

## PANCREATITIS IN THE AFRICAN

H. H. LAWSON, F.R.C.S. (ENG.), *Department of Surgery, Baragwanath Hospital, and the University of the Witwatersrand, Johannesburg*

In the mainly urban African population served by Baragwanath Hospital, pancreatitis is, in my experience, one of the commonest causes of upper abdominal pain. The condition differs in many respects from that seen in European practice, and in this article a retrospective survey has been made from the available records of 70 patients.

From January 1957 to June 1961 about 250 cases were recorded in the Registrar's office as 'pancreatitis', but of these only 70 were accepted where the diagnosis was established beyond reasonable doubt, based on one or other of the following criteria:

1. A typical clinical picture, supported by: (a) a raised serum-amylase level of over 40 Street-Close units, or (b) an epigastric mass which resolved, or (c) X-ray evidence of calcification in the pancreas.

2. Operative findings.

3. Postmortem findings.

### SIGNS AND SYMPTOMS

#### General Condition

Shock was uncommon in this series, only 14% being admitted with a low blood pressure and the other manifestations of shock. The mortality, however, was 50% when shock was present.

The general condition was usually reasonable, only 4 males being described as grossly undernourished with signs of pellagra. Jaundice was recorded in 3 patients, and was confirmed by raised serum-bilirubin levels. One of these patients was proved to have chronic pancreatitis at operation, and one of the patients had gallstones, but did not come to operation.

In 2 patients glycosuria was recorded during the acute attack. Diabetes does not seem to occur even in long-standing cases—a patient with pancreatitis of more than 16 years standing, which was proved to be present at laparotomy, did not have diabetes.

#### Age and Sex

The age incidence is recorded in Fig. 1. Three-quarters of the patients were males, the youngest being 10½ years and the oldest 69 years. The average age of the males was 30 years, while that of the females was 40 years. Cases occurring in infants, associated with mumps, have not been included in this survey.

From Fig. 1 it can be seen that the maximum incidence is between 20 and 49 years, and that pancreatitis below 19 years is uncommon.

#### Duration of Symptoms

In 11 cases the history appeared to be one of hours only, while in 52 the duration of the pain was about 4 days. The length of history was by no means an indication of the likely outcome, as will be seen from an analysis of those patients who died.

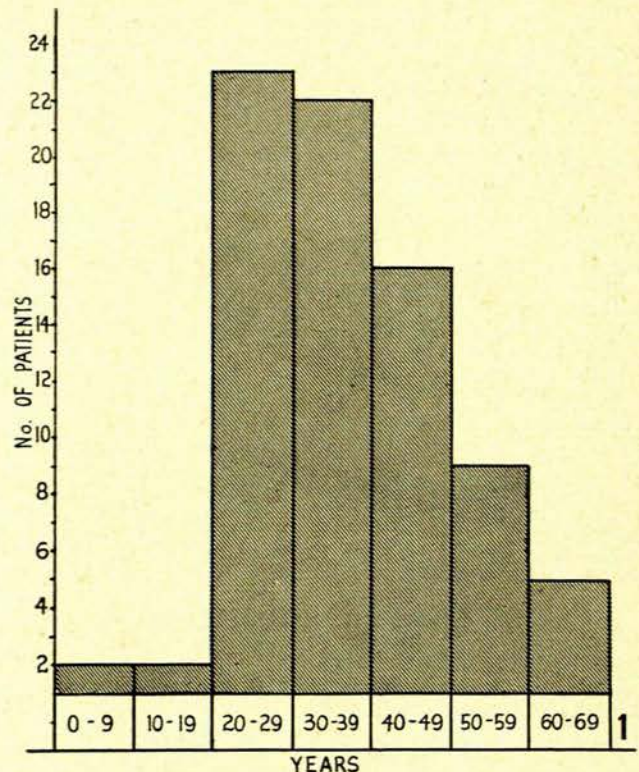


Fig. 1. Numbers of patients in 10-year age groups.

