foramen ovale by a pedicle 15 mm. in diameter. The tumour projected longitudinally towards the mitral valve and the tip protruded through the valve orifice for 10 mm. The tumour was brownish in colour and resembled in many ways an ante-mortem thrombus, but also contained areas suggestive of myxomatous change. The mitral and other valves were normal.

Histology.—The tumour consisted largely of a rather structureless fibrillary basophilic material, having a mucinous appearance, in which were scattered groups and cords of rather rounded cells with eosinophilic cytoplasm. There were numerous blood-filled spaces present, many of which were lined by flattened endothelium-like cells, giving the growth in places an angiomatous appearance. A considerable amount of iron pigment was scattered throughout the tumour, particularly near its attachment. It did not invade the endothelium, but was attached to it along its surface, and in places faded imperceptibly into it. The appearances were those of the so-called pseudomyxoma of the heart.

Discussion

The benign myxoma is the commonest primary cardiac tumour, and is thought to rise from thrombosis in the atrium. Structurally it resembles the mass thrombus associated with mitral stenosis (Evans and Benson, 1948), but it may occur in the absence of valvular obstruction as in this case, and the actual mechanism of production is unknown. The site of attachment may be on either side of the atrial septum and almost invariably at the foramen ovale. When on the right side, the signs resemble those of superior vena caval obstruction, as in the case of Macoun (1949), and the clinical picture of mitral stenosis may be simulated when the tumour arises from the left side of the septum (Jensen, 1934; Bien and Ch'in, 1936; Hamilton-Paterson and Castleden, 1942; Thompson, 1944; Burnett and Davidson, 1945; Nanson and Milnes Walker, 1952).

The following points have been stressed by writers concerned with the diagnosis of this condition:

Short History of Symptoms, Followed by Inexorable Downward Progress and Failure to Respond Adequately to the Usual Lines of Treatment.—Symptoms had lasted only six weeks in one case (Houck and Bennett, 1930), two months in another (Allison and Susman, 1949), and twelve months in another (Fawcett and Ward, 1939). The tumour is presumably symptomless until it begins to engage in the A-V orifice, obstruction rapidly becoming severe, owing to the driving down of the tumour between the mitral cusps.

Pain.—This has been mentioned as a feature in most of the case histories described, both the common type of submammary ache and the less commonly encountered true anginal pain. But this symptom is relatively so common in rheumatic mitral disease that it can be of little diagnostic value.

Postural Fainting and Postural Dyspnoea.—Sudden syncopal attacks have often been referred to in case reports, but they have not occurred in all cases. Suspicion would be aroused, however, if postural fainting were a dominant symptom.

Murmurs Varying with Posture.—Several cases are reported to have shown this phenomenon, but it is such a common finding in ordinary mitral stenosis that little significance can be attached to it.

It would seem that a short history of symptoms, and fairly rapid deterioration, combined with absence of the classical radiological appearances of mitral stenosis, are the only helpful indications of the presence of a left atrial tumour.

Our thanks are due to Dr. W. Sutton and Dr. Ronald Ellis, to Mr. Ronald Edwards, and to Miss Duckworth for the drawing.

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Medical Memoranda

Perforation of Intestinal Tuberculous Ulcer

Perforation of a tuberculous intestinal ulcer is thought to be very rare. The report of a case by Douglas (1953) has stimulated me to add the following case to the few already recorded.

CASE REPORT

A man aged 25 was brought to me with a history of diffuse abdominal pain of four days' duration. The pain had started around the umbilicus and had then become diffuse. It had not increased in severity since it started. The patient had vomited several times on the first day. On examination he looked emaciated, with pale conjunctivae, and had a toxic appearance, a dry furred tongue, and oedema of both feet. His pulse was 125 and of poor volume. His abdomen was moderately distended, and there was a generalized tenderness, especially marked in the right iliac fossa. The abdomen was rigid, particularly in the right iliac fossa and on the right side. On screening the abdomen a large quantity of gas was noted under the right leaflet of the diaphragm. A perforation was diagnosed. It was labelled "? duodenal ulcer perforation, ? an ambulant typhoid with intestinal perforation" (such perforations being very common in India).

