ENDOCRINE SYSTEM

MAIN CATALOGUE

CASE 230
The specimen shows a 2cm diameter rounded off-white nodule embedded in the muscles of the posterior tongue.
Diagnosis: Lingual thyroid

CASE 1337
The specimen is part of an enlarged thyroid. The cut surface shows variably sized nodules surrounded by a rim of fibrous tissue. The tissue is variably brown/red or pale.
Diagnosis: Multinodular goitre

CASE 3131
The specimen consists of a grossly enlarged mildly nodular thyroid gland. Cut section demonstrates a smooth fleshy firm pale surface.
Diagnosis: Features in keeping with Hashimoto's disease
Histology showed very few small thyroid follicles remaining. Most of the tissue was composed of masses of lymphocytes without obvious follicular arrangement, interspersed with fibrous tissue.
What symptoms might this patient have experienced as a result of this pathology? The patient may well have been hypothyroid: experiencing tiredness, intolerance to cold weather, weight gain, thickening and dryness of the skin, muscle aches, hoarseness of the voice, constipation … and the list goes on.

CASE 4610
This 17 year old female was admitted in 1946 with a classical picture of virilism. She had been growing excessive hair on her limbs for 3 years and had had acne for 1 year. Her voice was deep and she had lost weight during the previous 6 months. Menstruation had not begun. When examined she had a BP of 100/125, male distribution of hair, undeveloped breasts and enlargement of the clitoris. Laryngoscopy demonstrated a larger than normal larynx. A peri-renal insufflation was performed and a left suprarenal tumour diagnosed. Adrenalectomy was performed.
The specimen is of an encapsulated oval tumour measuring 9cm in maximum dimension. Sectioning reveals a soft pale yellow tumour with areas of necrosis. No residual normal adrenal tissue is seen.
Diagnosis: Adrenocortical tumour, probably carcinoma
Which layer of the adrenal cortex normally produces sex steroids? The zona reticularis
Comment: The size of this tumour with areas of what look like necrosis strongly suggest that it is an adrenal carcinoma not an adenoma. Histology reportedly showed a carcinoma. Adrenocortical carcinomas are more likely to secrete androgens than adenomas. No secondary deposits were found on chest x-ray. Following the operation the patient's BP dropped considerably to 130/80.

CASE 4641
The patient was a child who died at the Adelaide Children's Hospital.
The specimen shows portions of liver, skull and a tumour mass attached to sections of kidney and intestine. The mass is large and nodular. Tumour tissue is pale brown but there are many areas of haemorrhage and necrosis. At least some of the nodularity is probably from the involvement of para-aortic lymph nodes. The liver shows one dark secondary deposit and the portion of skull is grossly involved with numerous haemorrhagic secondary deposits which erode the inner table.
Diagnosis: Adrenal neuroblastoma with secondary deposits in skull and liver
Comment: Although the histological appearance of this tumour has not been reported, the site, appearance, occurrence in a child and sites of metastases is typical.

CASE 6911
The patient was a man aged 55 who had intermittent vomiting for 3 months associated with pain in the left scapular region. He had lost 13 kg in weight in one year. At post-mortem a carcinoma of the pyloric region of the stomach was found, with a fistulous track into the transverse colon and many neoplastic deposits in the omentum.
The specimen consists of coronal slices of the kidneys and adrenals. Both adrenals are enlarged by pale tan nodular tumour deposits. Flecks of pale necrosis are visible in the tumour tissue.
Diagnosis: Metastases to the adrenal glands

CASE 7285
The patient was a man aged 61 who died of lobar pneumonia.
The specimen consists of the right half of the tongue, larynx and upper trachea and it shows a bilocular cyst measuring 3 x 2cm lying in the midline anterior to the thyroid cartilage. At its upper posterior pole there is a blunt projection of the cyst behind the hyoid bone. The cyst contents are inspissated cream-coloured material.
Diagnosis: Thyroglossal duct cyst

CASE 7445
The patient was a man aged 33 with a long history of bone pain, particularly of the spine, and rapidly progressing terminal anaemia. Myeloblasts were reported to be present in the blood. At post-mortem there was diffuse involvement of bone marrow, adrenals and posterior abdominal lymph nodes by an obviously neoplastic process.
The specimen consists of a coronal slice of the kidney and adrenal together with a portion of the sternum. The adrenal is enlarged to 7cm in maximum diameter by haemorrhagic and necrotic pale brown tumour. The sternum shows scattered pale metastatic tumour deposits with haemorrhagic borders.
Diagnosis: Malignancy of the adrenal gland and sternum
Comment: The tumour in the adrenal could also be a metastasis. However, the involvement of local lymph nodes, with no mention of tumour in other sites apart from bone, suggests that the adrenal tumour could be the primary. Histology was unhelpful, reportedly showing only anaplastic carcinoma.

