RETROPERITONEAL TERATOMA

H.M. MOHD. BAHARI & ABDULLAH HARON

INTRODUCTION

TERATOMAS are tumours composed of multiple tissues that are foreign to the area in which they arise. It is widely accepted that they originate from totipotential cells which had escaped the influence of the primary organiser during development (Willis, 1951). Rarely, teratomas occur in the retroperitoneal space, a large potential space extending from the thoracic to the pelvic diaphragms and bounded laterally by the iliac crests and the tips of the twelfth ribs. The first description of a retroperitoneal tumour was credited to Morgagni in 1761. Lobstein was the first to use the term retroperitoneal tumour in his description of a sarcoma in 1829, a tumour unrelated by origin to adjacent organs in the retroperitoneal space. Primary retroperitoneal teratomas was first described by Dickinson in 1871.

We are reporting three cases of primary retroperitoneal teratomas in adults seen in the General Hospital, Kuala Lumpur during the last five years. These tumours, which are allegedly rare in adults and thus infrequently thought of, presented a problem in diagnosis.

CASE MATERIAL

Case 1

The patient, a 28 year old housewife, complained of pain on the right side of the abdomen. There was no other significant history. On examination, her general condition was satisfactory. Pulse rate was 86/min. and blood pressure 110/70 mm Hg. On abdominal examination, a large painless, fixed mass was palpated in the right iliac fossa and suprapubic region.

Haematological investigations: haemoglobin 9 gm %, total white count 7,000/cu. mm. Plain X-ray abdomen showed a central soft tissue mass with presence of calcification, bone and a tooth (Fig. 1). Intravenous urogram showed lateral displacement of the lower pole of the right kidney (Fig. 2). A diagnosis of a retroperitoneal teratoma was made.

Exploratory laparatomy confirmed a retroperitoneal tumour 15 x 10 cm. below and medial to the right kidney, adherent to the right renal vein, the inferior vena cava and the aorta. Total excision was performed. Histological examination showed the tumour to be a mature cystic teratoma with presence of respiratory and cuboidal epithelia, cartilage, bone and fat cells.

Five months later, the patient was well and there was no evidence of tumour recurrence.

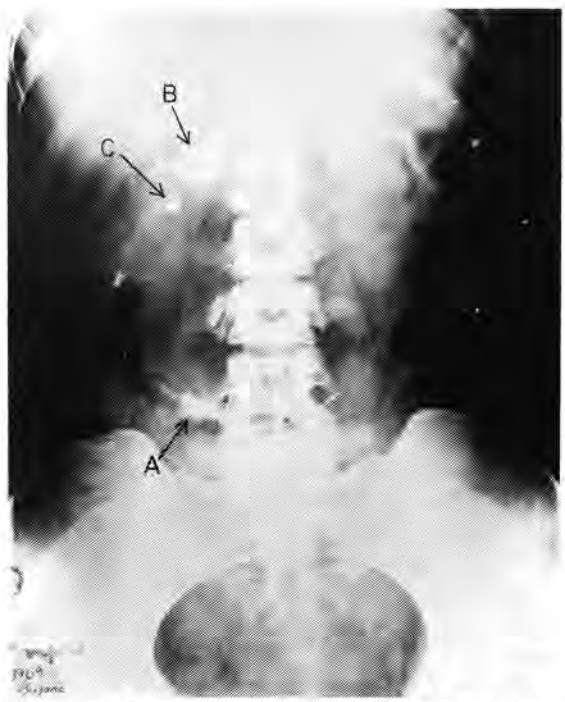

Fig. 1. Plain X-ray of abdomen showing areas of calcification (A), bone (B) and a tooth (C).

Department of Surgery, Faculty of Medicine,
Uiversity Kebangsaan Malaysia, K. LUMPUR.

