# Acute superior mesenteric artery occlusion: problems of pre-operative diagnosis

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SUMMARY. I report five cases of occlusion of the superior mesenteric artery from one general practice; four of these occurred in one year.

The common clinical features were: acute diarrhoea and vomiting in elderly persons (all over 70) with abdominal pain and distension and shock. All had a previous history of auricular fibrillation and cardiac failure and past episodes of clinical arterial occlusive disorders had been experienced by four. Each diagnosis was confirmed at operation and all five patients died. It is important for general practitioners to recognize this syndrome.

## Introduction

IN an ageing population an increasing incidence may be expected in all parts of the clinical spectrum of atherosclerotic vascular diseases. Acute occlusion of the mesenteric arteries is still rare and it is estimated that about 4,000 deaths occur each year from this cause in the UK (OPCS, 1978). This means that a large district hospital may deal with 20 cases each year.

In my general practice during the 15-year period 1963 to 1978, 350 patients suffered an acute abdominal emergency. Of these, five were proven cases of acute mesenteric artery occlusion, four of them occurring in the last 12 months.

This acute abdominal emergency may be occurring more often and if so the general practitioner will have to be alert to this possibility and be aware of its characteristic clinical features.

## Aim

For this reason I report the histories and outcome of my five patients in order to define the syndrome, enable the clinician to make a probable pre-operative diagnosis, and to avoid delay, errors, and maltreatment.

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## Method

The practice is in a suburban area of south-east London, and on average had 8,000 patients during the period 1963 to 1978, of whom 1,205 (15 per cent) have been 65 and over. There is an excellent local hospital service for emergencies.

Special records of acute abdominal emergencies are kept giving clinical details and final diagnosis which have been taken from practice notes and hospital records.

## Results

The five cases are reported in the order in which they occurred.

### *Patient 1*

The first patient was a woman of 75 who had had previous congestive cardiac failure with auricular fibrillation for two years. She had been treated with digoxin and diuretics, and her blood pressure was 190/90 mm Hg. She had previously had transient ischaemic episodes affecting the cerebral arteries, one episode being 12 months before. She had also suffered from intermittent claudication and vertigo.

She presented with a history of 24 hours of diarrhoea and vomiting with severe abdominal pain and some blood in the faeces. She was shocked. The abdomen was soft, distended, and had no local tenderness.

At operation embolism of the superior mesenteric artery was found and the small gut was resected. She died six weeks after surgery of cerebral embolism and embolism of the right axillary artery.

### *Patient 2*

The second patient was a woman of 87 whose past history included osteoarthrosis, recurrent bouts of vertigo, congestive cardiac failure, and auricular fibrillation for two years. She had had a right hemiparesis 15 months before from which she had recovered. Her blood pressure was 220/120 mm Hg and she was being treated with digoxin and diuretics.

She had diarrhoea for two days and vomiting for six hours. There was severe generalized abdominal pain with distension but without blood in the stools. She was not shocked.

At operation a gangrenous small gut was found, no procedures were carried out, and the abdomen was closed. The patient died two hours after operation.

### Patient 3

The third patient was a man of 73 whose past history included congestive cardiac failure and auricular fibrillation for four years. His blood pressure was 195/100 mm Hg and he was well controlled with digoxin and diuretics. He had previously had acute retention of urine treated by transurethral resection of the prostate and had diabetes controlled by diet alone.

He developed diarrhoea and vomiting for three days and was severely dehydrated. There was no abdominal pain and the abdomen was distended and soft.

At operation resection of gangrenous small gut was carried out but he died seven days after operation.

### Patient 4

The fourth patient was a woman of 78 whose past history included migraine, gall bladder disease, and vertigo. She had also had transient ischaemic cerebral attacks and embolised the popliteal arteries. She had been treated with anticoagulants for 12 months before the final episode and had had auricular fibrillation for 12 years treated by digoxin.

She had been vomiting for six hours with diarrhoea for one hour and was mentally confused. She had severe abdominal pain with abdominal distension but no tenderness.

At operation resection of the gangrenous small gut was carried out with a right hemicolectomy. She died three weeks after surgery.

### Patient 5

The fifth patient was a woman of 79 who had been seen only once in the previous five years for swollen legs, when she had been treated with digoxin and diuretics.

She collapsed with diarrhoea and vomiting for 12 hours. She had blood in the stools and was shocked. There was a distended soft abdomen and the pulse was irregularly irregular.

She was admitted to hospital but died within the hour. Her postmortem showed atherosclerotic marked narrowing of the superior mesenteric artery with gangrene of almost the whole small gut.

There are some striking common clinical features in the five cases. All were elderly, over 70 years; four out of five were women; all had a past history of cardiac failure treated with digoxin and diuretics; auricular fibrillation was present in all five; and three out of five had had other clinical manifestations of arterial occlusive disorders in the cerebrovascular system and the legs. In the final acute episode all five patients had a sudden onset of diarrhoea and vomiting as the presenting symptoms, followed by severe pain that was central abdominal and constant in character. Apart from distension there were no notable signs in the abdomen. As time went on dehydration and shock occurred.

At operation (or autopsy in patient 5) there was evidence of complete occlusion of the superior mesenteric artery with gangrenous changes in most of the small gut. In only one (patient 1) was an embolism reported. However, with auricular fibrillation present in all five cases, emboli could have been the cause of the others. Patient 4 had already been on anticoagulants for a year before the final episode.

In four out of the five cases major surgical excision of the gangrenous bowel and anastomosis was carried out. All died but patient 1 survived for six weeks and patient 4 for three weeks.

## Discussion

It is interesting that a pre-hospital diagnosis was made by the general practitioner on the clinical features in four out of the five cases (much to the surprise of some of the junior hospital medical staff!).

There are some important clinical lessons to be learnt from these five cases. First, general practitioners should be aware of acute diarrhoea and vomiting in old people, particularly if these symptoms persist for longer than a few hours and are accompanied by severe pain. The benign endemic diarrhoea and vomiting is not common in the elderly. Elderly people with diarrhoea and vomiting should therefore be seen by the doctor and asked to report if the symptoms do not clear up within six to 12 hours.

Secondly, general practitioners should take note of the association of auricular fibrillation, cardiac failure, and acute diarrhoea and vomiting in an elderly person.

Thirdly, the results of major resection and anastomosis surgery are bad and must be reconsidered. In theory it may be possible to carry out embolectomy or resection of the occluded atherosclerotic superior mesenteric artery but in order to do this the procedures have to be carried out well before the affected bowel becomes non-viable. Early diagnosis and early laparotomy must be the goals.

## Conclusion

This syndrome must be recognized by general practitioners. Whilst it is not common, it will occur in every practice every few years and unless the potential seriousness of the apparently common and benign symptoms of diarrhoea and vomiting in an elderly patient is recognized, mistakes will be made that may lead to complaints and even to litigation by relatives.

## Reference

Office of Population Censuses and Surveys (1978). *Mortality Surveillance 1968-1976.* London: HMSO.