Operation.—On opening the abdomen thin watery and slightly purulent fluid welled out. A duodenal perforation was searched for and excluded. The distal part of the small gut was carefully examined and in its distal 2-3 feet (60-90 cm.) many peritoneal tubercles were found in groups, and one of the groups showed a tiny perforation. The perforation was closed in the usual way.

COMMENT

Although perforation of a tuberculous ulcer of the small intestine is thought to be very rare, Brown and Sampson (1926) say that it is not so very uncommon. They estimate the frequency of such perforations at 3.7%.

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Pectus Excavatum

The term "pectus excavatum" describes the funnel-shaped depression of the front of the chest caused by backward displacement of the lower sternum. In the past various aetiological factors were thought to be the cause of the deformity, but it is now attributed to congenital shortening of the anterior part of the diaphragm (Brodkin, 1949), the deformity becoming apparent as growth proceeds. If severe it may cause secondary mechanical effects on the respiratory and cardiovascular systems, but these are generally mild and most patients are free from organic symptoms. By contrast, functional disturbances often give rise to symptoms (*British Medical Journal*, 1952), and attempts to preclude them by operative correction of the deformity in childhood have been advocated in America by Dörner (1950), Lester (1950), and others, and have recently been reported in Great Britain by Chin and Adler (1954). In the following case the diagnosis of pectus excavatum was followed by the prolonged incapacitation of a symptomless patient.

CASE REPORT

At a routine medical examination a symptomless school-boy aged 12 was found to have a cardiac murmur and pectus excavatum. His family doctor confirmed these findings and referred him to a cardiologist, who believed the murmur was not of organic significance, but on detecting albuminuria he referred him for investigation to a general hospital, where a chest radiograph suggested tuberculosis, and he was

therefore transferred to a sanatorium. Soon after arrival he developed fits, and because albuminuria persisted he was referred to another hospital, where, the mother alleges, she was told at an out-patient consultation that the boy was suffering from two serious diseases, and she was advised to put him to bed at home and wait for him to die. He returned home to bed, where he remained 12 years, was cared for and educated by his family, and grew from a symptomless boy into an anxious adult. Twelve years later he got up because the family doctor suggested that a change of routine could not result in a worse outcome than was previously forecast. For 10 years he worked as a clerk, without illness, until the age of 34, when fits recurred, and for the investigation of these a new doctor referred him to another hospital, where he appeared in outspoken fear of a further period of prolonged rest. From his description the fits suggested attacks of petit mal, and on clinical examination an apical systolic murmur and pectus excavatum were noted, the latter being very severe. It measured 7.5 cm. in depth and had a capacity of 530 ml. The lungs were normal on clinical and radiological examination and there was no albuminuria.

It was thought that no organic disability existed, but on account of the patient's anxiety and the unusual story he related full investigation was recommended to reassure him about his health. By full cardio-respiratory investigation it was shown that both pulmonary and cardiac function were adequate and normal. Electroencephalography confirmed the occurrence of petit mal, and renal and urine investigations revealed normal kidney function with orthostatic albuminuria. A search for old case reports disclosed that, when tuberculosis was suspected at one hospital, a negative reaction to a tuberculin skin sensitivity test had been found elsewhere.

COMMENT

This case illustrates an unfortunate sequel to an alleged erroneous prognosis, and the usefulness of modern investigations in restoring confidence and eradicating the fear engendered in a symptomless patient 20 years earlier.

I am grateful to Dr. Neville Oswald for permission to report this case.

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The Relief of Recurrent Pancreatitis

Recently a number of papers and letters on this topic have appeared in various British journals. Holt (1954) lists ten different operative procedures applicable to the treatment of recurrent pancreatitis and gives 14 references, but nowhere does he refer to choledochojejunostomy-en-Y or to publications by Bowers and Greenfield on the subject. The operation of choledochoduodenostomy which Holt mentions is attended by grave disadvantages, notably the risk of cholangitis. Cattell and Warren (1953) in their book on surgery of the pancreas deal at length with recurrent pancreatitis, but although they include Bowers's papers among their references they do not mention the operation he advocates.

