Case 105 A woman with an obvious endocrine disease

Figure 105.1

The young woman in Fig. 105.1 has an endocrine disease that can be diagnosed at a glance. When her history was taken in the clinic it was briefly as follows. She was a 26-year-old married dressmaker, with no children. Previously quite healthy, she had become nervous, irritable and trembly over the past 6 months, and for no apparent reason – no family or work problems were out of the usual. Then she noticed that her neck was getting swollen, she was experiencing palpitations on slight exertion, she was losing weight and, the thing that worried her the most, her eyes were becoming increasingly prominent and 'starey'.

What disease is it?

She has primary hyperthyroidism (Graves' disease*), with marked exophthalmos.

Can you classify the possible clinical manifestations of hyperthyroidism?

The features of hyperthyroidism are widespread. However, it is important to remember that not all of them may be present in a particular patient, and so the diagnosis may be overlooked. They can be classified as follows:

- The thyroid gland is usually – but not always – enlarged.
- The eyes may show exophthalmos.
- Cardiovascular: Tachycardia and palpitations with a rapid pulse even when asleep. The patient may develop atrial fibrillation and progress to heart failure.
- CNS: Nervousness, irritability and tremor of the hands.
- Alimentary: Increased appetite (due to the raised basal metabolic rate, BMR) but loss of weight, which may be profound. There may be diarrhoea.
- Skin: Because of the raised BMR, the patient feels hot and sweats profusely – they will open the windows and switch off the central heating when everyone else feels cold.
- Genitourinary: Female patients may have irregular, scanty periods and are subfertile. However, pregnancy may occur and treatment of the hyperthyroidism then presents a serious problem since the drugs used will also affect the fetus.

Classical cases of hyperthyroidism, with every feature listed above, are quite common, but the clinician must be on guard for less typical examples. Thus, a patient may be admitted in congestive heart failure with atrial fibrillation but the diagnosis of hyperthyroidism is missed because the thyroid gland is not palpably enlarged and there is no exophthalmos. Figure 105.2 shows just

*Robert Graves (1796–1853), physician, Meath Hospital, Dublin.

Figure 105.2 Hyperthyroidism presenting with heart failure and atrial fibrillation, and no goitre.

Figure 105.3 Nodular thyroid enlargement.

such an example. This lady, aged 65, admitted as an emergency in heart failure and atrial fibrillation, was picked up as a case of hyperthyroidism by the astute and careful clinician dealing with her.

What changes within the orbit produce the eye signs?

Exophthalmos in Graves' disease is the result of an autoimune inflammatory process, with fibroblast proliferation, deposition of extracellular matrix and adipocyte differentiation and proliferation. The result is interstitial oedema, an increase in the volume of the orbital pad of fat and enlargement of the extrinsic muscles of the eye.

What may happen in very advanced exophthalmos?

If the exophthalmos is severe, the swollen and oedematous extrinsic muscles may be so damaged that incoordination or paralysis of eye movements may occur (exophthalmic ophthalmoplegia). If the patient cannot close the eyelids, corneal ulceration may develop. The patient may require partial suture of the eyelids together (tarsorrhaphy) or even surgical decompression of the bony orbit.

Clinically we distinguish between primary and secondary hyperthyroidism – can you discuss this?

- *Primary hyperthyroidism*: Often called Graves' disease in the UK and Basedow's disease† in continental Europe, this occurs usually in young women with no previous history of thyroid enlargement. The gland is usually smoothly enlarged and exophthalmos is common. Symptoms, apart from the eye changes, are primarily those of nervousness and tremor. The condition is due to the action of autoantibodies that bind to, and stimulate, the thyroid-stimulating hormone (TSH) receptor. These thyroid-stimulating antibodies have a prolonged stimulatory effect compared to TSH, hence the name of long-acting thyroid stimulators (LATS).
- *Secondary hyperthyroidism*: This is over activity that develops in an already hyperplastic gland. It is a disease of the middle age and occurs in patients with a pre-

†Carl Adolph von Basedow (1799–1854), physician, Meresburg, Germany.

existing euthyroid enlarged nodular gland. Symptoms fall more on the cardiovascular system, although CNS signs may also be present. Figure 105.3 shows a typical example. This woman of 74 presented with mild heart failure and atrial fibrillation. She had had this nodular thyroid enlargement for many years.