Tumour infiltrating lymphocytes (TILs) and its association with breast carcinoma imaging characteristics at Sultan Ahmad Shah Medical Centre (SASMEC @IIUM)

Raihanah Haroon[1], Noor Khairiah Kamaludin[2], Khairunisa Ahmad Affandi[3], Mohd Radhwan Abidin[3], Karimah Hanim Abd Aziz[4], Siti Nor Suzeana Mustfar[3], Siti Kamariah Che Mohamed[3]

[1]Surgery, Kulliyah of Medicine, International Islamic University Malaysia (IIUM), 25200, Kuantan, Pahang, Malaysia, [2]Radiology, Kulliyah of Medicine, International Islamic University Malaysia (IIUM), 25200, Kuantan, Pahang, Malaysia, [3]Pathology, Kulliyah of Medicine, International Islamic University Malaysia (IIUM), 25200, Kuantan, Pahang, Malaysia, [4]Community Medicine, Kulliyah of Medicine, International Islamic University Malaysia (IIUM), 25200, Kuantan, Pahang, Malaysia

Track: Research
Theme: Screening and Diagnosis

ABSTRACT

Introduction: Purpose: Tumor-infiltrating lymphocytes (TILs) have gained recognition as a potential prognostic biomarker in breast cancer, particularly in aggressive subtypes. This study aimed to investigate the relationship between sonographic and mammographic imaging features and TILs levels in breast carcinoma patients treated at Sultan Ahmad Shah Medical Center (SASMEC), IIUM. **Materials and Methods:** A retrospective analysis was conducted on 121 breast carcinoma patients. Mammographic features; including breast density, mass shape, mass margins, mass density, calcifications, and stromal distortion, as well as sonographic features; including mass shape, mass margin, echo pattern, posterior acoustic features, calcifications, mass orientation and vascularity, were assessed and evaluated. TIL levels were measured from tissue samples and classified as low (<20%) or high (≥20%). Logistic regression analysis was employed to examine the correlation between the imaging features and TIL levels. **Results:** Tumors exhibiting posterior features on ultrasound were significantly associated with low TIL levels (p=0.020), with an adjusted odds ratio (AOR) of 3.428 for shadowing. This indicates that posterior shadowing is a significant predictor of low TILs levels in breast cancer patients. In contrast, other mammographic and sonographic imaging features showed no significant association with TILs levels. **Conclusion:** Posterior acoustic shadowing on ultrasound may serve as a non-invasive marker for assessing immune activity within breast tumors, particularly in aggressive subtypes.

Keywords: Breast cancer, tumour infiltrating lymphocyte, mammogram, ultrasound