cellularity can vary, with some tumors exhibiting high cellularity and others presenting with a more fibrous stroma.

Pleomorphism: The tumor cells often exhibit marked nuclear pleomorphism, with variations in size and shape. This characteristic is indicative of aggressive behavior and can complicate the histological diagnosis.

Mitotic activity: Increased mitotic activity is commonly observed in MSCC, often presenting atypical mitoses. The high mitotic index correlates with the aggressive nature of this tumor.

Stromal composition: MSCC may also show a variable amount of associated stromal components, such as chondroid or osseous differentiation. The presence of these elements can influence the histological diagnosis and has implications for treatment.

Clinical presentation

Patients with metaplastic spindle cell carcinoma typically present with a palpable mass in the breast, which may be detected during routine self-examination or imaging studies. Unlike more common breast cancers, MSCC may not always be associated with the typical signs of malignancy, such as lymphadenopathy or breast pain.

Due to the aggressive nature of MSCC, it is not uncommon for these tumors to be diagnosed at an advanced stage. Imaging studies, including mammography and ultrasound, may reveal irregularly shaped masses with associated desmoplastic reactions. Biopsies are essential for confirming the diagnosis and assessing the tumor's histological features.

The diagnosis of metaplastic spindle cell carcinoma requires a combination of imaging studies, histopathological evaluation and immunohistochemical profiling. Core needle biopsies are typically performed to obtain tissue samples for analysis. Histopathological examination reveals the characteristic spindle cell morphology, along with the presence of pleomorphism and increased mitotic activity.

Immunohistochemical staining plays a vital role in differentiating MSCC from other spindle cell lesions, such as sarcomas or other breast cancer subtypes. Markers such as cytokeratins are often positive, while hormone receptors are typically negative, further supporting the diagnosis of MSCC.

The treatment approach for metaplastic spindle cell carcinoma generally follows the principles of managing high-grade breast cancers. Surgical intervention, including mastectomy or lumpectomy, is the primary treatment modality. Due to the aggressive nature of MSCC, lymph node evaluation is often performed to assess potential metastasis. Adjuvant therapies, including chemotherapy and radiation, may be recommended based on the tumor's stage and patient characteristics. However, the lack of targeted therapies for this rare subtype poses a significant challenge in treatment planning. Research into potential targeted therapies and clinical trials is ongoing, aimed at finding effective treatments for MSCC.

The prognosis for patients with metaplastic spindle cell carcinoma tends to be less favorable compared to other breast cancer subtypes. Factors such as tumor size, grade and lymph node involvement significantly influence patient outcomes. Recurrence rates are notably high, particularly within the first few years following treatment.

Despite the challenges posed by MSCC, ongoing research and advancements in treatment options may lead to improved management strategies in the future. Early detection and comprehensive treatment remain key components in optimizing patient outcomes. Metaplastic spindle cell carcinoma is a rare and aggressive form of breast cancer with distinct histopathological features and clinical implications. Its unique presentation necessitates careful diagnostic evaluation and tailored treatment approaches. As research continues to evolve, understanding the biology of MSCC and exploring new therapeutic avenues will be essential for improving outcomes for patients affected by this challenging subtype of breast cancer. Early recognition and intervention are essential in managing metaplastic spindle cell carcinoma effectively, ultimately enhancing patient care and survival rates.