CHOLEDOCHOJEJUNOSTOMY-EN-Y

The operation of choledochojejunostomy-en-Y consists in division of the lower end of the common bile duct, closure of the distal stump, and anastomosis of the upper end of the duct to the end or side of a long side-limb of jejunum. This procedure is usually not difficult and does not give rise to shock, but it does demand a neat and careful technique. For operative details the reader is referred to papers by Bowers (1951), Bowers and Greenfield (1951), and myself (Barclay, 1950), and also to a more recent publication by Bowers (1954). Personally I do not always use an indwelling

tube, and if I do I remove it early. I prefer two layers of sutures, one largely in surrounding fibrous and fatty tissues.

This operation ensures that all bile is diverted away from the ampullary region. In my experience of five patients, the first of whom was operated upon in 1948, it has given complete relief of pain, the major and disabling symptom in recurrent pancreatitis. It has also completely relieved pain in a patient in whom cholecystjejunostomy without duct division had been performed with only partial relief.

There is evidence from my small series that in some instances pancreatic function continues satisfactorily, although in one case the pancreatic condition undoubtedly progressed, as both mild symptoms of pancreatic insufficiency and diabetes developed in the first two years after operation. Nevertheless, until he was admitted to hospital for stabilization of his diabetes the patient had not been absent from work or realized he was unwell. In no case has there been a repetition of the pain, nor any illness even resembling acute pancreatitis. Some of these patients had had repeated severe attacks of pain before operation.

The operation at least leaves the pancreas to go its own way, and there is no evidence that this is dangerous. If the organ does eventually atrophy, the longer the patient has the benefit of internal and external pancreatic secretions the better. The obvious risks—stricture of the choledochojejunal anastomosis and cholangitis—have not apparently troubled the patients treated by Bowers and Greenfield. Extensive experience with choledochojejunostomy for bile-duct lesions and carcinoma of the ampulla gives little reason to fear duct stricture. In one of my patients in whom jaundice developed five years after operation I removed multiple stones from the common duct and repaired a moderate degree of stenosis of the anastomosis. In this case gross biliary infection had existed before the duct was transplanted.

The risk of stricture in the hands of a careful surgeon should not be great enough to deter him from using this operation. The danger of cholangitis is a myth, as was shown by Peterson and Cole (1948) and by Cole, Reynolds, and Ireneus (1948), so long as the jejunal limb is made at least 18 inches (45.7 cm.) long. Theoretically, peptic ulcer might be a late complication. If this does occur, partial gastrectomy should give satisfactory results.

Here, then, is an operation which removes no functioning organ, gives prompt and adequate relief of symptoms, is neither unduly difficult nor dangerous, and so far (six years) seems not to give rise to late problems. Its use does not preclude later pancreatectomy, but simplifies it. Choledochojejunostomy-en-Y seems therefore to be the logical operative treatment for patients suffering from recurrent pancreatitis. It is of course reasonable, where there is gross calculous, gall-bladder, or common-duct disease, to perform cholecystectomy and duct drainage as a first step. If, however, attacks continue, I believe that transplanting the bile duct into the jejunum is infinitely the best procedure available. All five of my patients are now well. The only complication which arose has already been referred to.

A case successfully treated by transplanting the duct after cholecystectomy had failed to relieve the patient's symptoms is described below.

A SUCCESSFUL CASE

A man of 56 was admitted to hospital on September 19, 1946, with a history since 1916 of attacks of upper abdominal pain going through to the back, becoming progressively more frequent, more severe, and of longer duration. The usual onset was soon after eating. There was a marked feeling of distension with the pain; relief by vomiting was temporary and constipation was usual. About eight hours before his admission he had sudden very severe pain with nausea. He had elsewhere undergone cholecystectomy, performed by a very capable surgeon, some eight months previously, the gall-bladder containing stones. The attacks were not relieved at all by this operation. He had never been jaundiced. For three weeks before admission he had suffered bouts of pain almost every day, and the previous