CASE 7879
This 81-year old man died of multiple pulmonary emboli which had been precipitated by an appendicectomy 18 months before death. The thyroid enlargement was an incidental finding.
The specimen is of thyroid, larynx and trachea. The thyroid is symmetrically enlarged, each lobe measuring 9-10cm in height. The cut surface is nodular and the tissue is filled with brown colloid. The nodules are bounded by pale fibrous septa. The trachea and larynx appear normal.
Diagnosis: Multinodular goitre

CASE 8570
No clinical information is available for this surgical specimen except that the patient was a man.
The specimen consists of a very large thyroid gland. The cut surface is nodular and the tissue is filled with brown colloid. The nodules are bounded by pale fibrous septa. On the left side of the specimen is a 15mm diameter colloid cyst and a solid pale more cellular mass 3.5 x 2.5cm in dimension which compresses adjacent thyroid tissue.
Diagnosis: Multinodular goitre

CASE 8873
Surgical specimen from a child.
The specimen consists of half an encapsulated spheroidal partly cystic mass measuring 11cm in maximum dimension. The cut surface shows a unilocular cyst into which projects a large tumour nodule measuring 8cm in maximum dimension. The base of the nodule comprises pale tan firm tissue and the rest comprises rounded yellow areas surrounded by a layer of what looks like fibrous tissue outside of which is soft structureless pale tissue.

Comment: This was reported as being a thymic tumour with histology showing keratin (the soft pale tissue macroscopically) filled structures lined by squamous epithelium embedded in adipose tissue. The features thus suggest mature teratoma. Germ cell tumours may rarely arise in relation to the thymus in the mediastinum. You would not be expected to diagnose this from the macroscopic features.
What is the postulated pathogenesis of germ cell tumours in the mediastinum? It is postulated that some primordial germ cells, in their migration from around the embryonic yolk sac where they form, to the region of the gonadal ridge, get left behind, later to develop into tumours.
What is the thymus, what is its role, of what is it composed and what is its natural history?
The thymus is a structure in the mediastinum involved in the differentiation of T lymphocytes (produced in the bone marrow). It is divided into cortex and medulla and is composed of epithelial and lymphoid elements. While recognisable in children, during adolescence it atrophies to become unrecognisable macroscopically in adults, although microscopic remnants remain.

CASE 9108
The patient was a Chinese male aged 44 who had been a known acromegalic for many years. His blood sugar was raised and he had glycosuria. At autopsy there was a pituitary tumour, enlargement of all viscera and of the limbs, diffuse fibrosis of the liver and chronic active fibrocaseous apical pulmonary tuberculosis.
The specimen consists of the pituitary fossa and the surrounding sphenoid bone divided antero-posteriorly. The fossa is expanded and is filled with pale, soft focally necrotic tumour tissue measuring 3.5cm in diameter.
Diagnosis: Pituitary adenoma.
What hormone has this adenoma produced? Growth hormone
Why was the patient's blood sugar level elevated? Growth hormone decreases glucose utilization for energy.

CASE 9150
A little girl aged 18 months was found to be sleeping longer than usual one morning and on waking was found to have widespread and extensive ecchymoses. Small irregular pupils, marked neck rigidity, positive Kernig's sign and temperature of 102 degrees F, were the findings of the country doctor, and by this time she was semi-conscious. Lumbar puncture 3-4 hours later showed clear fluid and 30 polymorphs per ml. In spite of penicillin she died at about 5.30pm the same afternoon. At autopsy there was marked congestion of the superficial meningeal vessels and some cloudiness of the basal meninges.
The specimen consists of both kidneys and suprarenal glands with aorta. The cut surface shows massive haemorrhage into both adrenals.
Diagnosis: Bilateral adrenal haemorrhage in septicaemia (Waterhouse-Friderichsen syndrome)
What is the most likely underlying cause of this patient's illness? *Neisseria meningitidis* causing septicaemia and meningitis.

