Discussion

These cases present interesting features both clinically and pathologically. Laparotomy was essential in order to make a diagnosis, and easily removable tumours were found, but in both cases blood pressure fell sharply afterwards, suggestive of suprarenal shock, and it seems probable that this feature was in part, if not entirely, the cause of death. It is therefore important to consider the possibility of a cortical suprarenal neoplasm when a very large encapsulated retroperitoneal tumour is found which is causing no symptoms referable to the organ of origin; for it seems likely that if the diagnosis were made early enough hormonal replacement therapy might prevent post-operative collapse. It is therefore particularly valuable to note that the naked-eye appearances in my two cases and in the case described by Anderson *et al.* (1943) were exactly similar.

Walters and Kepler (1938) pointed out that probably the most important single feature in the surgical treatment of cortical adrenal tumours was the control of post-operative shock. Cecil (1933) stated that 39% of patients operated on died of shock. It may be added in this connexion that Cahill *et al.* considered that post-operative shock occurred only in those cases in which, as a result of the tumour, a syndrome of Cushing's type was present and hormonal excess was affecting metabolic functions such as salt-and-water balance and capillary permeability. They further state that, in their series, cases without clinical hormonal upsets were never associated with post-operative collapse. This view cannot be confirmed from the present cases.

From the pathological point of view the gross and the microscopical structure of these tumours provokes discussion whether they are benign or malignant. Features in favour of their benignity are the presence of the well-formed capsule and the absence of evidence of metastases, although it must be admitted that it was not possible to perform necropsies. The absence of demonstrable mitoses and the close resemblance of the tumour cells to those of the normal adrenal seem to point to a non-malignant origin, although it may be repeated that numbers of metastasizing tumours with complete differentiation of cell type have been described.

It is somehow difficult to reconcile such very large masses showing so much necrosis and haemorrhage with benign growths. Another feature suggestive of malignancy is the association of tumour cells with the vessel walls, and in many cases the presence of strands of cells lying free in blood spaces. The marked tendency towards thrombosis in the vessels is more commonly seen in malignant than in benign tumours.

Examples in the literature of large cortical adrenal tumours are rare. Among the largest is the case recorded by Holmes (1925) in which a tumour weighing 1,025 g. (2 lb. 4 oz.) and measuring 17 by 14 by 9.5 cm. was found to be of benign type, and that of Anderson *et al.* (1943), who described a malignant cortical tumour weighing 1,780 g. (3 lb. 14 oz.) in which a solitary metastasis was found in the liver. The latter case is of interest, as the appearance of the tumour was identical with those described above, although a relatively anaplastic histological pattern was recorded.

It may again be stressed that histologically benign tumours merge imperceptibly into the malignant varieties, and in the absence of demonstrable metastases opinions might well differ about their correct interpretation. It might be argued that haemorrhage into a simple adenoma is the more correct view in the above cases, but it is my

opinion, based on the reasons already given, that these are examples of slowly advancing malignant tumours.

Summary

Two cases of very large cortical adrenal tumours are presented.

The complete absence of localizing clinical signs is noted.

The importance of their recognition in order to institute post-operative treatment is stressed.

The question of their benign or malignant origin is discussed.

My grateful thanks are due to Mr. G. T. Mullally and Sir Stanford Cade for permission to make use of the case records.

REFERENCES

- Anderson, A. F., Hain, A. M., and Patterson, J. (1943). *J. Path. Bact.*, **55**, 341.
 Broster, L. R., and Vines, H. W. C. (1933). *The Adrenal Cortex*. London.
 Cahill, G. F., Melicow, M. M., and Darby, H. H. (1942). *Surg. Gynec. Obstet.*, **74**, 281.
 Cecil, H. L. (1933). *J. Amer. med. Ass.*, **100**, 463.
 Glynn, E. E. (1912). *Quart. J. Med.*, **5**, 157.
 Holmes, G. (1925). *Ibid.*, **18**, 143.

A SECOND EXAMPLE OF THE "DUFFY" ANTIBODY

BY

ELIZABETH W. IKIN, B.Sc.

