treatment should improve the otherwise poor prognosis of these cases as reported in previous studies.

We would like to thank Dr. R. W. Brookfield and Dr. C. M. Ogilvie, for their permission to publish this case, Dr. C. A. St. Hill for his assistance and the nursing staff of the Intensive Therapy Unit.

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MALIGNANT TUMOURS OF MECKEL'S DIVERTICULUM

Case Report of a Leiomyosarcoma and a Review of the Literature

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MALIGNANT tumours arising in a Meckel's Diverticulum are so rare as to be regarded as surgical and pathological curiosities. There have been only two previously reported cases in the British literature (Aird, 1952; Barrett, 1954). A number of papers exist in the American literature and the best review is that of Weinstein, Dockerty and Maugh (1963), who, in a collective review reported a total of 35 cases of sarcoma arising from a Meckel's Diverticulum.

Case Report

B.P., male, aged 50, was admitted as an emergency on 3/9/64 with abdominal pain of 36 hours duration. He was well until two days previously when he awoke at night, shaking and sweating. The following morning he was weak but otherwise well. Twelve hours later he developed continuous upper abdominal pain which later spread to the lower abdomen, being worse on the left side. The pain remained constant and did not radiate further. He was more comfortable when lying still and it hurt to cough. There was anorexia and nausea but no vomiting. There had been a loose bowel action on the day of admission. There were no previous similar episodes.

On examination he was afebrile, pulse 100, BP 130/80 mm. Hg. He was in some pain and his tongue was thickly coated. There was no adenopathy. The abdomen was distended but there was no visible peristalsis. There was tenderness on both sides of the lower abdomen with marked rebound tenderness. Bowel sounds were diminished. There was no abdominal tumour palpable and no rigidity. Rectal examination revealed soft faeces, but no masses were palpable. The serum amylase was normal.

Operation. At operation what appeared to be a gangrenous Meckel's diverticulum was found, and this was removed by simple excision as the small intestine around the neck of the diverticulum was found to be healthy. The regional lymph nodes were not enlarged and the appendix was normal, as was the pelvic colon. There was no peritonitis. The abdomen was closed without drainage and antibiotics given post-operatively as well as intravenous therapy and naso-gastric suction. Recovery was uneventful.

Pathological Report: "The specimen consists of a piece of tissue stated to be a Meckel's diverticulum. It is composed of necrotic tissue and dense white tissue which has the macroscopic appearance of neoplasm. In the centre of the specimen there is a space which appears to be lined by mucous membrane. At one point the tumour appears to have broken through the outer surface of the specimen, which again appears to be part of a bowel wall. Histological examination shows the mucous membrane is in fact gastric mucous membrane and the rest of the specimen is composed of

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interweaving spindle-shaped cells. No outer muscle coat can be recognised in the sections, the surface being covered with inflammatory exudate, blood and fibrin. In some areas there is considerable pleomorphism of these spindle-shaped cells and again in some areas mitotic figures can be found, though these are generally scanty. A little collagen is present in this tumour but the general appearance is in favour of a leiomyosarcoma of low grade malignancy."

Since discharge the patient has been seen regularly at follow up and remains well.

Discussion

In the embryo the omphalomesenteric duct joins the gut to the yolk sac and is normally obliterated by the fifth to seventh week. If it is not completely obliterated it may give rise to a complete fistula opening at the umbilicus, an enterocyst, a Meckel's diverticulum, or simply a fibrous band attaching the intestine to the umbilicus. A Meckel's diverticulum is present in about 2% of people and is situated on the antimesenteric border of the intestine, up to 100 cm. from the ileocaecal valve. It is usually about 5 cm. in length and is commoner in males than females. It causes disease in about 20% of those who possess it. It is normally lined by ileal mucous membrane but may contain heterotopic gastric (commonly), biliary, jejunal, pancreatic or colonic mucosa. Its complications are inflammation, ulceration, haemorrhage, perforation, intestinal obstruction and tumour formation, which is rare. The commonest benign tumour is a leiomyoma of which twenty-six cases have been reported. Of the malignant tumours sarcoma is the commonest, followed by carcinoids and then adenocarcinomas.

The first report of a sarcoma arising in a Meckel's diverticulum was that of Fried (1902), and this was a fibromyosarcoma. Since then only 35 cases have been reported, and about half of these have been leiomyosarcomas. It is important to realise that these tumours arise from the smooth muscle in the wall of the diverticulum and not from the heterotopic mucosa that sometimes lines them. It is also important to be sure that the tumour does in fact arise from within a diverticulum and not from the normal intestine. The presence of a remnant of the diverticulum is the most important evidence, but the presence of heterotopic mucosa may also be important in helping to confirm the presence of a diverticulum. In the absence of these, Fahim and Pratt (1959) emphasise the diagnostic value of enlarged rem-

nants of the vitelline vessels. These sometimes arise from the mesentery of the ileum and cross the bowel to supply the tumour. According to Starr (1953), malignant lesions are not smaller than 2 cm. by 1 cm., and the majority of them are all large tumours, in contrast to the benign tumours, which are small. With regard to the histologic criterion of malignancy Starr emphasises the presence of mitotic activity in the tumour, with cellularity and pleomorphism as supporting factors. Leiomyosarcomas metastasise by vascular embolisation and by peritoneal seedling deposition. The lymph nodes are not affected. Treatment therefore should consist of removing the segment of intestine containing the tumour, without the necessity of wide lymph-node removal. This is in contrast to adenocarcinomas which metastasise to the mesenteric and aortic nodes and liver, and here a wide excision of the tumour as well as the mesentery is indicated. The commonest symptom in practically all cases of malignant tumours has been abdominal pain, usually accompanied by nausea and vomiting. However melaena is often a presenting symptom with leiomyosarcomas. The commonest finding on physical examination was abdominal tenderness and frequently a mass was palpable as well. The prognosis for these tumours corresponds closely with the histologic grade of malignancy.

Summary

A leiomyosarcoma of a Meckel's diverticulum is reported and a brief review of the literature carried out. These are rare tumours and so far few have been reported.

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