CASE 9357
An abnormal opacity was seen on an x-ray survey film in a symptomless young man aged 27. This mediastinal mass was removed surgically.
The specimen comprises a well-circumscribed but irregular apparently encapsulated extensively necrotic fleshy pale brown mass with areas of cystic change and fibrosis, measuring 12cm in maximum dimension.
Comment: Histologically this was reportedly a thymoma. You would not be expected to diagnose this from the macroscopic features. The patient died within a year from secondaries. It is thus a malignant thymoma.

CASE 10185
A one month old "male" infant was admitted because of failure to thrive. Examination showed loss of weight, apparently normal male genitalia but impalpable testes. The child died of a skin infection aged 2 months.
The specimen comprises both kidneys and adrenal glands and the bladder, vagina, uterus, Fallopian tubes, ovaries and 'prostate'. The adrenals are significantly enlarged for a child of this age.
Diagnosis: Congenital adrenal hyperplasia

CASE 10533
The patient was a man aged 58 who died from carcinoma of the lower sigmoid colon with multiple metastases in many organs, together with thrombosis of the inferior vena cava.
The specimen consists of the thyroid, larynx and portion of the trachea. The left lobe of the thyroid is infiltrated with pale neoplastic tissue with poorly defined margins.
Diagnosis: Metastatic tumour in thyroid

CASE 10562
This was an incidental finding in a man of 53 who had hydrocephalus resulting from repeated subarachnoid haemorrhages, the first 25 years before. He had a left hemiplegia and severe mental deterioration. The cause of death was lung abscess.
The specimen consists of the larynx and trachea with the attached thyroid gland and some paratracheal lymph nodes. The thyroid is moderately enlarged and a tongue of thyroid tissue 5cm in length extends downwards into the superior mediastinum on the left side of the trachea. It is difficult to ascertain how nodular this gland is without sectioning it. The lymph nodes are enlarged and contain spotty black pigment.
Diagnosis: Goitrous thyroid (? diffuse ?nodular) with intra-thoracic extension
Why are the lymph nodes enlarged and pigmented? These lymph nodes would have received lymph from the hilar nodes. The lymph would have contained carbon laden macrophages originating in the lung. These macrophages have now been filtered by these para-tracheal nodes making them pigmented and also causing a mild chronic inflammatory response causing their enlargement.

CASE 12915
The patient was a man aged 76 who died from a cardiac arrest after a myocardial infarct. He had complained of failing vision for the last 6 months, initially affecting the left eye. There had been some loss of memory for recent events. He had also complained of an unusual sensitivity to cold weather. Examination showed mild dementia, a pale left optic disc and some loss of the right temporal visual field. Plain x-ray showed erosion of the left anterior clinoid process and air encephalogram showed a sub-frontal space-occupying lesion occluding the anterior end of the 3rd ventricle. Operation showed a suprasellar tumour which on section proved to be a chromophobe adenoma. Postoperative irradiation was given but he died suddenly 19 days later
The specimen consists of the left half of the sphenoid bone sectioned in the median coronal plane. The sphenoidal sinus is visible inferiorly. The pituitary is replaced by a nodular partly necrotic and very haemorrhagic tumour 4.5cm in diameter causing enlargement of the pituitary fossa. Tumour lifts the diaphragma sellae and most of the tumour is suprasellar.
Diagnosis: Pituitary adenoma
Explain the patient's clinical features in light of the pathological abnormalities. The patient's poor memory/mild dementia and sensitivity to cold weather was probably from destruction of normal pituitary tissue causing lack of TSH production and hypothyroidism. Pallor of the left optic disc suggests optic atrophy (responsible for the poor vision in the left eye) probably related to pressure by the tumour. Partial loss of the right temporal visual field was likely due to asymmetric pressure on the optic chiasm or left optic nerve. The anterior clinoid processes lie above and lateral to the pituitary fossa and the left would have been eroded by the tumour.

CASE 13627
An incidental finding in a man aged 67 who died from carcinoma of the bladder with hydronephrosis and renal failure.
The specimen consists of a section through an adrenal gland which contains a well-circumscribed oval pale nodule at one end measuring 2cm in maximum diameter.
Diagnosis: Adrenocortical adenoma
Comment: Small non-functional adrenal cortical adenomas are not uncommon.