A. E. MOURANT, D.Phil., D.M.

AND

GERTRUDE PLAUT, B.A., M.D.

(Blood Group Reference Laboratory, Ministry of Health and North London Blood Supply Depot, National Blood Transfusion Service)

Cutbush, Mollison, and Parkin (1950) have described an antibody which defines a new blood-group system. The antigen (*Fy^a*) distinguished by this antibody was found to be present in 66% of the English population, and appeared to be independent of the *ABO* and *Rh* groups of the blood tested. The antibody, anti-*Fy^a*, was found after a transfusion reaction in a haemophilic patient who had received previous transfusions. It was accompanied by the *Rh* antibody anti-*D*, which could, however, be removed by absorption. The reactions of the new antibody could be detected with certainty only by means of the Coombs test.

A second example of the same antibody has been detected in the serum of Mr. J. S. In or about the year 1943 he had twice been transfused for haemorrhage from a peptic ulcer. In August, 1949, he was again admitted to hospital for the same condition. His blood was found to be group *AB*, and two bottles of group *B* blood were directly matched against his serum at the hospital. He had a severe rigor after receiving about 20 ml. of blood from one bottle. The transfusion was interrupted and begun again from the other bottle with a similar result. It unfortunately proved impossible to trace the donors of these bottles of blood.

A full investigation of the patient's blood was then carried out. He was found to be group *A₂B*, *R₁R₁*, (*CDe/CDe*), and his serum, though containing no saline agglutinins, was found by means of the Coombs test to contain an antibody which reacted with more than half of the red-cell samples tested. It was almost immediately

found to be giving similar reactions to the newly discovered anti-Fy^a. A detailed comparison has shown that of 62 Duffy-positive bloods all were positive with the serum of J. S. Of 29 Duffy-negative bloods all were negative or reacted very weakly with the serum of J. S. As the Duffy reactions of many of these bloods were previously known the numbers given do not constitute evidence of the frequency of the antigen in the general population. In the course of these tests the serum of J. S. was found to contain a trace of anti-A₁, which was easily removed by absorption with A₁B, CDe/CDe Duffy-negative cells. A further trace of one or more antibodies was also detected, consisting probably of anti-E and possibly of anti-c as well. Only in three cases did these antibodies give a reaction as strong as that of the anti-Fy^a. As we had used up all our serum and no more could then be obtained from the patient it was impossible to investigate these antibodies further. It is, however, clear that the main antibody in his serum is anti-Fy^a, and it is probable that this was the cause of his transfusion reactions.

We wish to thank Dr. H. Rogers, of Hillingdon Hospital, who referred this case to us and gave us much assistance; and Dr. R. R. Race, Dr. P. L. Mollison, and Miss Marie Cutbush, who carried out many of the comparative tests of the two sera.

REFERENCE

Cutbush, Marie, Mollison, P. L., and Parkin, Dorothy M. (1950). *Nature*, **165**, 188.

Medical Memoranda

Recovery from Strangulated Obturator Hernia

Obturator hernia commonly presents in elderly women and is usually diagnosed as intestinal obstruction or strangulation. The patient is emaciated and dehydrated—a poor subject for surgery. Therefore it is hardly surprising that the mortality is high. Watson (1939) collected 149 cases operated on, with a fatality rate of 48%. Meyer (1914) recorded a fatality rate of 54% and Grasser (quoted by McMahon, 1915) one of 81%, while Horine (1927) reported 47 cases with 29 recoveries, a fatality rate of 38%.

In view of the comparative rarity of the condition the following case is recorded.

CASE REPORT

On May 15, 1947, a woman aged 70 was admitted to hospital complaining of abdominal pain and vomiting of seven days' duration. Vomiting had been projectile in character and, latterly, faecal. She had passed no flatus for several days.

On examination she was seen to be a very thin old woman, somewhat disorientated, and a poor witness. Her tongue was dry and furred, and she was vomiting faecal-looking material. The abdomen was distended, especially centrally, and there was gross visible peristalsis. Tenderness in the right iliac fossa and rebound tenderness were present. Rectal examination was negative. A fair range of painless movement was possible at both hip-joints. A diagnosis of low small-bowel obstruction with, possibly, internal strangulation was made.

