

CYTOKERATIN 5/6, ESTROGEN AND PROGESTERONE RECEPTORS EXPRESSION IN INTRADUCTAL PROLIFERATIVE LESIONS (USUAL DUCTAL HYPERPLASIA AND DUCTAL CARCINOMA *IN SITU*) OF BREAST IN GROUP OF IRAQI PATIENTS

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ABSTRACT : Intraductal proliferative breast lesions is related to an increased risk of development of invasive breast cancer in greatly different extents. Immunohistochemical stains can be helpful when dealing with problematic cases when hematoxylin and eosin is not conclusive to achieve a final diagnosis which affect management and prognosis of the patient. To investigate the role of IHC stains cytokeratin (CK5/6), estrogen (ER) and progesterone (PR) in the differentiation between usual ductal hyperplasia (UDH) and low grade ductal carcinoma *in situ* (LG-DCIS). A retrospective study includes a collection of 72 breast samples. Forty cases of UDH and 32 DCIS for the period from March 2016 to March 2018. All the cases were stained immunohistochemically for CK5/6, ER, PR after their histopathological evaluation. Only cytoplasmic staining of CK5/6 and nuclear staining of both PR and ER were considered as positive. Immunoreactivity scoring for the marker's expression were calculated based on percentage. CK5/6 was positive in (92.5%) of UDH, while (6.25%) of DCIS cases showed diffuse staining, P value <0.001. Estrogen stained only one of 40 UDH cases (2.5%) versus 29 of 32 DCIS cases (90.63%) showed diffuse staining. There was highly significant difference (P value <0.001). The staining pattern for progesterone shows highly significant difference between UDH versus DCIS (12.5% versus 53.13%) of cases showed diffuse staining with P value <0.001. Immunohistochemical expression of CK 5/6, estrogen and progesterone show significant difference between UDH and LG-DCIS confirming their significant role for their use in differentiation between these two entities.

Key words : Cytokeratin 5/6, estrogen receptor and progesterone receptors, usual ductal hyperplasia, ductal carcinoma *in situ* (Low grade).

INTRODUCTION

Breast carcinoma is regarded as the most common malignant tumor and represents the leading cause of cancer death in women worldwide (ASCO, 2018). It is the most frequently diagnosed cancer in Iraqi female (Iraqi Cancer Registry, 2018). Intraductal proliferative lesions of breast related to increased risk of development of invasive breast cancer in greatly different extents (Hoffmann *et al*, 2016). These lesions are a group of architecturally and cytologically different proliferations, that originate from the terminal duct lobular unit in the lobular system of mammary duct of breast (Schnitt, 2001).

Differentiation between benign and malignant epithelial lesions of breast can be done by using eosin and hematoxylin stains. However, the morphological differentiation in borderline lesions can be difficult especially in the presence of interobserver variability among pathologists (Jain *et al*, 2011; Liu, 2014).

Benign intraepithelial lesions of breast (like usual ductal hyperplasia UDH) carry minimal risk 2 folds of development of breast cancer, so those patients don't need additional procedures (Dyrstad *et al*, 2015; Rohan *et al*, 2018). While atypical ductal hyperplasia (ADH) and ductal carcinoma *in situ* (DCIS) carries (3-5-fold and 8-10-fold) increased risk of development of invasive breast carcinoma respectively (Pinder and Ellis, 2003; Menes *et al*, 2017). Therefore, immunohistochemical staining can be useful when dealing with these problematic lesions, especially in cases in which the diagnosis has a significant effect on management and prognosis of breast lesions.

In this study, we investigate the role of IHC stains, including: HMW cytokeratin (CK5/6), progesterone (PR) and estrogen (ER) receptors in differentiation between benign intraepithelial breast lesions (usual ductal hyperplasia) and ductal carcinoma *in situ* (low-grade). High molecular weight cytokeratins CK5/6 represent a marker of myoepithelial differentiation (Maeda *et al*,