CASE 15293
The patient was a depressed woman aged 72 who collapsed and died shortly after electro-convulsive therapy. At post-mortem, mitral stenosis and a large goitre were found.
The specimen consists of the larynx, trachea and thyroid. The thyroid is greatly enlarged, firm and nodular. The right lobe measures 10cm in length and the left lobe 9cm in length. The trachea is compressed and distorted by the large intrathoracic extension of the right lower lobe.
Diagnosis: Multinodular goitre
What symptoms is this patient likely to have experienced as a result of this pathology? Probably only a lump in the neck. Most patients with multinodular goitre are euthyroid.
What is the most likely cause of the patient's mitral stenosis? Why? The most likely cause is previous rheumatic fever – it is the commonest cause of mitral stenosis, especially in the elderly.

CASE 15703
No clinical information is available for this surgical specimen.
The specimen consists of the anterior half of a large bisected goitre. The left lobe measures 10 x 6cm and the right lobe 8 x 5cm. The cut surface is pale, firm and slightly lobulated.
Diagnosis: Macroscopic features in keeping with Hashimoto's disease
Comment: Histology reportedly showed lymphocytic infiltration with germinal centre formation. Phagocytosis of colloid was marked but Askenazy cells were not a feature. Askenazy (or Hurthle) cells (altered follicular epithelial cells with very eosinophilic (oncocytic) cytoplasm) are typically seen in Hashimoto's disease in association with extensive lymphocytic infiltration and atrophy of follicles. In the absence of these cells, this could be a lymphocytic thyroiditis, a disease closely related to Hashimotos.
Why is the gland pale? Because much of the colloid has been lost and it is now very cellular with lymphocytic infiltration.
What is a germinal centre? This is where B lymphocytes begin to differentiate into plasma cells. N.B. Germinal centres can be distinguished histologically as the differentiating cells have more cytoplasm than the surrounding lymphocytes and the germinal centre also contains a number of macrophages which have abundant cytoplasm, so the area appears paler than its surroundings.
What symptoms might this patient have experienced as a result of this pathology? The patient may well have been hypothyroid: experiencing tiredness, intolerance to cold weather, weight gain, thickening and dryness of the skin, muscle aches, hoarseness of the voice, constipation … and the list goes on.

CASE 16708
No clinical information is available.
The specimen consists of a slice of a spherical tumour measuring 5cm in diameter. The cut surface is uniformly dark brown with haemorrhagic areas. A small portion of residual normal adrenal is present superiorly.
Diagnosis: Phaeochromocytoma
How may a phaeochromocytoma present clinically? Patients not uncommonly present with hypertension, which can be episodic and accelerated/malignant in type due to the catecholamines produced by the tumour cells. There are often associated palpitations, headache, sweating and tremor.

CASE 17757
A woman aged 58 had been an inmate of Parkside Mental Hospital for 18 years with schizophrenia treated by drugs. The day before admission she became febrile with right-sided abdominal pain. She vomited several times and became oliguric. There was a trace of blood and albumin in the urine. She died following the development of coarse crepitations and rales in the lungs on the day of admission. Her BP, initially 200/100 had fallen to 110/80. At post-mortem, the right kidney showed coarse scarring and patchy peripheral areas of congestion, there was inflammation and ulceration of the right lower ureter, a purulent tracheo-bronchitis, congested oedematous lungs and this adrenal lesion was found.
The specimen is of an adrenal gland in which there is an encapsulated brown spheroidal tumour 3cm in diameter.

Diagnosis: Adrenal tumour
Comment: While the macroscopic appearances could be those of a cortical adenoma, chemical assay of the tumour reportedly showed about 2 or 3 times the normal content of catecholamines suggesting that this could be a phaeochromocytoma.
In view of the clinical information and post mortem findings, what are the potential causes of the patient's fever, right-sided abdominal pain, vomiting and oliguria? She may well have had a urinary tract infection (albumin and blood in urine, inflamed right kidney and ureter) causing the right-sided abdominal pain, vomiting, oliguria and septic shock. She may also have had pneumonia, possibly from aspiration of vomitus (pneumonia could also cause abdominal pain), leading to septic shock and oliguria.

