required more than once, and she was taking oral preparations of iron in the intervening periods.

In August, 1949, it was felt that, in view of these repeated haemorrhages, surgical intervention offered the only hope of cure. She was admitted to the Royal Southern Hospital, Liverpool, in October, being then in reasonably good health. The only abnormal physical sign was the enlarged spleen, which extended well below the costal margin. The blood count was: haemoglobin, 89% (Haldane); white cells, 5,000 per c.mm., with a low normal polymorphonuclear count and a mild lymphopenia; platelets, 100,000 per c.mm. Repeated tests for occult blood in the faeces were negative. The galactose tolerance and hippuric acid synthesis tests revealed no evidence of liver insufficiency. Oesophagoscopy on October 15 showed that there were no oesophageal varices, but it was noted that the gastric mucosa bled very easily.

Laparotomy was performed on October 24 by Mr. J. Cosbie Ross. When the abdomen was opened a large cystic mass was found arising from the body and tail of the pancreas; the cyst stretched and compressed the splenic vein, resulting in engorgement of the spleen and vasa brevia, with consequent hyperaemia of the gastric mucosa. To facilitate removal of the cyst, splenectomy and partial resection of the tail and body of the pancreas had to be carried out. The wound was closed with drainage.

Convalescence was satisfactory, though for a short time there was a raised fasting blood sugar with occasional glycosuria. On the sixteenth day after operation a glucose-tolerance test showed that the blood sugar was 200 mg. per 100 ml. half an hour after ingestion of 50 g. of glucose. The hyperglycaemia and glycosuria gradually subsided, however, and when the patient was discharged 12 days later carbohydrate tolerance was within normal limits.

Pathological Histology.—The cyst removed at operation measured 12 by 10 by 8 cm. Its surface was smooth and lobulated, and intimately connected with the tail and body of the pancreas, the splenic vessels being stretched over it. Microscopically, the tumour tissue showed the picture of a well-formed, regular mucus-secreting cystadenoma with no evidence of malignancy. The pancreas was normal except for a little dilatation of the ducts. The spleen weighed 280 g., and had the typical appearance of early so-called "Banti's syndrome." The rather small size of this organ was probably accounted for by manipulation during removal.

Discussion

The chief interest in this case lies not so much in the rarity of the pathological condition as in the nature of its manifestation. Among the previously recorded cases the most common symptoms were (a) pain, generally of a vague character, and indefinitely related to meals; (b) dyspeptic symptoms attributable to disease in the biliary tract, such as gallstones; (c) a palpable mass; (d) a diabetic syndrome of variable severity (Carling and Hicks, 1925; Bowers *et al.*, 1942; Benson and Gordon, 1947; Jemerin and Samuels, 1948; Herrman and Asbell, 1949; Johnson and Gibson, 1950). In all these cases one or other of the first three complaints caused the patient to come under the care of a surgeon from the outset; the diabetic state was usually associated with the main symptom, and indicated that the pancreas was involved in the pathological process.

We have not been able to find any reference in the literature to gastro-intestinal haemorrhage as a symptom except in one case quoted by Malcolm (1906). In our case haematemesis and melaena were the outstanding features, and at no time after she came under our care was the patient troubled by pain or dyspepsia. The tumour mass was never palpable, although careful abdominal examination was carried out on many occasions by different observers. Glycosuria appeared for the first time after operation. There was therefore no clear-cut indication for surgery until the eventual decision was made with the object of

reducing the portal hypertension. In fact, the presence of the enlarged spleen was regarded as sufficient reason for conservative treatment.

The term "Banti's syndrome" is no longer fashionable, and has been generally abandoned in favour of the definitive terminology of "congestive splenomegaly" or "hepatolienal fibrosis." As Learmonth (1951) points out, neither of these terms is entirely suitable, for in a small number of cases intrahepatic or extrahepatic block cannot be demonstrated, and the liver may be apparently normal. In the present case, however, the liver was macroscopically and biochemically unaffected, while the splenic vein was obviously obstructed by the tumour; therefore congestive splenomegaly would seem to be the correct term to apply.

