Chapter 3

Pathology

ABSTRACT

Grossly, thyroid enlargement in Hashimoto’s thyroiditis (HT) is generally symmetrical, often with a characteristic conspicuous pyramidal lobe. The tissue involved by HT is pinkish-tan to frankly yellowish in color and tends to have a rubbery firmness. There is no necrosis or calcification. The capsule is intact and non-adherent to peri-thyroid structures. Microscopically, there is a diffuse process consisting of a combination of epithelial cell destruction, lymphoid cellular infiltration, and fibrosis. Lymphocytes are predominantly T-cells and plasma cells. Most infiltrating T-cells have α/β T-cell receptors. Gamma/delta T-cells are rare. Hashimoto’s thyroiditis has been graded based on lymphocytic infiltration seen on cytology, into Grades 0-III, where Grade 0 means no lymphoid cells and Grade III severe lymphoid cell infiltration. Deposits of dense material representing IgG are found along the basement membrane on electron microscopy. This chapter explores the pathology of Hashimoto’s disease.

INTRODUCTION

Gross Appearance

In Hashimoto’s disease, thyroid enlargement is symmetrical, often with a characteristic conspicuous pyramidal lobe. Although the gland is symmetrically enlarged, the accentuation of lobulations may make the gland appear lobular on gross examination.

DOI: 10.4018/978-1-5225-9655-4.ch003

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Pathology

The tissue involved by Hashimoto’s thyroiditis is pinkish-tan (Figure 1) to frankly yellowish (Figure 2) in color and tends to have a rubbery firmness. There is no necrosis or calcification.

The capsule is intact and the capsular surface is gently lobulated and non-adherent to peri-thyroid structures i.e. the gland itself is still distinct from surrounding tissue. It may have adhesions but thyroid gland is easily separated from other structures.

Microscopic Picture

In Hashimoto’s thyroiditis, there is a diffuse process consisting of a combination of epithelial cell destruction, lymphoid cellular infiltration, and fibrosis. Lymphocytes are predominantly T cells and plasma cells (polyclonal).

The thyroid cells tend to be slightly larger in size and assume an acidophilic staining character; they are then called Hurthle or Askanazy cells and are packed with mitochondria. The follicular spaces shrink, and colloid is absent or sparse.

Fibrosis may be completely absent or present in degrees ranging from slight to moderate; it may be severe, as observed in subacute or Riedel’s thyroiditis but does not extend beyond capsule.

Foreign body giant cells and granulomas are not features of Hashimoto’s thyroiditis, in contrast to subacute thyroiditis. In children, oxyphilia and fibrosis are less prominent, and hyperplasia of epithelial cells may be marked.

Figure 1. Hashimoto’s thyroiditis. Note the symmetrical enlargement of the gland and the pinkish-tan
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