CASE 18894
The patient was a man aged 67 with chronic bronchitis and hyperthyroidism. He was admitted with acute cardiac failure complicating a respiratory infection. He was cyanosed and there were widespread rhonchi and crepitations, atrial fibrillation and a raised JVP. Digoxin, diuretics and bronchodilators were given but he died one day after admission. Suppurative tracheobronchitis and bronchopneumonia were found at post-mortem.
The specimen consists of thyroid, larynx and trachea. The enlarged thyroid is sectioned in the coronal plane to disclose many nodules of varying size separated by thin fibrous septa. Some nodules show areas of pale fibrosis and in others close inspection shows dilated follicles.
Diagnosis: Multinodular goitre
Comment: This patient was said to have hyperthyroidism as a result of this condition, though many patients have normal thyroid function. He could thus be said to have a toxic nodular goitre.
What symptoms may this patient have had? As well as a lump in the neck, he may have complained of intolerance to heat, increased appetite, restlessness, palpitations, diarrhoea, sweating…. and the list goes on.

CASE 19091
The patient was a woman aged 51 who died from carcinoma of the caecum with numerous liver metastases. The abnormality was an incidental finding at post-mortem.
The specimen comprises the tongue, larynx and upper trachea. At the base of the tongue in the region of the foramen caecum is a round nodule 2.5cm in diameter. There does not appear to be any thyroid tissue in the normal location on the reverse of the specimen, although this is difficult to appreciate without sectioning the tissue.
Diagnosis: Lingual thyroid

CASE 20789
The patient was a woman aged 64 known to be diabetic and thyrotoxic. She developed right hemiplegia and aphasia followed by congestive cardiac failure. She died 4 days after admission. At post-mortem there was obvious cortical softening in the posterior end of the left inferior frontal gyrus (Broca's area), extending into the brain substance for some 4cm.
The specimen consists of the thyroid and portion of the trachea. The thyroid is mildly enlarged. Its cut surface shows nodules of varying size surrounded by fibrous septa. Some nodules contain areas of fibrosis, others are well filled with colloid.
Diagnosis: Multinodular goitre
Comment: This patient was said to have hyperthyroidism as a result of this condition, though many patients have normal thyroid function. She could thus be said to have a toxic nodular goitre.
What symptoms may this patient have had? As well as a lump in the neck, she may have complained of intolerance to heat, increased appetite, restlessness, palpitations, diarrhoea, sweating…. and the list goes on.

CASE 21162
A woman aged 74 fell and broke her hip. On admission an enlarged thyroid was noted and she had oedema of the ankles. X-ray showed subcapital fracture of the right femur. She collapsed and died a few hours later.
The specimen consists of the tongue, larynx, upper trachea and thyroid. The thyroid is greatly and symmetrically enlarged, including the isthmus. The cut surface shows slight lobulation with thin fibrous septa and there are many dilated follicles filled with colloid. The trachea shows some lateral compression.
Diagnosis: Goitre with slight nodularity
Comment: Multinodular goitres are thought to arise from diffuse goitres. This one may be in the transition phase.

CASE 21562
A woman aged 53 had a history of acromegaly extending over 15 years. At the onset x-ray showed a greatly enlarged pituitary fossa together with hyperostosis frontalis interna. Her last admission was precipitated by gradually worsening heart failure. Examination showed JVP elevated to 6cm but no peripheral oedema. There were bilateral basal crepitations and the liver was enlarged 4cm below the right costal margin. The fundi were normal, the visual fields appeared normal to confrontation and the cranial nerves were intact. Two weeks later she suffered an unexpected intracerebral incident which was thought possibly to be a haemorrhage into the pituitary tumour. There was right hemiparesis and paralysis of the left 3rd and 5th nerves. She became unconscious and died two days later.
The specimen consists of a coronal slice through the hemispheres down through the pituitary fossa and sphenoid sinus. A large soft and partially haemorrhagic pituitary tumour is present measuring 4 x 5cm. The tumour expands the pituitary fossa but most of the mass is above the fossa. It also invades the left cavernous sinus and surrounds the left internal carotid artery which is filled with thrombus, as is the right internal carotid artery. A cause of the reported right hemiparesis is not obvious on the specimen, although there is possibly some oedema of the right cerebral hemisphere (which doesn't correspond to the clinical story).
Diagnosis: Invasive pituitary adenoma

