disease, the thyroid is generally diffusely enlarged, but there may be nodules as well [5].

The thyroid in Graves' disease may contain foci showing papillary formation microfollicles, vesicular nuclei, and nuclear grooves, and it may be hard to distinguish these foci from papillary carcinoma depending only on microscopic features [5]. This difficulty may also be encountered in papillary formations of multinodular goiter, where CK19 has been shown to be effective in discrimination [6].

Because of these problems, numerous attempts have been made to apply a variety of techniques to enhance diagnostic reliability like electron microscopy and flow cytometry [7] but the results were disappointing in that the techniques did not yield cheap and rapid diagnostic information that could realistically change the practice of surgical pathology. Over the past decade, however, rapidly expanding techniques available in molecular pathology (like immune-histochemistry) have begun to show real promise to change daily practice and many immunohistochemical markers have been evaluated for their potential in distinguishing Papillary thyroid carcinoma from other benign thyroid lesions, the main ones including cytokeratin (CK) 19, galectin-3 (GAL3), and HBME1 (17).

Cytokeratin polypeptide 19 (CK19) is a type I intermediate filament protein and is the smallest known keratin and is remarkable in that, contrary to all other keratins, it does not have a designated partner for the formation of filaments implying that regulation of its expression is different from other keratin-encoding genes [8]. Cytokeratin 19 concentrates at sarcomeres of striated muscle and copurify with the dystrophinglycoprotein complex, perhaps through the interaction of the cytokeratin with the actin-binding domain of dystrophin. In vitro studies showed that dystrophin binds directly and specifically to CK19 [9]. CK19 is synthesized in simple and stratified epithelia.

This study was designed to determine the effectiveness of CK19 in distinguishing papillary thyroid carcinoma and papillary carcinoma-like changes in Graves's disease.

Methods

Tissue Sample: In this retrospective study a total of 30 tissue samples of which 20 were of papillary thyroid carcinoma and 10 of Grave's disease. In addition, 10 normal thyroid tissue had been taken as a control. All formalin fixed, paraffin-embedded tissues were retrieved from the archived files of the department" of histopathology of Al-Yarmook Teaching Hospital for the period between Jan 2009- Jan 2011.

Clinicopathological parameters (age, sex, clinical presentation and histopathological diagnosis) were obtained from the available histological reports. For each case, 2 sections of 5μm thickness were taken; one section was stained with (H and E), and the other was stained immunohistochemically for with CK 19 tumor markers.

Immunohistochemical staining was performed by the streptavidin –biotin method.

Interpretation of the results of staining characteristics:

The presence of brown reaction product of more than 10% of tumor cells at the site of the target antigen is indicative of positive reactivity. Counter stain will be pale to dark blue coloration of the cell nuclei. Staining pattern was cytoplasmic or membrane and cytoplasm.

The quantity of the immunostaining was evaluated as follows [10]: Semiquantitative evaluations were made on the basis of intensity and extent of staining for CK-19. The extent of staining by CK-19, were calculated according to the percentage of positive cells as: No staining: 0; < 25% stained cells: 1+; 25% to 75% stained cells: 2+; > 75% stained cells: 3+, whereas the intensity of staining by CK-19 was evaluated as no staining: 0; faint: 1+; and strong: 2+.

The positive result was classified as focal and diffuse. Focal:-tumors in which clusters of positive cells where seen in some areas of the tumor but other region where negative. Diffuse: - tumors in which isolated and/or clusters of