HYPERTHYROIDISM Thyrotoxicosis

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The term thyrotoxicosis is retained because hyperthyroidism, i.e. symptoms due to a raised level of circulating thyroid hormones, is not responsible for all manifestations of the disease. Clinical types are: /uni25CF di ff use toxic goitre (Graves' disease); /uni25CF toxic nodular goitre; /uni25CF toxic nodule; /uni25CF hyperthyroidism due to rarer causes. Diffuse toxic goitre Graves' disease, a di ff use vascular goitre appearing at the same time as hyperthyroidism, usually occurs in younger women and is frequently associated with eye signs (Figure 55.17 syndrome is that of primary thyrotoxicosis; 55% of patients have a family history of autoimmune endocrine diseases. The whole of the functioning thyroid tissue is involved, and the hypertrophy and hyperplasia are due to abnormal TSH-RAb that bind to TSH receptor sites and produce a disproportionate and prolonged e ff ect. Toxic nodular goitre A simple nodular goitre is present for a long time before the hyperthyroidism, usually in the middle-aged or elderly , and very infrequently is associated with eye signs. The syndrome is that of secondary thyrotoxicosis. In many cases of toxic nodular goitre, the nodules are inactive, and it is the internodular thyroid tissue that is overactive. However, in some toxic nodular goitr es, one or more nodules are overactive and here the hyperthyroidism is due to autonomous thyroid tissue as in a toxic adenoma. Toxic nodule A toxic nodule is a solitary overactive nodule, which may be part of a generalised nodularity or a true toxic adenoma. It is - - autonomous and its hypertrophy and hyperplasia are not due to TSH-RAb. TSH secretion is suppressed by the high level of circulating thyroid hormones and the normal thyroid tissue surrounding the nodule is itself suppressed and inactive. Histology The normal thyroid gland consists of acini lined with flattened cuboidal epithelium and filled with homogeneous colloid (Figure 55.2). In hyperthyroidism (Figure 55.18), there is hyperplasia of acini, which are lined by high columnar epithelium. Many of them are empty , and others contain vacuolated colloid with a characteristic 'scalloped' pattern adjacent to the thyrocytes. Principles of treatment of thyrotoxicosis Non-specific measures are rest and sedation and in established thyrotoxicosis should be used only in conjunction with specific measures, i.e. the use of antithyroid drugs, surgery and radio - iodine.). The Antithyroid drugs Those in common use are carbimazole and propylthiouracil. Antithyroid drugs are used to restore the patient to a euthyroid

Figure 55.17 Graves' disease. Figure 55.18 Histology of thyrotoxicosis.

that a permanent remission will occur, i.e. that production of TSH-RAb will diminish or cease. Antithyroid drugs cannot cure a toxic nodule. The overactive thyroid tissue is autono mous and recurrence of the hyperthyroidism is certain when the drug is discontinued. /uni25CF Advantages . No surgery and no use of radioactive mate rials. /uni25CF Disadvantages . Treatment is prolonged and the failure rate is at least 55%. The duration of treatment may be tailored to the severity of the

toxicity , with milder cases being treated for only 6 months and severe cases for 2 years before stopping therapy . Surgery In di ff use toxic goitre and toxic nodular goitre with overactive internodular tissue, surgery cures by reducing the mass of overactive tissue by reducing the thyroid below a critical mass. After subtotal thyroidectomy the patient should return to a euthyroid state, albeit after a variable period of hypothyroid ism. There are, however, long-term risks of recurrence and eventual thyroid failure. In contrast total/near-total thyroidec tomy accepts immediate thyroid failure and lifelong th yroxine replacement to eliminate the risk of recurrence and simplify follow-up . Operation may result in a reduction in TSH-RAb. In the autonomous toxic nodule, and in toxic nodular goitre with overactive autonomous toxic nodules, surgery cures by removing all the overactive thyroid tissue; this allows the suppressed normal tissue to function again. /uni25CF Advantages . The goitre is removed, the cure is rapid and the cure rate is high if surgery has been adequate. /uni25CF Disadvantages . Recurrence of thyrotoxicosis occurs in at least 5% of cases when subtotal thyroidectomy is carried out. There is a risk of permanent hypoparathyroidism and nerve injury . Y oung women tend to have a poorer cosmetic result from the scar. Every operation carries a risk, but with suitable preparation and an experienced surgeon the mortality is negligible and the morbidity low . Radioiodine Radioiodine destroys thyroid cells and, as in thyroidectomy , reduces the mass of functioning thyroid tissue to below a critical level. /uni25CF Advantages . No surgery and no prolonged drug therapy . /uni25CF Disadvantages . Isotope facilities must be available. The patient must be quarantined while radiation levels are high and avoid pregnancy and close physical contact, particu larly with children. Eye signs may be aggravated. Choice of therapy Each case must be considered individually . Below are listed guiding principles on the most satisfactory treatment for a particular toxic goitre at a particular age; these must, however, be modified according to the facilities available and the personality and wishes of the individual patient and any other coexistent medical or surgical condition. Access to can be important considerations in some areas. Diffuse toxic goitre - Most patients have an initial course of antithyroid drugs with radioiodine for relapse. Exceptions are those who refuse radia - tion, those who have large goitres or progressive eye signs and - those who are pregnant. Toxic nodular goitre Toxic nodular goitre is often large and uncomfortable and enlarges still further with antithyroid drugs. Large goitres should be treated surgically because they do not respond as well or as rapidly to radioiodine or antithyroid drugs as does a di ff use toxic goitre. Toxic nodule Surgery or radioiodine treatment is appropriate. Resection is easy , certain and has limited morbidity . Radioiodine is a good alternative for patients over the age of 45 years because the - suppressed thyroid tissue does not take up iodine and thus there is minimal risk of delayed thyroid insu ffi ciency . - Failure of previous treatment with antithyroid drugs or radioiodine 123 In this case, surgery or thyroid ablation with I is appropriate. HYPERTHYROIDISM Thyrotoxicosis

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