The point we wish to make is that surgical intervention should be considered in all cases of congestive splenomegaly, and it should be borne in mind that a tumour (as in this case) may be the underlying cause of the condition; if this is the case the prognosis is good.

We should like to express our thanks and indebtedness to Dr. R. W. Brookfield and Mr. J. Cosbie Ross, Royal Southern Hospital, Liverpool, who kindly took over the subsequent care and treatment of the patient.

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Medical Memoranda

A Very Slowly Developing Hypernephroma

The following case of hypernephroma is worthy of publication, as it possessed several interesting features.

CASE REPORT

A man aged 55 was first seen by one of us (R.P.) on September 26, 1944, complaining of pain and stiffness in the muscles of his right shoulder-girdle. There was limitation of voluntary and involuntary movement at the right shoulder-joint, with marked muscle wasting. His blood pressure was within normal limits, and his urine contained much albumin. On October 14, before he had seen a specialist, he had a urethral haemorrhage with retention of urine. His prostate was not enlarged. He was passing a little urine and clots per urethram. On catheterization a large quantity of dark blood-stained urine was obtained, and next day he was admitted to hospital. X-ray examination showed a secondary tumour in the upper end of the shaft of the right humerus, with a spontaneous fracture, and the left kidney was reported much enlarged. As treatment was regarded as of little avail, he was sent home to die on October 18 with a diagnosis of hypernephroma of the left kidney and metastasis in the right humerus.

He had a good deal of pain in his right shoulder and looked very sick; we decided to try stilboestrol therapy, 5 mg. thrice daily. Within a week clinical improvement was noted. His colour was better, he had less pain in his right shoulder, there were no urinary symptoms, and only a trace of albumin was demonstrated in the urine. As he had improved so much he was seen again at the hospital on January 5, 1945, when the growth in the humerus was larger than before, and red cells were still demonstrable in the urine. The patient, however, continued to improve clinically; he put on weight and had a good appetite. He

was able to use his right arm a little and did some light gardening, and was able to get about. He was very unco-operative about further investigations, but insisted that his improvement was attributable to the stilboestrol tablets, which he continued to take regularly and which did not appear to have any untoward effects.

A further intravenous pyelogram on April 4, 1946, showed a normal right kidney, but the left kidney was double the normal size and showed poor excretion. X-ray examination of the right humerus showed recalcification of the bone, with cystic appearances—so much so that it was thought the diagnosis might lie between localized cystic osteitis and osteoclastoma. No evidence was obtained of tumours in the lungs or elsewhere. Further recalcification of the cystic areas in the right humerus was demonstrable on x-ray examination on June 15, 1946. A retrograde pyelogram and a biopsy of the affected part of the humerus was suggested, but the patient refused. He died on March 1, 1951, six and a half years after the onset of his first symptoms. Throughout he had been taking the same dose of stilboestrol, and, though he did not resume work, he kept comparatively well until after Christmas, 1950, when a sudden rapid deterioration took place. He never complained of other symptoms beyond weakness in his right arm.

Post-mortem Examination.—A large left-sided hypernephroma was found, measuring 16 cm. across, which had displaced all kidney tissue except parts of the pelvis in the lower pole. There were some small terminal secondaries in the lungs, while the initial secondary (in the arm), which had first manifested itself six and a half years previously, had grown to an enormous sausage-shaped growth, measuring 30 cm. in length, and had replaced practically all the tissues of the right upper arm, which consisted, to all intents and purposes, of nothing but this large tumour, covered by intact skin. The forearm merely showed pronounced subcutaneous oedema.

COMMENT

This case is remarkable because of the long survival (over six and a half years), with the presence of a large secondary for all that period, and for the clinical improvement following the administration of stilboestrol. It is difficult to say whether stilboestrol had any effect at all, or whether this was a case of very slowly progressing hypernephroma (see *Choyce's System of Surgery*, 1932, 1, 440, Plate 32). The recalcification of the humerus at one stage of the disease is interesting, but it is known to occur in pathological fractures of long standing.