H.M. MOHD. BAHARI & ABDULLAH HARON

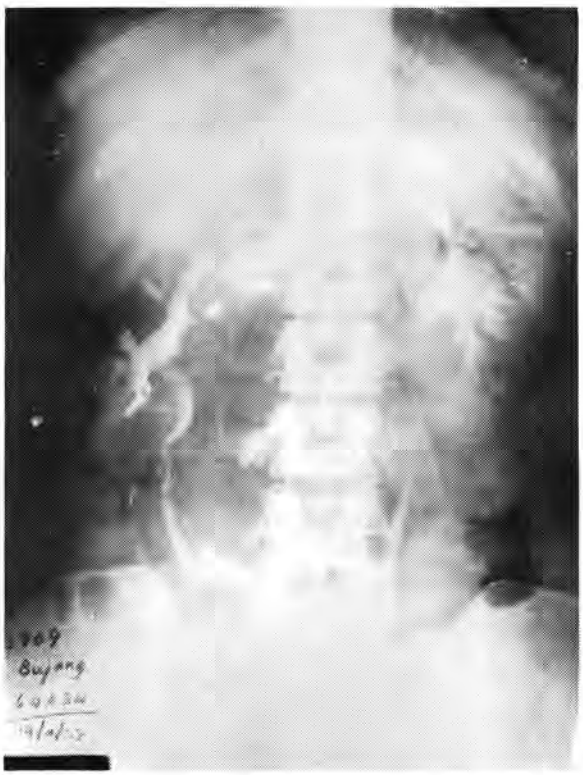

Fig. 2. Intravenous urogram showig displacement of the right kidney.

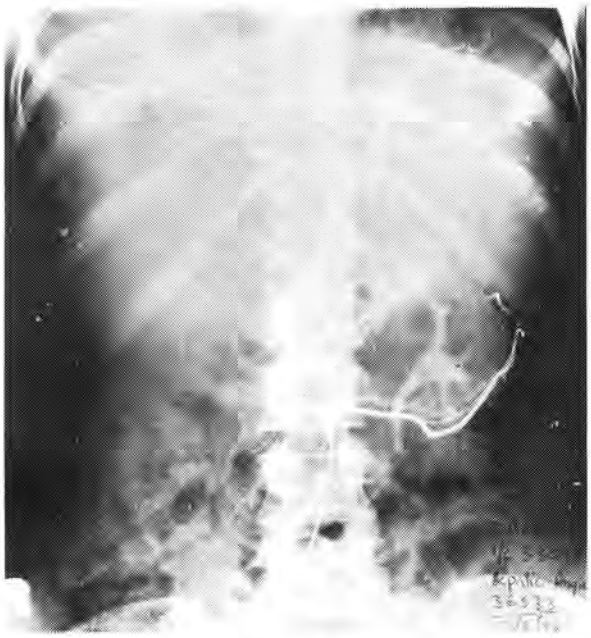

Fig. 3. Hepatic angiogram showing non-vascular mass in right lobe of the liver.

Case 2

The patient, a 33 year old housewife, complained of loss of appetite, nausea and vomiting after meals and loss of weight for two months. Two weeks prior to admission she noticed a mass in the right hypochondrium. On physical examination, her general condition was satisfactory. Pulse rate was 84/min. and blood pressure 120/80 mm.Hg. A mass was palpated in the right hypochondrium. It had a smooth surface, sharply defined lower border and extended 5 cm. below the coastal margin.

Haematological investigations: haemoglobin 13.6 gm %, total white count 7,200/cu. mm. and erythrocyte sedimentation rate 67 mm/hr. Liver function tests were normal and alpha-fetoprotein was negative. Plain abdominal X-ray showed a radio-opaque density in the right hypochondrium. Liver scan showed a large cold area in the right lobe, suggesting a hepatoma. Hepatic angiogram showed a large, relatively non-vascular mass in the right lobe of the liver displacing the vessels medially (Fig. 3). Preoperative diagnosis of a hepatic cyst was made.

At laparotomy, a well encapsulated retroperitoneal tumour was found. It measured about 15 cm. in diameter and was situated between the upper pole of the right kidney and the inferior surface of the liver. It was adherent to the inferior vena cava and the aorta. The tumour was excised in toto. Histoligical examination showed a benign mature teratoma comprising smooth and striate muscles, bone, cartilage, lymphoid tissue, skin and intestinal epithelium.

