ACUTE INTESTINAL OBSTRUCTION DUE TO DRIED FRUIT

A REPORT OF TWO CASES

BY

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The impaction of a foreign body is a rare cause of acute intestinal obstruction—according to Handfield-Jones and Porritt (1943) in 0.3% of the cases. The following cases, which were due to the ingestion of dried fruits, are worth recording.

Case I

A soldier aged 37 was admitted to hospital with signs of acute intestinal obstruction. Abdominal pain had begun about 24 hours previously. It was not very severe at first, but had latterly increased in intensity, and when seen by us the patient was having very marked attacks of intestinal colic, with much effortless vomiting. Dehydration was present, and an intravenous saline drip was started.

Operation was carried out two hours after admission. The abdomen was opened by a right paramedian incision in the lower region. There was a small quantity of clear fluid in the peritoneal cavity. The small bowel was very distended and the dilated loops were followed down to a point about 5 feet from the ileo-caecal valve. At this point there was a mass of firm material completely blocking the lumen of the gut. The bowel beneath was contracted and empty. With some difficulty the foreign material was pushed along the ileum and finally through the ileo-caecal valve into the colon.

The patient made an uninterrupted recovery, and three days later passed the foreign body. It consisted of a piece of vegetable-like material measuring $1\frac{1}{2}$ in. by 1 in. by 1 in. The pathologist could not identify the exact nature of the vegetable, but the patient admitted, when questioned, that he had been eating dried fruits on the evening before the onset of the pain and that he had swallowed some of the pieces without chewing them very well, as he had been very hungry.

Case II

A cookhouse boy in the Merchant Navy, aged 16, was admitted to hospital in a comatose condition, and died soon after admission. The history stated that he had not felt very well when he arose that morning and had taken no breakfast. In the forenoon, about $7\frac{1}{2}$ hours before his death, he had developed severe abdominal pain, which came in spasms and caused him to roll about his bed. When seen by the medical officer some hours later he had slight diffuse abdominal tenderness, but there was a point of extreme tenderness in the lower abdomen just to the left of the midline. The patient had vomited fairly large quantities of clear fluid. When seen by us the boy was comatose and showed signs of extreme dehydration. There was moderate abdominal distension. Preparations were quickly made for intravenous therapy, but he died before these were completed.

A post-mortem examination was carried out the next day. The body was that of a well-nourished youth. The abdominal cavity contained a quantity of slightly blood-stained material. The stomach and small bowel showed extreme dilatation. This distension was followed down to a point 6 in. above the ileo-caecal valve, where there was a mass of hard substance completely blocking the lumen. On opening the bowel two large pieces of apple were removed. One of them measured 3 in. by 1 in., and showed four small tooth-cuts which went through only a part of the thickness of the substance. The other piece measured about $\frac{3}{4}$ in. square, and had no tooth-markings. The small intestine above the obstructed area had some blood-stained material in it, but in an upward direction the contents became whitish yellow in colour right up to the stomach, which contained a little grey material and much gas. The other organs of the body showed no abnormality.

Careful examination of the foreign bodies confirmed that they were pieces of dried apple which had swollen in the intestinal tract. Inquiries showed that the boy, who assisted the cook, had access to dried apple, which was being used at that time.

Comment

These two cases show the danger attaching to the ingestion of dried fruits without thorough mastication and unless they have been properly cooked. In the first the patient appeared to have "bolted" an excessively large piece of the cooked material. In the second case it seemed to be impossible for the boy to have swallowed such a large mass, and our inquiries showed, in fact, that there had been no official meal of the dried apples for some days beforehand; this suggested that

he had actually eaten the untreated dried apple from the store, that he had found difficulty in chewing it, and that the fruit had become greatly swollen in the presence of the moisture in the intestinal tract and caused complete obstruction. The early collapse and death suggested that the obstruction had probably started primarily much higher in the small intestine than the position of the foreign matter suggested at necropsy. The very acute nature of the process was shown by the blood-stained material in the peritoneum.

REFERENCE

Handfield-Jones, R. M., and Porritt, A. E. (1943). *The Essentials of Modern Surgery*, 2nd ed., E. and S. Livingstone, Edinburgh.

Medical Memoranda

A Series of Unrelated Pathological Conditions in One Case

The findings in the post-mortem examination recorded below are unusual enough to warrant publication.

CASE HISTORY

The patient, a woman aged 49, had had no occasion to consult a doctor for eight years, but immediately before death, which was sudden, had complained of a pain between the scapulae. At necropsy the body was well nourished, but the general appearance was of a woman of 60. Externally there was nothing to indicate the cause of death. On opening the thorax the pericardium was seen to be full of blood. There was a tumour pushing up the diaphragm on the right side: this protuberance was about 3 in. in height from the level of the rest of the diaphragm, and its base was about 9 in. in circumference. There was a similar but smaller upward bulge of the diaphragm on the left side. On opening the abdomen these tumours were found to be herniae of the liver covered by a thin sheet of muscle. They were not neoplasms, but were protuberances of normal liver tissue.

