



Research Article

Section: Pathology

Pleomorphic Invasive Lobular Carcinoma with Ductal Component: A Rare Mixed Tumour of Breast

Dr. Ishika Godara¹, Dr. Tanika Mishra², Dr. Anku Alisha^{*3} & Dr. Rajeev Sen⁴

^{1,2}Junior Resident, Department of Pathology, SGT University, FMHS, Budhera, Gurugram

³Senior Resident, Department of Pathology, SGT University, FMHS, Budhera, Gurugram

⁴Professor and Head, Department of Pathology, SGT University, FMHS, Budhera, Gurugram

ARTICLE INFO

Article History:

Received: 04-07-2025

Accepted: 04-08-2025

Keywords:

Pleomorphic

Invasive lobular carcinoma

Ductal

*Corresponding author:

Dr. Anku Alisha

Senior Resident, Department of
Pathology, SGT University, FMHS,
Budhera, Gurugram

ABSTRACT

Introduction: Due to its uncommon nature, there exists a limited understanding of optimal treatment strategies and long-term prognosis for MDPLC. This report contributes to the existing knowledge base by presenting a unique case and potentially informing future treatment decisions. **Aim:** Among women globally, breast cancer stands as the most prevalent form of malignancy. Invasive ductal carcinoma (IDC) and invasive lobular carcinoma (ILC) dominate the diagnostic landscape. However, a rarer variant emerges where both these histological features intermingle within a single tumour, forming mixed ductal and pleomorphic lobular carcinoma (MDPLC). This case report delves into the experience of a patient diagnosed with MDPLC. This case report aims to present an unusual case of pleomorphic invasive lobular carcinoma with a ductal component, focusing on its distinctive histopathological features. It also seeks to explore the diagnostic challenges and treatment considerations involved in managing this rare mixed tumor in clinical practice

INTRODUCTION

Invasive ductal carcinoma is the most common histological type comprising 72% to 80% of all invasive breast cancer while invasive lobular carcinoma is less common and accounts for 5-15% of all invasive breast cancer [1,2]. Mixed ductal and pleomorphic lobular carcinoma (MDPLC) is a unique histopathologic subtype that translate to a more aggressive phenotype with an associated poor prognosis. It shows loss of estrogen and progesterone receptor expression and demonstrate HER-2/neu amplification along with loss of E-Cadherin. This case highlights a rare mixed tumour of breast exhibiting pleomorphic invasive lobular carcinoma with cribriform ductal carcinoma.

CASE DETAILS

A 45-year-old female presented with a left breast lump. Mammography revealed a mass characterized by irregular shape, speculated margins, and calcifications. Following this, a modified radical mastectomy was performed and the specimen was received in the Department of Pathology, SGT University, FMHS, Budhera, Gurugram.

Upon gross examination, the specimen measured 20 x 18 x 9 cm. Serial sectioning revealed a grey-white growth in the central and outer upper quadrant measuring 4.5 x 4.3 x 3.6 cm, with close proximity to the overlying skin. Histopathological examination of H&E stained sections showed tumour cells arranged in both lobular and ductal patterns. An immunohistochemistry (IHC) panel was applied, confirming the diagnosis of invasive carcinoma with mixed ductal and pleomorphic lobular features.