Convalescence was uneventful. On the last follow-up one year later, the patient was well and there was no sign of tumour recurrence.

Case 3

The patient was a 20 year old female factory worker. She complained of fever, pain in the right hypochondrium and jaundice for two weeks. Three years previously, she was treated in another hospital for a liver abscess which was drained by open operation. Three litres of purulent anchovy sauce-like material thought to be of amoebic origin was removed. Post-operatively the patient

was well, except for a persistently discharging sinus at the old drain site. Three years later, she was readmitted for recurrence of fever and pain and referred to the General Hospital, Kuala Lumpur. On examination, her general condition was satisfactory. Pulse rate was 80/min. and blood pressure was 120/80 mm. Hg. She had low grade fever of 37.5 C. There was a mass in the right hypochondrium. It was firm and slightly tender, and extended 10 cm. below the coastal margin. A sinus, discharging purulent fluid was present in the right lumbar region.

Haematological investigations: haemoglobin 12.4 gm %, total white count 12,000/cu. mm. and erythrocyte sedimentation rate 32 mm/hr. Liver function tests were normal. Plain abdominal X-ray showed a soft tissue shadow in the right hypochondrium with a small area of calcification. The stomach was displaced downward. Liver scan showed negligible uptake of dye on the right side. Splenic uptake was increased (Fig. 4). This suggested severe parenchymal damage of the liver. The patient was put on a course of tetracycline and flagyl with no improvement. The diagnosis of a hepatic cyst or tumour was made.

Exploratory laparotomy was performed. A large mass 15 x 20 cm. was found occupying the retroperitoneal space between the liver and the right kidney. It extended across the midline and was adherent to the inferior vena cava and the aorta. The right lobe of the liver to which the tumour was adherent was compressed and atrophied forming a thin capsule to the tumour. Near total excision of the tumour was performed. A part of the capsule adherent to the aorta and inferior vena cava could not be removed. Microscopically, the tumour contained hair, cartilage and bone. Histologically, it was a mature teratoma with various type of epithelia, smooth muscle, cartilage and lymphoid tissue. There was no evidence of malignancy.

Convalescence was uneventful and at the last follow-up four months after surgery, the patient was well. There was no evidence of recurrence.

DISCUSSION

Tumours occuring in the retroperitoneal space account for 0.3 to 3 percent of all tumours (Wirbatz *et al.*, 1963). Of these, liposarcoma is the commonest and teratoma is the rarest. Palumbo *et al.* (1949), reported an incidence of 11 percent in a series of 55 cases of retroperitoneal tumours. Donnelly (1946) reported two teratomas in 95 consecutive retroperitoneal tumours, while Braasch and Mon (1967) did not report a single one in a review of 101 cases of retroperitoneal tumours. In our limited experience, we have seen three teratomas out of seven consecutive primary retroperitoneal tumours in adults over a five year period. Perhaps teratomas of the retroperitoneal space may not be as rare in Malaysia. There is only one report of a retroperitoneal teratoma in local literature (Hussein 1973).

Fig. 4. Liver scan showing decreased uptake in the right lobe and increased uptake in the left lobe and the spleen.

Our three cases were all females whose ages ranged from 20 to 33 years. Palumbo *et al.* (1949) reported that the average age at diagnosis was 13 years with only 10 percent occuring above the age 30 years, with a slight predominence of females. Engel *et al.* (1968), in his analysis of 29 cases whose ages ranged from 2 hours to 55 years, reported about equal incidence in the sexes.

Pantoja *et al.* (1976) reported that the commoner site of retroperitoneal teratomas was on the left but in these three instances, the tumours were on the right.

Symptoms in retroperitoneal tumours occur late and are usually vague and non-specific. The first two patients presented with pain, anorexia and loss of weight. The third had fever and pain in the right hypochondrium which initially led to a diagnosis of an amoebic liver abscess. These tumours have usually grown to a large size and are palpable before the patients have constitutional symptoms. All three patients had a palpable mass in the right side of the abdomen, leading us to suspect a hepatoma in two cases as hepatomas occur commonly in Malaysia. Teratomas are subject to infection and suppuration. This was probably the cause of the persistently discharging sinus in the third patient. Diagnosis then was difficult and an amoebic liver abscess was considered. They can also undergo malignant change.