The pericardium was then opened, and a small aneurysm of the ascending and transverse portion of the aortic arch was found to have ruptured into it. There was no free blood in the pleural cavities. The aneurysm was of the dissecting type, and had separated the coats of the aorta as far as a point about 2 in. above the diaphragm.

On opening the heart a well-marked degree of mitral incompetence was found: the endocarditis was evidently ancient history, for the lesions on the valve cusps were firmly fibrosed and organized. The heart muscle was hypertrophied and firm, without signs of dilatation. The aorta was atheromatous; the innominate, left carotid, and subclavian openings were all dilated and rigid; while the coronary vessels were atheromatous, dilated to double the normal size, and projected from the cut surface of the heart muscle.

The abdominal organs showed chronic venous congestion and the spleen was enlarged. The left renal vessels were dilated, the vein admitting a lead pencil with ease. The right kidney was small, but the vessels supplying it were also enlarged in relation to its size. Finally, there was a diverticulum of the jejunum about 12 in. below the duodeno-jejunal junction.

Microscopically the spleen showed replacement of pulp by fibrous tissue. The Malpighian bodies were prominent. There was well-marked endarteritis obliterans. The kidney showed a similar condition of the blood vessels, with degeneration of the Henle and convoluted tubules.

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Workshop.

Oranges causing Alimentary Obstruction

The following two cases of alimentary obstruction caused by oranges may be of interest.

CASE I

A siicosis pensioner aged 56 was admitted to this hospital on Jan. 21, 1945. He gave the following history. At 8 a.m., 14 hours before admission, he was seized with an attack of colicky abdominal pain. This passed off, but recurred at intervals of a few minutes during the day. He had a normal motion in the morning. He ate some dinner, but immediately vomited it. He did not vomit again until after admission. The pain spread across the middle of his abdomen from right to left.

On examination the tongue was furred and the breath rather offensive. T. 98°, P. 80, R. 24. The patient did not look ill. The abdomen was slightly distended; there was tenderness over the whole of the right side of the abdomen. Guarding was generalized except in the left iliac fossa. Peristalsis was vigorous, with loud borborygmi. There was no rectal tenderness.

A diagnosis of small-bowel obstruction was made and laparotomy performed. On opening the peritoneum a little free fluid was found. The small intestine presented, engorged and distended. The whole of the jejunum and about a foot of the ileum were thus affected; the rest of the bowel was collapsed. At the junction of the two portions was felt, within the lumen, a semi-solid body containing a few hard lumps; it was about 1 in. in diameter. It was milked

down to a healthy part of the ileum and removed by opening the bowel. The cause of the obstruction was seen to be a white object, which opened, revealing itself to be the pith of half an orange with some pips. The patient made an uneventful recovery.

CASE II

A pit engine-man aged 66 came to the out-patient department on Dec. 18, 1944, with the story that for a week he had been able to swallow fluids only. Solids would stick when half swallowed and were regurgitated. He had lost some weight and complained of weakness, and his appetite was poor. No previous history of dysphagia; no voice changes.

On examination he was rather thin—in keeping with his story of a week's starvation. There were no signs of anaemia, and no cervical glands were palpable; the thyroid was normal; laryngoscopy showed no signs of disease. Respiratory and other systems appeared normal. A barium swallow revealed a hold-up at the lower end of the oesophagus, rather suggestive of malignancy. There was no dilatation of the proximal part. Oesophagoscopy on Dec. 29 revealed a white foreign body lodged at the lower end of the oesophagus, which appeared inflamed. As it was too large to pull through the tube the oesophagoscope and mass were withdrawn together. On close examination the foreign body was seen to consist of the rolled-up pulp of half an orange. The oesophagoscope was then passed easily to the cardiac orifice. Apart from some inflammation at the level of the obstruction, the oesophagus appeared normal.

Next day the patient was able to take an ordinary diet with scarcely any discomfort. A barium meal shortly afterwards revealed a suspicion of either malignancy or ulceration at the cardiac end of the stomach. Since discharge the patient's condition has been satisfactory.

Our thanks are due to Dr. H. M. N. Calder and Mr. R. S. Venters, respectively, for permitting us to publish these cases.

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Intestinal Obstruction by a Foreign Body

In view of the recent importations of dried fruits from abroad there is quite a risk of intestinal obstruction following the ingestion without mastication of large morsels and their subsequent swelling in the alimentary tract. Although the present case relates only to an ordinary orange, the further possibilities of such cases should be kept in mind.

CASE REPORT

A woman aged 60 was admitted on the evening of Feb. 24, 1945, to the Derby City Hospital with a history of acute epigastric pain and continual vomiting since 11 p.m. the day before. Her bowels had last acted the previous morning. Examination revealed no distension of abdomen, but faeces in the rectum and a moist tongue. There was a small mass to the left and above the umbilicus, probably omentum in a para-umbilical hernia. This did not seem sufficient cause for her acute distressing symptoms, and after being placed on intravenous glucose-saline a laparotomy was performed. There was an obstruction due to an oval-shaped mass in the ileum about 2 feet from the ileo-caecal valve. This was removed and the intestinal wall repaired. The para-umbilical hernia was found to have spontaneously reduced itself. Examination of the mass (see Fig.) showed it to be half an orange.