CASE 21729
A woman aged 72 had had a pituitary adenoma partially removed 8 years previously. Five years later she developed a carcinoma of the descending colon for which a left hemicolectomy was performed. Abdominal symptoms returned 6 months before her final admission. At that time a persistent left upper temporal visual field defect was noted. She died from recurrent abdominal carcinomatosis.
The specimen is of sphenoid bone containing the pituitary fossa and associated structures. A mass measuring 1.5cm across protrudes upwards through the sella turcica.
Diagnosis: Pituitary adenoma
Comment: Note the optic nerves, internal carotid arteries, right 3rd cranial nerve, left 4th cranial nerve and both 6th cranial nerves.

CASE 22474
This patient, a woman aged 92, had recently noticed inability to eat solid food. Thyroid function was depressed.
The specimen consists of the tongue, larynx, trachea and thyroid gland. The thyroid gland is small, pale and irregular with focal necrosis.
Diagnosis: Carcinoma of the thyroid gland
Comment: There is no information on the histology to ascertain what type of malignancy this may be. The gland appears too irregular and pale to just be an atrophic gland.

CASE 22566
The patient was a woman aged 81 who had a history of 'toxic goitre' 3 years before death. Iodine 131 controlled the toxic symptoms.
The specimen consists of part of the tongue, the larynx, the upper portion of the trachea and thyroid gland. The right side of the thyroid is small and shrunken. Its cut surface shows one small colloid cyst. The left lobe contains an encapsulated oval nodule measuring 3cm in maximum diameter with a small area of recent haemorrhage and an area of cystic degeneration.
Diagnosis: Encapsulated solitary thyroid nodule
Comment: The differential diagnosis of an encapsulated solitary thyroid nodule includes a cyst, a dominant nodule in a multinodular gland, adenoma and encapsulated carcinoma. This lesion is obviously not a cyst, and as the remainder of the gland, although atrophied, does not appear nodular, the diagnosis may well be adenoma. However, it could also potentially be an encapsulated carcinoma, though malignant thyroid lesions are not usually toxic and presumably this diagnosis would have been made at the initial presentation and the lesion removed.
Why is the remainder of the gland atrophic? Iodine 131 is a radioactive compound that accumulates in the thyroid and causes radiation-induced atrophy.

CASE 22819
This 57-year old man had been diagnosed as having myxoedema in the past and although on replacement therapy, he took his medication irregularly. He was admitted with urinary retention and abdominal pain. On examination, he had slow cerebration, dry skin, coarse hair and was hypothermic. The urinary retention was found to be caused by benign prostatomegaly and a transurethral resection was performed. Post-operatively he became hyponatremic, hypocalcemic and very drowsy and died. It was thought the hyponatremia may have been due to inappropriate ADH secretion.
The specimen shows the larynx, upper trachea and thyroid. The thyroid gland is pale and grossly atrophied.
Diagnosis: Atrophic thyroid gland
What is the cause of the myxoedema likely to be? Probably Hashimoto's disease or lymphocytic thyroiditis which may result in a small atrophic gland.

CASE 23338
This was an incidental finding at autopsy in a 61-year old diabetic woman who died from ischaemic heart disease.
The specimen consists of the thyroid gland, trachea and part of the oesophagus. The reverse of the specimen shows the strap muscles stretched over the anterior surface of the thyroid.
The thyroid is symmetrically enlarged. Its cut surface shows a nodular appearance with fine fibrous septa separating the nodules.
Diagnosis: Multinodular goitre

CASE 23495
This 80-year old woman was admitted with left hemiplegia and died of septicaemia. The pathology was an incidental finding at post-mortem.
The specimen consists of larynx, trachea and thyroid. The right lobe of the thyroid is almost completely replaced by a thin-walled unilocular cyst.
Diagnosis: Thyroid cyst