Retrospectively, we feel that the diagnosis of a retroperitoneal teratoma should be considered when a patient presents with an abdominal mass and whose abdominal x-rays show presence of calcification or bone. Intravenous urogram is useful only in defining the site of the tumour to be retroperitoneal. Liver scan studies were not helpful in our cases. Angiography indicates the vascularity of a retroperitoneal tumour and would aid the surgeon in anticipating the extent of haemorrhage which may occur during surgical excision but is not an essential investigation for the diagnosis of a retroperitoneal tumour.

Teratomas may be cystic, solid or partially solid and partially cystic. The solid portion consists of fatty tissue, cartilage, bone, teeth and other differentiated structures such as digits or segments of intestines. In our cases there was no evidence of malignancy.

The treatment for retroperitoneal teratomas, as for any other retroperitoneal tumour, is total excision as this offers the only hope of cure. Adherence to structures such as major blood vessels is not a contraindication to excision. In cases of malignant teratomas, post-operative radiotherapy is indicated but response is usually poor. The prognosis for a benign teratoma is very good provided complete resection is accomplished, but malignant teratomas carry a poor prognosis even after apparently complete excision (Arnheim, 1951).

SUMMARY

Three cases of retroperitoneal teratomas are reported. This constituted 42 percent of all retroperitoneal tumours treated at the General Hospital over a period of five years. This is a higher incidence than reported elsewhere. The patients were all adult females and the tumours were all on the right side. It is probable that the incidence of retroperitoneal teratomas is higher in Malaysia than in other countries and should be considered in the differential diagnosis in the presence of a palpable abdominal mass which shows areas of calcification on X-ray. These tumours are usually benign and the prognosis is good.

ACKNOWLEDGEMENT

We would like to thank Professor M. Balasegaran under whose care the first case was admitted and Professor Q.M. Iqbal for suggestion in the preparation of the manuscript.

REFERENCES

Arnheim, E.E. (1951): Retroperitoneal teratomas in infancy and childhood. *Paediatrics* **8:** 309 — 327.

Braasch, J.W., and Mon, A.B. (1967): Primary retroperitoneal tumours. *S. Clin. North America* **47:** 633 — 678.

Donnelly, B.A. (1946): Primary retroperitoneal tumours — a report of 95 cases and a review of the literature. *Surg. Gynae-Obst.* **83:** 705 — 717.

Engel, R.M., Elkins, R.C. and Fletcher, B.D. (1968): Retroperitoneal teratoma — Review of literature and presentation of an unusual case. *Cancer* **22:** 1068 — 1073.

Hussein bin Mohamed Salleh (1973): Retroperitoneal teratomata. *Med. J. Malaysia* **27:** 40 — 43.

Lobstein, J.F. (1829): Lehrbuch der patholigischen Anatomie, Vols. I, II. Deutsche. Bearbeit von A. Neurohr, Stuttgart, 1834 — 1835, F. Brodhag.

Palumbo, L.T., Gross K.R., Smith, A.N., and Baronas, A.A. (1949): Primary teratomas of the lateral retroperitoneal spaces. *Recent Advances Surgery.* **26:** 149 — 159.

Pantoja, E., Llobet, R., Gonzelez — Flores, B. (1976): Retroperitoneal teratoma: Historical review. *J. Urol.* **155:** 520 — 523.

Willis, R.A. (1951): Atlas of tumour pathology, Section 3, fascicles 9:10. Washington, D.C. Armed Forces Institute of Pathology.

Wirbatz, W., Ohmstede, Be. E., Gummel, H., and Matthes, T. (1963): Diagnostik, Therapie and Prognose der Retroperitoneal tumoren. *Langenbecks Arch. Klin. chir.* **302:** 827 — 856.