The patient has artificial teeth, but they are not used because she cannot "master them." She vigorously denies swallowing part of an orange, but admits to sucking a half of one about 26½ hours previous to the appearance of symptoms.

I wish to thank Sgt. Fayres for taking the excellent photograph.

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Sulphonamide-resistant-Penicillin-sensitive

Just as bacteriological findings elucidated the treatment of empyema and explained the disasters after draining streptococcal effusions, so the dawn of penicillin with new rays of hope may help in cases of appendicitis where the streptococcal nature of the infection is known early enough and cultures show the sensitivity to sulphonamides and penicillin. This point is illustrated in a case of streptococcal subphrenic abscess following perforated gangrenous appendicitis recently admitted under my care.

CASE REPORT

A schoolgirl aged 16 was admitted to the Gloucestershire Royal Infirmary on Dec. 3, 1944, with the following history: On Nov. 30 she slipped in the mud when playing netball, and in the afternoon complained of severe pain in the right loin. This was followed by sickness during the night. The doctor called in suspected contusion of the right kidney. On the morning of Dec. 3 her condition was obviously serious and she was transferred to hospital. On admission her temperature was 101.8° and pulse 106, and the tongue was furred. She was tender in the right iliac fossa and the right loin and was resistant. Acute appendicitis was diagnosed, and an operation was performed immediately.

A muscle split incision revealed foul-smelling pus. The appendix was felt retrocaecally, but was not disturbed, and a wide drain was introduced. A course of sulphathiazole was given for five days, but her temperature remained between 100° and 102° and her pulse rate varied from 104 to 136 for two weeks. There was little discharge from the wound, but a faecal fistula developed, which closed after 10 days. There were no signs at the base of the right lung to suggest an abscess below the diaphragm and no collection could be felt either in the abdomen or in the right loin. There was, however, tenderness over the last rib. An x-ray examination with a portable apparatus was inconclusive. Sulphadiazine, 2 g. four-hourly, was administered at this stage, but though tolerated well did not influence the case clinically.

On Dec. 20 subphrenic abscess was suspected so strongly that exploration was decided upon. The twelfth rib was resected and an abscess between the liver and the diaphragm was evacuated by separating the liver from the thoracic wall. This was drained with a split tube. On Dec. 22 there was no improvement in her general condition, as would have been expected after drainage, but this was explained by Dr. E. N. Davey's report on the cultures of the pus—a growth of *Str. viridans*, which was sulphonamide-resistant but penicillin-sensitive. Dr. Davey advised immediate treatment with penicillin locally and systemically. This was carried out under his supervision.

The abscess cavity was injected with 2,500 units of penicillin four-hourly, and a solution of penicillin in saline (100,000 units per 1/2 litre) was introduced into the outer side of the thigh intramuscularly daily for 4½ days. On Dec. 23 her condition was critical, her pulse rate being 140, and she refused fluids.

The next afternoon there was a dramatic improvement in her condition. She was eager for her food and had obviously turned the corner. Her progress has been steadily maintained. Cultures from the wound on Dec. 24—48 hours after giving penicillin—grew a light growth of *Str. viridans*. After a further 48 hours the cultures were sterile.

COMMENTS

The knowledge that the cultures were sulphonamide-resistant and penicillin-sensitive undoubtedly saved this patient's life, for without it the permission to use penicillin would not have been granted. The effects of the penicillin were not obvious for 48 hours. It is clear, therefore, that there is no time to lose, and penicillin should be available immediately.

DR. E. N. DAVEY'S COMMENTS

This case stresses the importance of making a bacteriological examination of pus in all cases of infection, no matter how obvious the type may appear. The foul-smelling pus at the primary operation no doubt suggested a coliform infection, but, in view of the finding of streptococci in the subphrenic abscess, it raises the question as to the exact nature of the appendicular infection at the outset.

The necessity for the bacteriologist not only to report the nature of the organism but also to assess the sensitivity of the microbe to sulphonamides and to penicillin is also made evident, so that time and useless application of these new methods of treatment may be saved.

A difficulty in the application of penicillin treatment seems to be to ascertain when it is safe to discontinue its use. In this case we were guided (1) by the clinical improvement as shown by the return of pulse and temperature to normal; (2) by the fall of the leucocyte count from 16,600 per c.mm. (85% polymorphonuclears) at the time of the subphrenic abscess, collected on Dec. 16, 1944, to 8,600 per c.mm. on Dec. 27, 1944; and (3) by rendering the discharge from the wound sterile.

My thanks are due to Dr. Cairns Terry, physician, and Dr. E. N. Davey, pathologist, to the Gloucestershire Royal Infirmary, for their co-operation in this case.

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