#### Pain

This was a constant feature, and was frequently very severe indeed. The exact position varied, but in 43% the pain was upper abdominal, usually epigastric or right hypochondrial, and frequently radiated into the back—this was volunteered by 20% of patients. Of those patients who were specifically asked about it, 17% denied radiation.

In isolated cases the pain was substernal, in the loins, in the shoulders, generalized in the abdomen, or localized to the region of the umbilicus. The character of the pain was variously described as sharp, burning or intermittent.

#### Vomiting

This was a constant and marked feature, being recorded in 80% of patients. The importance of vomiting is its time of onset in relation to the onset of pain. In 13% the patient volunteered that the vomiting preceded the pain; in the remainder the relationship of vomiting to pain was not specified. This sequence of vomiting followed by pain may have some bearing on the aetiology of pancreatitis.

#### Diarrhoea

This was not a prominent symptom.

#### Alcohol

Only 20 patients were asked specifically about alcohol—there was no reference to this important factor in the remaining 50 patients.

Of the 20 who were asked, 15 admitted to heavy drinking. In 7 the onset of abdominal symptoms was preceded by a large quantity of alcohol, usually for days, and in another 7 of these 15 patients the sequence of events was alcohol, followed by vomiting, followed by abdominal pain.

#### Palpable Mass

The presence of a mass was recorded and confirmed by more than one observer in 12 patients (17%). In 2 patients the mass gradually became smaller and disappeared.

Six patients with a palpable mass came to laparotomy. The mass was found to be a cyst in 3 patients, and an inflammatory mass of omentum surrounding a necrotic mass of pancreatic tissue in the other 3.

#### PAST HISTORY

This was recorded in 61 patients, and in 73% there was a history of previous similar attacks of pain. In 45% (27 patients) the dates of the previous episodes were recorded; only 1 occurred within the previous 4-week period, the rest being evenly distributed between 6 months and 5 years before the present attack.

#### DIFFERENTIAL DIAGNOSIS

All the causes of the acute abdomen could be listed, but the commonest provisional diagnoses on admission were:

Peptic ulcer — acute exacerbation or perforation	21%
Intestinal obstruction	21%
Pancreatitis	23%
Acute appendicitis	11%
Gastritis	10%
Cholecystitis	6%
Peritonitis	8%

Most of the patients (68%) were admitted to surgical wards; the remainder were admitted under the physicians.

#### SPECIAL INVESTIGATIONS

##### X-ray of the Abdomen

The main use of X-ray of the abdomen was to exclude air under the diaphragm and to demonstrate fluid levels in the bowel. Such features as an absence of gas in the transverse colon, or duodenal ileus, proved to be of little diagnostic value. However, calcification in the pancreas was seen in 5 patients with long-standing disease.

##### Serum Amylase

The South African Institute for Medical Research has recorded serum-amylase levels in Street-Close units from May 1958. The normal value in Europeans is 3-38 units, but in the African no normal has as yet been established. Of those patients in whom the diagnosis of acute pancreatitis was confirmed at laparotomy, none had a serum-amylase level below 86 Street-Close units and all the patients in whom acute pancreatitis was proved at post-mortem examination had abnormal levels. The level of serum amylase as seen normally, and in acute pancreatitis, will be the subject of a further communication.

#### OPERATIVE FINDINGS

These are reported for 17 patients (24%). Because of the difficulty in excluding those causes of the acute abdomen where surgery is essential, 10 emergency operations were

performed. Oedema of the pancreas and fat necrosis were the usual findings. Apart from a drain being inserted down to the pancreas in 4 patients, nothing further was done, and there is no record of a death in this group.

The remaining 7 patients underwent elective surgery. In 3 patients large cysts were drained by cyst gastrostomy, in 2 a cholecystenterostomy was carried out, and in 2 a transduodenal sphincterotomy was performed.

Of the 17 patients who came to operation, gallbladder calculi were noted in 2 only. It can be said, therefore, that according to operative findings, biliary disease in association with pancreatic disease is uncommon. To this may be added the common observation that disease of the biliary system is rare in the Bantu.