CASE 23513
The patient was a 41-year old man who was admitted to hospital with a three-week history of left-sided posterior chest pain, cough, haemoptysis and dyspnoea. He had smoked 40 cigarettes per day since the age of 15 years. He had lost 13kg in weight over the previous two years. A chest x-ray showed a left upper lobe opacity. A left pneumonectomy was performed for a moderately differentiated squamous cell carcinoma and he was given a post-operative course of radiotherapy. He was admitted on the final occasion complaining of recurrent chest and back pain. There had been general deterioration with poor appetite, weight loss and

orthopnoea. He became more dyspnoeic and eventually died two and a half months after his initial presentation.
The specimen consists of a slice of a kidney and adrenal. The adrenal is totally replaced by a neoplastic mass some 13cm in diameter which contains many areas of pale necrosis. There appears to be a similar 2cm focally haemorrhagic tumour mass in the hilum of the kidney (back of specimen) and the tumour appears to be present within a vessel extending from the kidney.
Diagnosis: Metastasis to the adrenal

CASE 23615
This 58-year old man presented 2 years previously with a myocardial infarct. He later developed congestive cardiac failure responding to digoxin and diuretics. He also complained of claudication in the legs. He later had loss of muscle power (distribution not specified) and felt hot. Borderline thyrotoxicosis was diagnosed. He died after a severe bout of chest pain.
The specimen is of larynx and thyroid gland. The thyroid shows diffuse enlargement of both lobes. Cut section shows a homogeneous red/brown appearance.
Comment: The differential diagnosis from the macroscopic appearance includes Grave's disease and diffuse goitre. The latter is not normally associated with hyperthyroidism, however.

CASE 23724
This 69-year old hypertensive woman had suffered a stroke six years previously giving her a right hemiparesis. Since that time she had complained of a recurring lump in the right side of her neck. Six weeks before admission she became progressively dyspnoeic, was unable to swallow fluids and noted increasing size of the lump. On examination she was dyspnoeic and had a husky voice. Biopsy revealed an undifferentiated carcinoma of the thyroid with a few foci of probable squamous differentiation. Tracheostomy was performed and radiotherapy was commenced. She deteriorated mentally and eventually became comatose and died.
The specimen shows a longitudinal section of the neck structures and tongue with an infiltrative, pale, firm, poorly demarcated mass measuring 9cm in maximum dimension on the right side. It is causing tracheal narrowing above a tracheostomy site. There is tracheal deviation to the left.
Diagnosis: Carcinoma of the thyroid
Explain the likely pathogenesis of the patient's husky voice. The tumour has probably invaded the right recurrent laryngeal nerve which innervates most of the muscles of the larynx, affecting speech.
Comment: This undifferentiated thyroid carcinoma has not been present for 6 years. They are very aggressive lesions. It is possible that the recurring lump in the right side of the neck present for 6 years was unrelated, or that it was a papillary carcinoma of the thyroid, a more indolent lesion, in which undifferentiated carcinomas can sometimes arise.

CASE 24252
The patient was a 76-year old man who died of carcinoma of the sigmoid colon with disseminated metastases. The thyroid lesion was an incidental finding at post-mortem.
The specimen shows the neck structures and the left lobe of the thyroid gland. The left lobe is enlarged by an encapsulated oval lesion measuring 4.5cm in maximum diameter. The residual thyroid tissue also appears nodular.
Diagnosis: Multinodular goitre
Comment: An alternative diagnosis is adenoma, but as the residual gland appears nodular, the larger nodule is probably just a dominant nodule in a multinodular gland. The right side of the thyroid does not appear to be present - ?if the patient has had thyroid surgery in the past.

CASE 24397
This 63-year old man was admitted in a disorientated state, with a history of mental deterioration, anorexia, renal calculi and epigastric pain. His serum calcium was elevated. He died following a cardiac arrest 10 days after admission.
The specimen comprises the larynx, upper trachea and thyroid. The thyroid is mildly and diffusely enlarged. Protruding downwards from the left side of the thyroid is an oval encapsulated pale mass 3cm in maximum dimension. It contains small areas of cystic degeneration.
Diagnosis: Parathyroid adenoma
What is the likely cause of the patient's mental deterioration, anorexia, renal calculi and epigastric pain? Hypercalcemia.
Comment: Without the clinical history, this diagnosis is not readily made from the macroscopic features alone, although its location is in keeping with a parathyroid lesion. Macroscopically, an enlarged tumour replaced lymph node is another thing to consider. Histology reportedly showed an adenoma composed mainly of chief cells. It was a vascular tumour with some nuclear pleomorphism and some binucleate cells.

