Table X-Ray abnormalities in 20 patients with primary amyloidosis (from⁷)

Site	No of patients	Radiographic findings
Oesophagus	4	Decreased or absent peristalsis
	2	Tertiary contractions with decreased peristalsis
	1	Reflux of barium into the nasopharynx
Stomach	2	Masses or prominent folds
	1	Multiple small ulcers
Small bowel	1	Atrophic folds
	5	Thickened folds
	2	Malabsorption pattern
Colon	1	Dilated loops
	3	Changes suggestive of long-standing ulcerative colitis

hepatosplenomegaly, distinct intraluminal and intramural masses, and obstruction at multiple sites in the GIT. Amyloid fibrils have an affinity for calcium, and radiographically detectable calcified amyloid deposits may occur in both primary and secondary amyloidosis. Carlson *et*

al reviewed 230 cases of primary systemic amyloidosis seen at the Mayo Clinic over a 10-year period. In 47 patients who had amyloidosis diagnosed from a GIT biopsy site or had GIT involvement at autopsy, 20 had abnormal radiological reports (summarised in the table).⁷

CT and magnetic resonance imaging findings are non-specific, often mimicking both inflammatory and neoplastic processes. GIT involvement with amyloidosis is common. As radiological findings, when positive, are non-specific, definitive diagnosis depends on histology.

Final diagnosis

Mesenteric amyloidosis secondary to rheumatoid arthritis.

Keywords: amyloidosis; rheumatoid arthritis

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Difficulties in the diagnosis of an intra-abdominal mass

S Gammell, D K Beattie, H H Thompson

The discovery of an intra-abdominal mass often poses significant diagnostic difficulties. The following case demonstrates this, and highlights some of the pitfalls.

Case report

A 73-year-old man presented with a 2-year history of lower limb paraesthesiae, macrocytosis and a recent onset of left upper quadrant pain. Examination revealed a large, slightly tender, smooth mass arising from the left upper quadrant of the abdomen with the lower edge in the left iliac fossa. Laboratory investigation, including the assessment of catecholamine levels, was non-contributory.

Questions

- 1 What investigations might help to determine the nature of the mass?
- 2 What is the probable diagnosis and what other imaging techniques might be useful?
- 3 What is the nature and presumed aetiology of these lesions?

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Answers

QUESTION 1

Grey-scale ultrasound examination is a useful primary investigation in determining the nature of discrete intra-abdominal masses, yielding information such as the size of the lesion and determining the mass to be solid or cystic. The structure from which the mass originates may be identified. In many cases ultrasound characteristics may be diagnostic.

In this case ultrasound was misleading, suggesting an enlarged spleen containing a partly sub-capsular/partly sub-splenic collection, with displacement of the kidney into the pelvis. In most cases involving an abdominal mass computed tomography (CT) and magnetic resonance imaging (MRI) are adequate to enable a confident diagnosis.¹ However, CT also suggested massive splenic enlargement as the cause of this lesion.

A gadolinium-enhanced MRI scan (see figure) demonstrated a 20-cm mainly cystic retroperitoneal mass displacing the spleen superiorly, the left kidney inferiorly, the tail of the pancreas anteriorly, but arising from none of these. The left adrenal gland could not be identified and was thus considered to be the probable site of origin of the mass.

QUESTION 2

The probable diagnosis, confirmed subsequently after excision, is of an adrenal pseudocyst. Pre-operative diagnosis of adrenal pseudocysts can be problematic, though a number of imaging modalities are helpful. Plain radiographs may show curvilinear calcification above the renal shadow²; speckled calcification suggests malignancy. Excretion urography may show downward displacement and rotation of the kidney, suggesting an often incidental suprarenal mass.³ Usually, particularly in the case of non-functioning adrenal lesions, CT and MRI are adequate. Both will demonstrate a mass with a thick wall and/or prominent sep-