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A Case of Carotinaemia

Although carotene is physiologically present in the skin, imparting a yellow component to the normal colour (Edwards and Duntley, 1939), only rarely are sufficient amounts present to cause carotinoderma. The condition is always caused by pathological amounts of carotene in the blood (carotinaemia) due to ingestion of excessive quantities of foods containing carotene, especially carrots and oranges, and to a lesser extent to an overabundance of green vegetables in the diet. The following case is of interest, first, because the patient suggested the correct diagnosis to her medical adviser many months before its true nature was elicited; secondly, because another practitioner thought the yellow colour was a dye caused by working some years previously in a munitions factory; and, thirdly, on account of the unusual involvement of the soft palate.

CASE REPORT

A housewife aged 28 was admitted to hospital with a threatened abortion. She was 28 weeks pregnant. The house-surgeon noticed that her palms, soles, and face were

unnaturally yellow in colour. He suspected that dye was responsible, and reported that the colour disappeared when the skin was rubbed vigorously with cotton-wool soaked with ether meth. I saw the patient four days later. Her skin was of normal texture, but there was a bright yellow discoloration of the forehead, cheeks, and nasolabial folds, and a deeper yellow, almost orange, discoloration of the palms and soles. The edges of the affected areas faded gradually to normal skin colour. The only other abnormal finding was the startling yellow appearance of the soft palate. This had a sharply demarcated border at its junction with the hard palate, which was normal. She did not wear dentures. In attempting to demonstrate the fading of the colour when rubbed with ether meth., it was apparent that the colour was, in fact, irremovable. The house-surgeon had been misled by the blanching of the skin; if he had waited for 10 seconds after applying the ether meth. he would have seen the yellow colour return unaltered.

Investigations showed a moderate degree of hypochromic anaemia, normal white cell count, negative van den Bergh reaction, and blood cholesterol within normal limits. The urine was of normal colour and contained no abnormal constituents.

Her history revealed that she had no great liking for oranges, but had been eating 1 lb. (454 g.) of raw carrots daily for the past 12 months. Her reason for this extraordinary dietary fad was that she had been advised by a friend to eat raw carrots as a treatment for constipation. She found this most successful and also developed a tremendous liking for the vegetable.

She noticed the yellow discoloration of her skin four months later (before she became pregnant). She commented on the fact to her general practitioner and asked whether the carrots were responsible. She was told there was no relationship, so continued to eat the carrots.

On omission of carrots from the diet the discoloration of the skin faded rapidly, and had entirely disappeared after four weeks. Her pregnancy continued.

COMMENT

According to most textbooks which mention this disease it has to be differentiated from jaundice. This should be straightforward, as the pigmentation is not always generalized, the sclerae remain uncoloured, while the distribution of colour is maximum in the nasolabial folds and on the palms and soles, whereas in jaundice these are least affected and mucosal membranes and sclerae are most coloured. Urine and faeces are unchanged, there is no itching of the skin, and no effect on general health. The pigment is transmitted by breast milk (Jegners, 1943). Greene and Blackford's (1926) three-layer test makes possible the diagnosis of carotinaemia despite the presence of excessive quantities of bilirubin in the blood. Equal parts of serum, alcohol, and petroleum-ether shaken together in a tube separate into three layers on standing. The top layer of petroleum-ether contains the carotene pigment, the middle layer of alcohol holds the bilirubin, and the bottom layer consists of precipitated serum proteins.

Despite this emphasis on the differential diagnosis from jaundice, this diagnosis was not even considered in the above case, and of five cases described by Almond and Logan (1942) only one was referred to hospital as a case of jaundice. The others were cases of pernicious anaemia, haemolytic anaemia, and cholelithiasis, and a breast-fed infant aged 2 months.

Various explanations have been given for the fact that the areas of maximum concentration of pigment are fairly constant. Wood and Agnor (1914) state that excess carotene is destroyed in the body or excreted in the sweat. Histological sections show that carotene is found principally in the superficial horny layer of the skin and that its concentration becomes less in the deeper layers. This is generally explained by assuming that when sweat excretion is heavy some of the pigment is reabsorbed by the horny layer. This is