VOLVULUS OF SMALL BOWEL DIAGNOSED PRE-OPERATIVELY

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Volvulus of the small bowel is a comparatively rare condition. In Vick's (1932) collective statistics of 6,892 cases of intestinal obstruction volvulus was the cause in 176, one-fifth of them involving the small bowel. Most authors stress the difficulty of early diagnosis, and pre-operative diagnosis of this condition is so rare as to warrant the publication of the following cases.

Case 1

A 42-year-old woman was admitted to Surgical Department A of Frederiksberg Hospital as an acute case with a history of recurrent attacks of abdominal pain after undergoing a total hysterectomy for fibroids in a gynaecological department one year earlier. Thirty-six hours before admission diffuse pains had started in the upper abdomen; her bowels had been open 20 hours before admission. During the last 12 hours the pains had moved down in the right lower quadrant, and no flatus had passed.

On examination her temperature was 38.2° C., pulse 100. The tongue was dry, and direct and rebound tenderness was elicited in the right iliac fossa with a maximum about McBurney's point. The lower midline scar after the operation showed no hernia. A pelvic examination revealed extreme tenderness on both sides, especially the right. With a preliminary diagnosis of intestinal obstruction, perhaps appendicitis, operation was decided upon. (A phone call to the gynaecological department had given information of the extent of the gynaecological operation.)

At operation the abdomen was opened through a right lower pararectal incision; large amounts of thin faecal-smelling fluid gushed out, and dilated coils of small bowel were found. After removal of the normal appendix a cystic mass the size of a grapefruit was found in the pelvis. When lifted forward it was seen to consist of a gangrenous loop of ileum, twisted twice anti-clockwise. After cutting a fresh adhesion to the left ovary, detorsion was easy. A resection of 30 cm. of small gut with side-to-side anastomosis was carried out. The post-operative course was smooth.

Case 2

A 36-year-old woman was admitted to hospital for ileus one month after Case 1. Six months previously a supra-vaginal amputation of the uterus and a bilateral salpingo-oophorectomy had been done in the gynaecological department for benign disease. Since then she had had several attacks of pain in the right fossa. For three days she had been suffering from meteorism and borborygmi; her bowels had last been open 48 hours before admission. No flatus had been passed during the past 24 hours, and she had vomited three times. Clinical assessment of this case was rendered difficult because she had received several soothing injections by attending doctors at home before admission.

On examination the temperature and pulse rate were normal; the tongue was dry. The abdomen showed a lower midline scar; there was no dilatation or tenderness. A pelvic examination revealed a mobile uterine stump. With a suspicion of small-bowel volvulus—being wise after the above case—a straight x-ray examination of the abdomen was made. This revealed a coil of small bowel filled with fluid and air, showing air and fluid levels in the pictures taken with the patient erect: this is a characteristic picture of volvulus.

At operation the abdomen was entered through a lower midline incision through the old scar. Bloody fluid was met with. A dilated, bluish-red coil of ileum was found twisted once anticlockwise, fixed by a fibrous band to the mesentery and some smaller ones to the upper part of the old scar.

The gut was freed, and detorsion was easily accomplished. As the gut was viable the abdominal wall was closed in layers. The post-operative course was uneventful.

Discussion

Any condition causing fixation of one part of the gut while the neighbouring coil is mobile may lead to volvulus. It seems probable that a sudden filling of one segment of gut may lead to volvulus (Kerr and Kirkaldy-Willis, 1946), and peculiarities of diet may contribute to this (Kallio, 1932). According to McKechnie and Priestley (1936), the ileum is most frequently involved, especially the lower and middle parts. The gut rotates around the axis of the mesenteric artery, and a closed loop obstruction ensues. Torsion may be intermittent, but in some cases oedema and adhesions cause fixation of the rotated loop. This again leads to venous and arterial obstruction, oedema, growing dilatation, and fluid accumulation in the coil. Gangrene, perforation, and peritonitis will follow if intervention is delayed, and the mortality is high.

In the aetiology, congenital anomalies—malrotation, exomphalos, jejunal diverticula, or Meckel's diverticulum (Christensen, 1954)—may play a part. In adult persons acquired conditions—adhesions, tuberculosis, internal herniae, foreign-body impaction, tumours of the small gut (Ogilvie and Shaw, 1955)—are the cause. Torsion of the gut may also take place following gastro-enterostomy or subtotal gastrectomy (Poulsen, 1954).