tations, which may contain calcification. MRI has the advantage of being able to image in any anatomic plane, hence permitting evaluation of the relationship of the mass with adjacent retroperitoneal structures. This was vital in this case in making the diagnosis before operation. Pitfalls have been reported with both, however. Repeated haemorrhage with resultant multiple central punctate calcifications has caused the CT appearances of a pseudocyst to mimic those of a hydatid cyst.⁴ Unusual appearances at ultrasound, CT, and MRI have also caused benign lesions to be diagnosed as malignant.^{5,6} In such cases angiography and adrenal venography, showing the characteristic arching of venules over and around an avascular adrenal mass, may be helpful.²

QUESTION 3

Adrenal pseudocysts account for 39% of non-neoplastic adrenal cysts. They are cystic lesions with neither an epithelial nor an endothelial lining, thus precluding a more precise classification. Initial reports were of small cysts found incidentally at post mortem, though improved imaging techniques are resulting in a higher reported incidence.⁷ Most (75%) occur in women, with some suggesting them to be more common in the young and middle-aged. The cyst found here is one of the largest reported, the largest being 33 cm, removed from a West Indian woman.⁸

The aetiology of adrenal pseudocysts has been the subject of considerable debate. Studies suggest that the majority are of vascular origin,⁹ due to haemorrhage from a pre-existing vascular anomaly. Organisation of the haematoma results in the formation of a thick-walled pseudocyst. This is borne out by the histological analysis of the cyst reported here. The specimen was 21 cm in diameter, sections confirming a fibrous capsule without endo- or epithelium. The adrenal gland within the specimen was divided into nodules by bands of acellular collagen. A large blood vessel with an abnormal muscle wall was identified, one section of which showed haemorrhage. Haemorrhage in the absence of a vascular anomaly may occur due to crushing injury, birth trauma, or in systemic illnesses such as severe shock, endotoxaemia or haemorrhagic diatheses. Pseudocysts may also develop after bleeding into adrenal tumours. Thus the diagnosis of malignancy must be considered in all cases of pseudocyst, and exclusion of malignancy may, in the absence of symptoms, be the sole indication for surgical excision.

Final diagnosis

An adrenal pseudocyst.

Keywords: adrenal lesion; pseudocyst

Figure MRI scan demonstrating the large intra-abdominal cystic mass

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Lung mass in a short woman

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A 26-year-old woman presented with a 6-week history of a dry cough and several recent episodes of scant haemoptysis. She admitted to mild exertional dyspnoea, night sweats and right-sided anterior pleuritic chest pain. A 20 lb weight loss was noted. She smoked 10 cigarettes daily (4 pack-years in total). She had been diagnosed as having Swyer's syndrome (a mosaic variant of Turner's syndrome with a Y chromosome present) at the age of 20 years following investigation for oligomenorrhoea. She had had a gonadectomy performed 4 years earlier and a skin biopsy confirmed a 45XO/46XY karyotype. She subsequently attended a Turner's syndrome clinic and received vitamin D preparations for a low bone mineral density. On admission vital signs were normal with a temperature of 37.3°C. She measured 152 cm and had a Turner's syndrome habitus with partial neck webbing, poor breast development and several naevi on the chest wall. She had poor dentition and halitosis. Two small lymph nodes were present in the right supraclavicular fossa. Air entry was reduced in the right hemithorax anteriorly, but no rales were audible. Laboratory data included a white blood cell count of $23.7 \times 10^9/l$ with a neutrophilia, slightly reduced serum albumin of 31 g/l, elevated globulins of 50 g/l and an erythrocyte sedimentation rate of 95 mm in the first hour. CA-125 was slightly elevated at 37 IU (normal 0–25). Her chest radiograph and thoracic computed tomography (CT) scan are shown in figures 1 and 2, respectively.

Figure 1 Chest X-ray

Figure 2 Thoracic CT scan

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Questions

- 1 What is the most probable diagnosis?
- 2 What diagnostic intervention would you undertake?