After four hours of continuous suction and intravenous saline her general condition improved slightly, though the physical signs in the abdomen remained unchanged.

Operation was performed under local analgesia with minimal thiopentone and cyclopropane. Greatly distended coils of small bowel were found, one of which was trapped in the right obturator foramen. The opening in the obturator membrane was stretched and the loop was withdrawn; though of a dark-purple hue, it was viable. The sac was evaginated and

removed, and the opening in the membrane was closed with one silk mattress stitch.

Convalescence was uneventful, except that the patient was extremely confused mentally for several days. She was discharged well eleven days after operation.

In view of the length of the history—seven days—and the age of the patient it is remarkable that she did so well. At no time did she complain of pain radiating down the inner side of the thigh to the knee (Romberg-Howship sign), but her condition on admission was so bad that she was unable to give a good account of herself.

My thanks are due to Mr. James Troup, senior surgeon, Royal Hants Hospital, Winchester, for permission to publish this case.

M. C. WATERFALL, F.R.C.S.,
Formerly Resident Surgical Officer, Royal
Hants Hospital, Winchester

REFERENCES

- Horine, C. F. (1927). *Ann. Surg.*, **86**, 776.
McMahon, C. G. (1915). *Ann. Surg.*, **62**, 710.
Meyer, E. (1914). *Arch. klin. Chir.*, **103**, 497.
Watson, L. F. (1939). *Hernia*. St. Louis.

Tuberculous Meningitis during Pregnancy, Streptomycin Treated

During the past two years in a series of 84 cases of tuberculous meningitis receiving streptomycin treatment at this hospital two patients developed their symptoms during pregnancy.

CASE 1

This patient, aged 21 years, had been ill for ten days with acute meningeal symptoms when admitted to this hospital on November 9, 1948. She was then at the 29th week of her first pregnancy and weighed 167 lb. (75.75 kg.). Shortly before her marriage she had been detected at her works radiographic survey as a possible early pulmonary case, but had neglected her follow-up arrangements. The pregnancy had been uneventful until the onset of her meningeal symptoms. The uterus corresponded to her period of amenorrhoea and the foetal heart was heard. She presented the ordinary clinical and cerebrospinal fluid findings of a tuberculous meningitis, and in spite of an active chest condition she was given streptomycin treatment at once. The diagnosis was subsequently confirmed by the culture of a human strain of tubercle bacillus from her fluid. She was given 100 mg. of streptomycin intrathecally daily for ten days, and then on alternate days for ten doses. Intramuscularly she received 1.6 g. daily, given in two equal doses at intervals of twelve hours. This was at the rate of 10 mg. per lb. (22 mg. per kg.) of body weight per day.

This treatment produced a good response and the meningeal condition improved, while there seemed to be no interference with the pregnancy. Serum streptomycin content varied from 2 to 4 µg. per ml. and cerebrospinal fluid streptomycin was from 2 to 4 µg. per ml.

On January 18, 1949, in her 39th week of pregnancy, she came quickly into labour and delivered herself spontaneously of an apparently normal female infant of 6 lb. 15½ oz. (3.16 kg.). She was transferred to the Royal Maternity Hospital, Belfast, and returned to us a week later. There was no break in her intramuscular medication. At the time of her delivery, ten weeks after starting streptomycin treatment, she had received 2 g. intrathecally and 112 g. intramuscularly. I have not seen the child, but I understand from Professor F. M. B. Allen, of the Department of Child Health, that it is apparently normal and healthy. He found it to be Mantoux-negative, and arranged for it to have B.C.G. vaccination before release of the mother from hospital.

The patient was given a further course of intrathecal treatment of 30 doses of streptomycin after her delivery. The cerebrospinal fluid of January 31 gave a culture of tubercle bacilli. Improvement has continued: intramuscular streptomycin was stopped on July 13 and she remains very well. She has recently been sterilized, with a view to returning home on completion of her infant's B.C.G. vaccination.