#### DEATHS

Eleven patients died, and permission for postmortem examination was obtained in 9. Death was directly attributable to acute pancreatitis in 6 patients, and in none of these had a laparotomy been carried out. In the remainder, pancreatic changes were of a minor degree, the main pathology being cirrhosis, a malignant hepatoma, syphilis, or a duodenal ulcer that had penetrated the pancreas.

There are certain features that appear significant in those patients who died as a result of acute pancreatitis (Table I).

In the first place, there was no evidence of previous abdominal pain in 4 of these 6 patients; 1 had a definite

TABLE I. FEATURES OF INTEREST IN 6 PATIENTS WHO DIED FROM ACUTE PANCREATITIS

Past history	Serum-amylase level (Street-Close units)	General condition	Duration of illness
Nil .. ..	100	Shock	7 days
Nil .. ..	160	Shock	2 days
Nil .. ..	186	Shock	Hours
Nil .. ..	186	Shock	Hours
Not recorded ..	Not recorded	Coma	2 days
Previous pain ..	56	Shock	1 day

history of previous abdominal pain a year previously, and in the remaining patient the records were incomplete.

Secondly, the level of serum amylase is not an indication of prognosis; in none of the 6 patients was it above 186 Street-Close units. In contrast, however, the presence of shock did indicate the likely outcome — 5 of these patients were shocked, and 1 was in coma. The duration of symptoms was also not related to the outcome, 2 having a history of hours only, the remainder of some days.

#### DISCUSSION

If pancreatitis associated with mumps is excluded, it is rare for young people below the age of 20 to be affected, but there is a striking increase once adult life is reached, the maximum incidence of pancreatitis being between 20 and 30 years.

In European series, the biliary system is frequently diseased, and it was stated in a recent annotation in the *British Medical Journal*<sup>1</sup> that in 50% of cases of acute pancreatitis the gallbladder contains stones.

In this series of African patients, there was evidence of biliary disease in only 2 of the 17 who came to operation.

In no case of acute pancreatitis, where operation had been undertaken, was there evidence of biliary disease. In 6 patients, where death occurred from acute fulminating pancreatitis, the biliary system was normal at postmortem examination.

It is postulated that a reflux of clean sterile bile under pressure is the cause of many cases of pancreatitis in Africans, the reflux being the result of excessive vomiting. In support of this is the fact that a history of vomiting is common, being recorded in 80%, and is usually preceded by a period of excessive drinking.

Experimentally, Archibald<sup>2</sup> has described pancreatitis in the cat. Following the injection of clean bile into the pancreatic duct an acute oedema develops, and if a second laparotomy is carried out a few days later, the condition in the pancreas is seen to have resolved completely. Hicken and McAllister<sup>3</sup> have claimed that they have demonstrated the common bile duct and pancreatic duct in 70% of cases by operative cholangiography, or post-operative T-tube cholangiography. Their injections have been made at a pressure not exceeding that of the gall-bladder or common duct, and their inference is that a reflux of bile up the pancreatic duct is a normal occurrence.

More than 70% of the patients in this series had a history of previous similar attacks of abdominal pain,

most of them having been admitted to Baragwanath Hospital in the past. The usual result of the acute episode is recovery. It can be said therefore that in this population pancreatitis differs from that seen in the European, manifesting itself as a recurrent condition, causing pain, but not usually being a danger to life. The maximum incidence is among young adult males.

#### SUMMARY AND CONCLUSIONS

Pancreatitis in the urban African is one of the commonest causes of upper abdominal pain. It is a condition which is recurrent, causes pain, but is not usually a danger to life.

Patients with pancreatitis usually have a normal biliary system, and it is postulated that the usual cause of pancreatitis may be vomiting from excessive alcohol, leading to a reflux of normal sterile bile under pressure into the pancreatic duct.

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#### REFERENCES

1. Annotation (1961): *Brit. Med. J.*, **2**, 694.
2. Archibald, E. (1929): *Ann. Surg.*, **2**, 803.
3. Hicken, N. F. and McAllister, A. J. (1952): *Amer. J. Surg.*, **83**, 781.