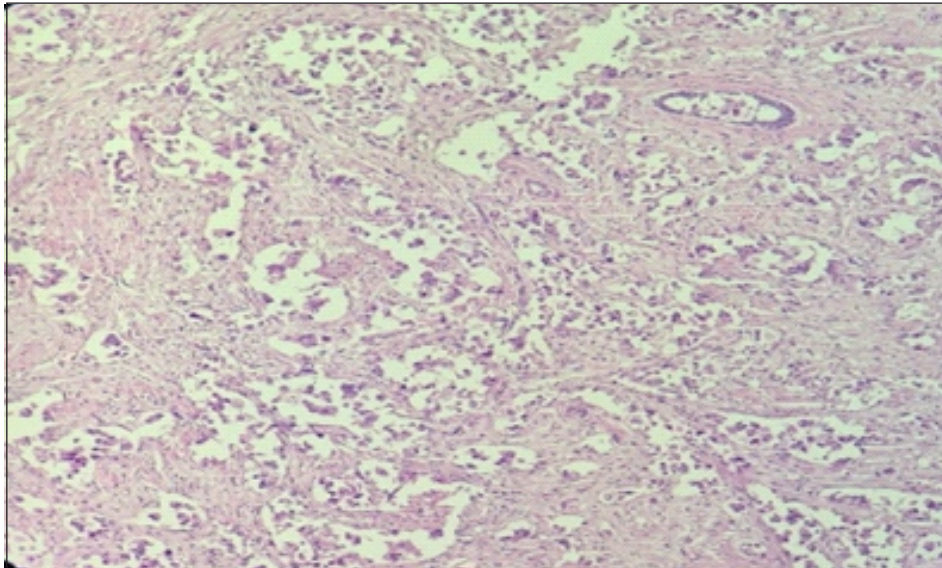


Figure 1: H&E Stained Section Showing Mixed Pleomorphic Lobular Carcinoma (Signet Ring and Apocrine Morphology) with Ductal Carcinoma (100X)

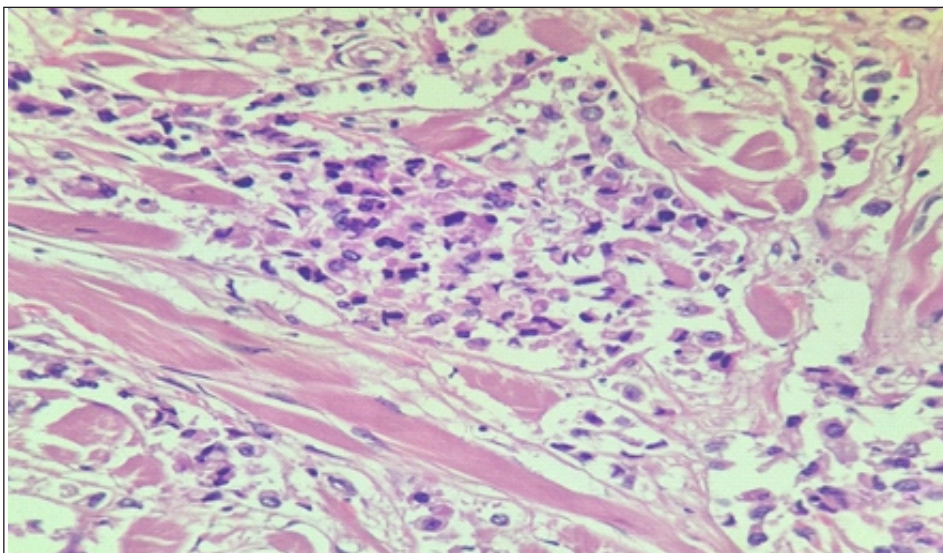


Figure 2: H&E Stained Section Showing Tumour Cells with Apocrine and Signet Ring Cell Morphology Infiltrating the Muscle Fibres (400X)

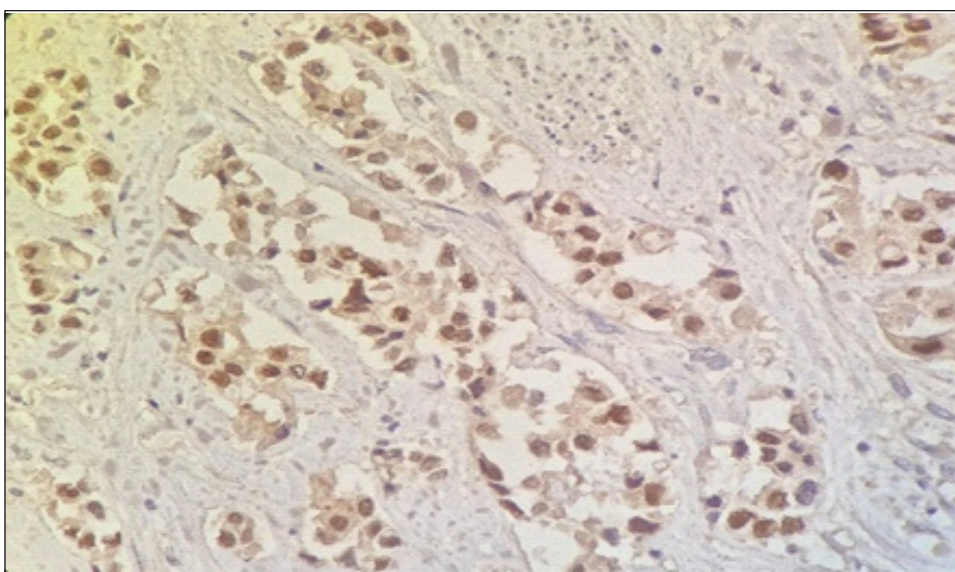


Figure 3: Immunohistochemical Staining of ER Showing Strong Positivity (Allred Scoring - 6/8)

