



ABSTRACT

TITLE: Triple Negative Breast Carcinoma: A clinicopathological Study from a Tertiary Laboratory in Gauteng, South Africa

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BACKGROUND & OBJECTIVES:

Triple-negative breast carcinoma (TNBC) is an aggressive molecular subtype of breast cancer defined by the absence of oestrogen receptor, progesterone receptor, and HER2 expression. It is associated with high histological grade, increased proliferative activity, limited targeted treatment options, and poor clinical outcomes. Data describing the histopathological characteristics of TNBC in South African populations remain limited, particularly from tertiary public-sector laboratories serving predominantly African patients. The objective of this study was to describe the demographic, morphological, and immunohistochemical features of triple-negative breast carcinoma diagnosed at a tertiary academic laboratory in Gauteng, South Africa.

METHODS:

A retrospective cross-sectional descriptive study was conducted at Dr George Mukhari Academic Laboratory. All chemo-naïve cases of primary TNBC diagnosed between 1 January 2017, and 31 December 2022 were reviewed. Clinical and demographic data were retrieved from histopathology reports. Histological features, tumour grade, and Ki-67 proliferation index were assessed on haematoxylin and eosin-stained sections and immunohistochemistry slides. Data were analysed using descriptive statistics and Fisher's exact test.

RESULTS:

Thirty-three cases met the inclusion criteria. The mean patient age was 55.4 years, with most patients above 50 years and all belonging to the African population group. Invasive carcinoma of

no special type was the predominant histological subtype, followed by metaplastic carcinoma. More than half of the tumours were Grade 3, and 54.5% demonstrated a high Ki-67 proliferation index. A statistically significant association was observed between tumour grade and Ki-67 index, with higher-grade tumours showing increased proliferative activity.

CONCLUSION:

Triple-negative breast carcinoma in this cohort predominantly affects older African women, contrasting with literature that more commonly reports younger age at presentation. The tumours are high-grade with high proliferative indices, reflecting aggressive behaviour. These findings support routine reporting of grade and Ki-67, increased clinical awareness in older patients, and the need for larger molecular studies in African populations to guide targeted management.