CASE 24636
This 42-year old man was investigated for fits 12 years ago. Eight years later after the onset of symptoms, a malignant glioma was diagnosed and treated. He died after gradual deterioration from local recurrence. The specimen was an incidental finding at autopsy.
The specimen is of larynx and thyroid. The thyroid is of normal size, but is diffusely pale and firm with a slightly nodular surface.
Diagnosis: Features in keeping with Hashimoto's disease
What features would be expected on histological examination of the gland?
There would be very dense lymphoid infiltration throughout the thyroid, with lymphoid follicles containing germinal centres in places. Many plasma cells would also be present. Few thyroid acini are likely to remain and the residual follicular epithelial cells are likely to show oncocytic change.

CASE 10822/82
The patient was a woman aged 24. She had paroxysmal hypertension and elevated urinary catecholamine levels.
The specimen comprises a well-circumscribed brown coloured oval tumour measuring 55mm in maximum dimension. There is a central area of scarring. No recognisable rim of adrenal cortical tissue is apparent.
Comment: The tumour is brown because it has been fixed in a chromate solution. The brown staining results from oxidation products of the catecholamines present in the granules within the cytoplasm of the tumour cells.

CASE 16552/85
The patient was a woman aged 57 with Cushing's syndrome.
The specimen consists of a yellow/brown, encapsulated ovoid tumour mass measuring 7cm in maximum dimension which grossly expands an adrenal gland. A narrow rim of probably atrophic residual adrenal tissue is seen near the metal clip.
Diagnosis: Adrenocortical tumour
Why has this patient got Cushing's syndrome? Some adrenal cortical tumours secrete one or another of the hormones normally produced by the adrenal. In this case, the tumour would have been secreting excessive amounts of cortisol.
In which layer of the adrenal gland is cortisol normally produced? Mainly in the zona fasciculata.
Comment: The variegated tan and golden surface of this lesion is typical, due to accumulated lipid within the cells. This tumour is large, raising the possibility of malignancy.

CASE 16075/91
The patient was a woman aged 56 with Conn's syndrome.
The specimen is of an adrenal gland containing a spherical well-demarcated 2.5cm diameter yellow nodule.
Diagnosis: Adrenocortical adenoma.
What is Conn's syndrome, what causes it and what effect does it have on the patient? Conn's syndrome refers to primary hyperaldosteronism caused by an aldosterone secreting adrenocortical adenoma. The main clinical manifestations of hyperaldosteronism are hypertension and hypokalemia. The hypokalemia can lead to muscular weakness and tetany. Hypertension of course can have a variety of complications.
What is Addison's disease and how does it arise? Addison's disease refers to the effects of primary chronic adrenocortical insufficiency that results from destruction of the gland by such problems as metastases, amyloidosis, TB, sarcoidosis and autoimmune disease.
What are the clinical characteristics of Addison's disease? Weakness, weight loss, gastrointestinal symptoms, electrolyte disturbances and hypotension (from lack of aldosterone), hyperpigmentation (related to stimulation of melanocytes in the skin by the action of a pituitary hormone which is increased in this disease)

CASE 50042/92
The patient was an 89 year old man admitted in January 1992 for treatment of dehydration. His past history included pituitary insufficiency diagnosed in October 1991 and treated with Dexamethasone and Thyroxine. He presented with a one week history of lethargy, weakness and anorexia. On investigation he was hypokalemic, tachycardic and hypotensive. A diagnosis of adrenal insufficiency was made and treatment was commenced, but the patient died later that night.
The specimen consists of the sectioned pituitary fossa containing a large pituitary adenoma (20 x 12 x 15 mm) with a suprasellar component. The bony floor of the fossa is thinned.
Diagnosis: Pituitary adenoma
Comment: Histological examination confirmed that this was a pituitary adenoma which on immunocytochemical testing was negative for prolactin, ACTH, LH, FSH, TSH and growth hormone i.e. was of null cell type. Only a very small amount of residual, compressed adenohypophyseal tissue was present at the margins of the tumour.
Why has this patient developed adrenal insufficiency? The adrenal gland is normally stimulated by ACTH from the anterior pituitary. In this case, the pituitary adenoma has compressed normal pituitary tissue resulting in atrophy. Thus ACTH (and apparently also TSH and probably other pituitary hormones) were not being produced, leading to adrenal insufficiency.