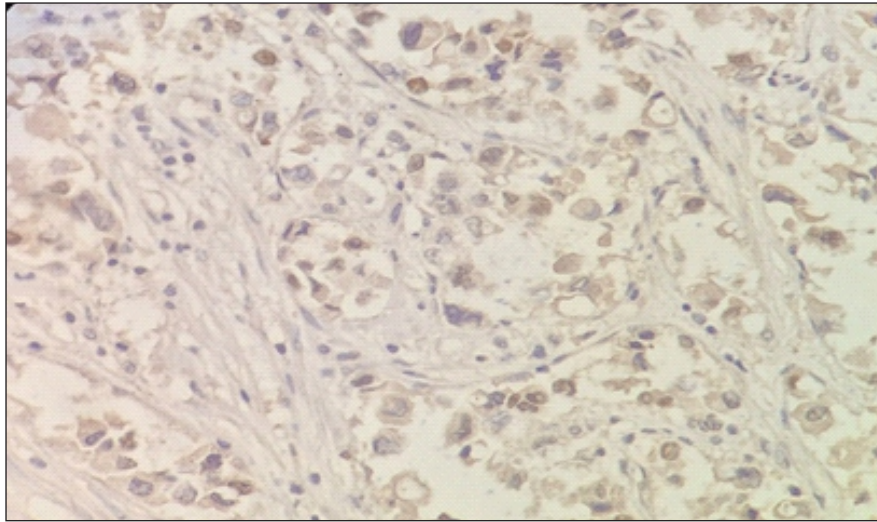


Figure 4: Immunohistochemical Expression of PR Showing Positivity (Allred Score - 4/8)

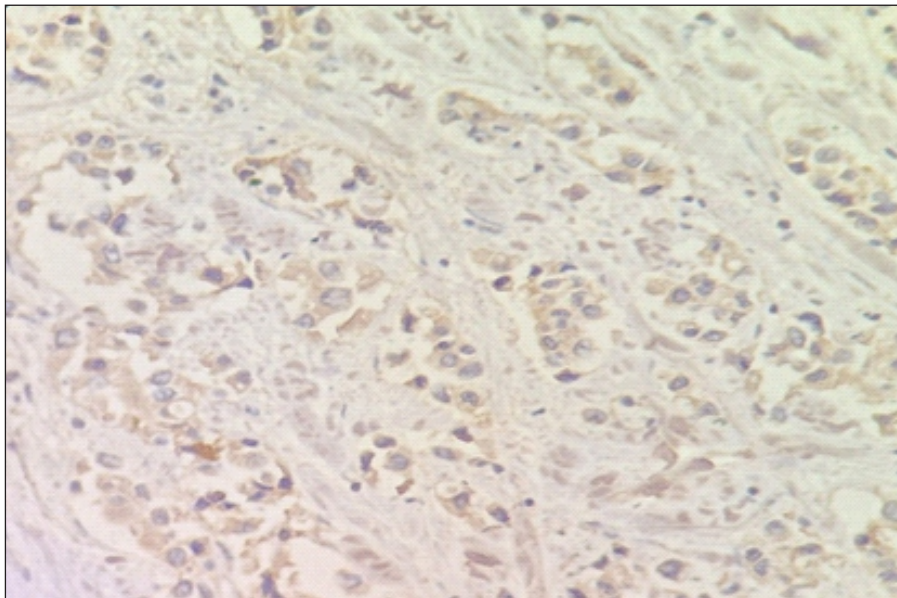


Figure 5: Immunohistochemical Staining of her-2/Neu Showing Negative Membranous Expression

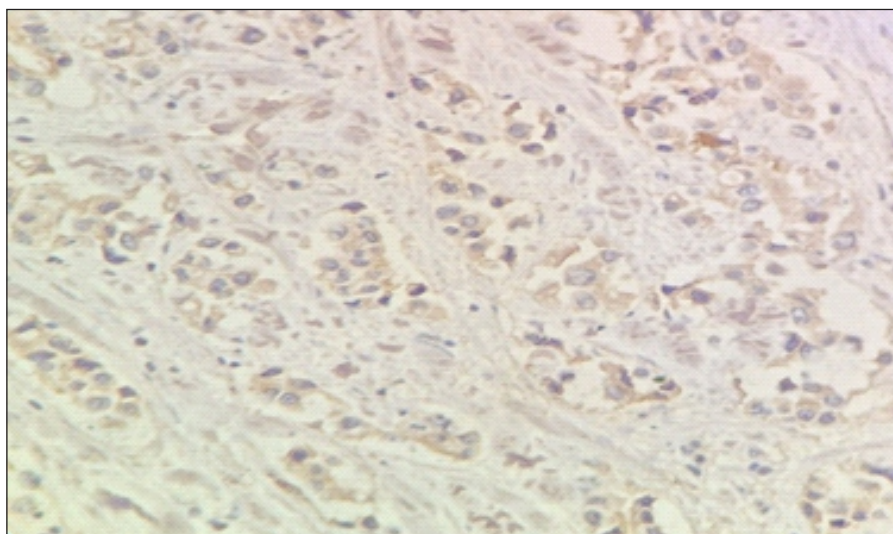


Figure 6: Immunohistochemical Staining of Ki67 Showing Nuclear Positivity in Around 12% of Cells

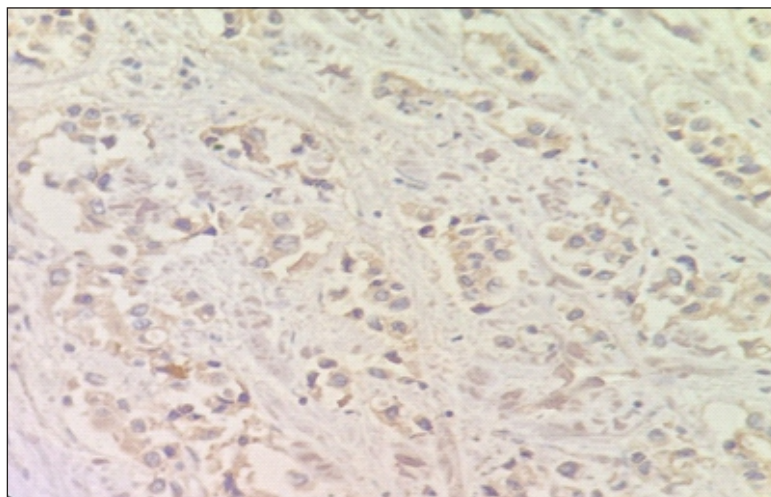


Figure 7: Immunohistochemical Staining Showing Loss of E-Cadherin Expression

DISCUSSION

Cancer poses a growing health challenge in India, affecting lives across various socio-economic and geographical segments of the country. Among women, breast cancer holds the highest prevalence, accounting for 14% of all cancers diagnosed in females in India. Breast cancer is the heterogeneous group of tumours with variable morphology, behaviour and molecular profile [3,4]. While invasive ductal carcinoma (IDC) and invasive lobular carcinoma (ILC) are the most common types, a less frequent variant exists where both histological features are present within the same tumour. Mixed ductal-lobular carcinomas (MDLs) are a unique type of breast cancer where the tumor displays features of both ductal and lobular carcinoma. This combination of characteristics within a single tumour is a challenge for researchers. There are two main theories about how these mixed features arise. One possibility is that MDLs develop from a single cancer cell that takes on both ductal and lobular traits. Another theory suggests they might be a coincidence, where two separate tumours (ductal and lobular) arise very close together and appear as one [5,6,7]. Further review of literature has suggested that mixed ductal-lobular carcinomas (MDLs) are more likely to originate from a single cell, not separate tumours and that the lobular features might develop from a modified ductal pathway.

We report a case of invasive breast carcinoma with mixed ductal and pleomorphic lobular pattern. Pleomorphic lobular component was composed of tumour cells arranged as discohesive, concentrically placed in lobular manner and arranged in Indian file pattern at places. These cells varied in morphology from plasmacytoid to signet ring cells with abundant eosinophilic cytoplasm. The ductal component comprised tumour cells arranged in cords, scattered singly and forming cribriform pattern at places, the cells were round to oval with nuclear pleomorphism and prominent nucleoli. Overall, the histological grade as per Nottingham histologic score was 3, High grade.

Immunohistochemical assessment of pleomorphic invasive lobular carcinoma with ductal component generally shows loss of oestrogen and progesterone receptor expression and demonstrates HER-2/neu amplification along with loss of E - Cadherin. A panel of immunohistochemical markers was applied. Immunohistochemical staining of ER showed positive expression whereas PR and Her-2/neu showed negative expression. Ki67 was found in 12% of the tumour cells. The tumour cells demonstrated loss of e-cadherin expression [8,9].

Differentiating this entity from gastric signet ring adenocarcinoma is a challenge in cases of invasive pleomorphic lobular component with predominant signet ring morphology. A detailed clinical history along with immunohistochemical staining remains the mainstay for confirmation in these cases. As the pathogenesis is still debatable, both ductal and lobular components can have different prognoses emphasizing the need for further evaluation to standardize the treatment [10].

CONCLUSION

Mixed ductal and pleomorphic lobular carcinoma is a rare entity and is incompletely understood. Pleomorphic lobular carcinoma with ductal component constitutes an archetypal example of intratumorally morphological heterogeneity. Therefore, a more detailed analysis of carcinoma with mixed lobular and ductal features is needed to guide treatment and improve understanding of breast cancer.

CONFLICT OF INTEREST

There is no conflict of interest in the present study.

Acknowledgements

All the authors have contributed to concept, literature search, data acquisition, data analysis, manuscript, editing and review.

REFERENCES

1. Arps DP, Healy P, Zhao L, Kleer CG, Pang JC. Invasive ductal carcinoma with lobular features: a comparison study to invasive ductal and invasive lobular carcinomas of the breast. *Breast Cancer Res Treat.* 2013;138(3):719-726. doi:10.1007/s10549-013-2493-2
2. Sastre-Garau X, Jouve M, Asselain B, et al. Infiltrating lobular carcinoma of the breast. Clinicopathologic analysis of 975 cases with reference to data on conservative therapy and metastatic patterns. *Cancer.* 1996;77(1):113-120. doi:10.1002/(SICI)1097-0142(19960101)77:1<113::AID-CNCR19>3.0.CO;2-8
3. Mehrotra R, Yadav K. Breast cancer in India: Present scenario and the challenges ahead. *World J Clin Oncol.* 2022;13(3):209-218. doi:10.5306/wjco.v13.i3.209
4. Sung H, Ferlay J, Siegel RL, et al. Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. *CA Cancer J Clin.* 2021;71(3):209-249. doi:10.3322/caac.21660
5. Barroso-Sousa R, Metzger-Filho O. Differences between invasive lobular and invasive ductal carcinoma of the breast: results and therapeutic implications. *Ther Adv Med Oncol.* 2016; 8(4): 261-266. doi:10.1177/1758834016644156
6. Sastre-Garau X, Jouve M, Asselain B, et al. Infiltrating lobular carcinoma of the breast. Clinicopathologic analysis of 975 cases with reference to data on conservative therapy and metastatic patterns. *Cancer.* 1996;77(1):113-120. doi:10.1002/(SICI)1097-0142(19960101)77:1<113::AID-CNCR19>3.0.CO;2-8
7. Zengel B, Yazarbas U, Duran A, et al. Comparison of the clinicopathological features of invasive ductal, invasive lobular, and mixed (invasive ductal + invasive lobular) carcinoma of the breast. *Breast Cancer.* 2015;22(4):374-381. doi:10.1007/s12282-013-0489-8
8. Manucha V, Khilko N, Reilly K, Zhang X. Invasive pleomorphic lobular carcinoma, negative for ER, PR and Her/2neu--a case report. *Int J Clin Exp Pathol.* 2011;4(2):200-205. Published 2011 Jan 30.
9. Middleton LP, Palacios DM, Bryant BR, Krebs P, Otis CN, Merino MJ. Pleomorphic lobular carcinoma: morphology, immunohistochemistry, and molecular analysis. *Am J Surg Pathol.* 2000;24(12):1650-1656. doi:10.1097/00000478-200012000-00009
10. Pernot S, Voron T, Perkins G, Lagorce-Pages C, Berger A, Taieb J. Signet-ring cell carcinoma of the stomach: Impact on prognosis and specific therapeutic challenge. *World J Gastroenterol.* 2015;21(40):11428-11438. doi:10.3748/wjg.v21.i40.11428

How to cite: Ishika Godara, Tanika Mishra, Anku Alisha, Rajeev Sen. Pleomorphic Invasive Lobular Carcinoma with Ductal Component: A Rare Mixed Tumour of Breast. *International Medicine*, 2025;11(1):1-5.