Pre-operative diagnosis is very difficult. Attacks of colicky pains, vomiting with comparatively painless intervals, and tenderness of the abdomen should lead to a suspicion of volvulus. No dilatation is seen. In some cases, according to Evans and Bigger (1947), there is a definite "position of relief," as a rule on one of the sides, rarely the knee-elbow position: tension on the mesentery is relieved in this way. The x-ray picture is important: in about half the cases the typical arch pattern is seen, while the rest show multiple dilated coils and fluid levels in the erect films (Ripstein and Miller, 1950).

Early recognition and operation is of course imperative to counter the still too high mortality of strangulating obstruction of the small bowel.

REFERENCES

- Christensen, E. (1954). *Brit. med. J.*, 1, 1347.
Evans, E. I., and Bigger, I. A. (1947). *J. Amer. med. Ass.*, 133, 513.
Kallio, K. E. (1932). *Acta chir. scand.*, 70, Suppl. 21, p. 58.
Kerr, W. G., and Kirkaldy-Willis, W. H. (1946). *Brit. med. J.*, 1, 799.
McKechnie, R. E., and Priestley, J. T. (1936). *Amer. J. Surg.*, 34, 286.
Ogilvie, T. A., and Shaw, H. M. (1955). *Brit. med. J.*, 1, 142.
Poulsen, O. (1954). *Dansk. kir. Selsk. Forh.*, p. 18.
Ripstein, C. B., and Miller, G. G. (1950). *Surgery*, 27, 506.
Vick, R. M. (1932). *Brit. med. J.*, 2, 546.

Medical Memoranda

A Case of Primary (Adeno) Carcinoma of the Jejunum

Adenocarcinoma of the jejunum or ileum is uncommon. Males are said to be affected twice as often as females, but collected series differ on whether the jejunum or the ileum is more frequently involved. In our case the lesion was in the proximal quarter of the jejunum. The cases are usually late in presenting, owing to the fluid nature of the contents of the small bowel, and the prognosis is poor. A resection is said to be possible in more than 50%, but the operative mortality is in the vicinity of 30% to 40%. The pre-operative correction of anaemia, hypoproteinaemia, and fluid and electrolyte deficiency should lower this figure. No more than 5% of the cases can be expected to survive a five-year follow-up. Kiefer (1933) gives the average duration of life after resection as one year, and Mayo and Nettrour (1937) as eighteen months.

CASE HISTORY

A man aged 77 presented in the out-patient department of Queen Mary's Hospital for the East End with a history

of increasing constipation over a period of some months, recurrent episodes of colicky abdominal pain, vomiting, and temporary "stoppage of the bowel," and an indefinite loss in weight. The patient had passed no mucus, blood, or melaena stool per rectum. He admitted to symptoms of early bladder-neck obstruction and had suffered angina of effort for 10 years.

On examination he was pale, wasted, and anaemic, with De Morgan's spots on his trunk, a lipoma in the middle of the epigastrium, and an indefinite mass to the left of the umbilicus and left rectus muscle. His liver was palpable two fingerbreadths below the right costal margin, being smooth, even, and without obvious neoplastic involvement. Rectal examination showed nothing abnormal except for a clinically adenomatous enlargement of the prostate.

Special Investigations.—Blood group O Rh-positive. Serum potassium, 16 mg./100 ml. Serum chloride, 630 mg./100 ml. Serum sodium, 380 mg./100 ml. Blood urea, 44 mg./100 ml. White-cell count, 8,000 per c.mm. Haemoglobin, 58%. Erythrocytes, 3,090,000. Colour index, 0.96. P.C.V., 27%. M.C.V., 90 μ . M.C.H.C., 35.4%. Tests for occult blood in stools negative. Fractional test meal revealed a low gastric curve.

A barium enema was reported upon as follows. "Colon filled fairly easily and regularly. No contour filling defect

Photograph of the specimen.

seen. No organic lesion of caecum or colon seen." A barium meal and follow-through was not carried out (see below). His blood picture was improved by transfusion, and his general state by a non-residue diet supplemented with fortified foods. He was given a pre-operative course of succinylsulphathiazole, was prepared for theatre, and a laparotomy was performed by Mr. Roy Parkinson on December 5, 1956.

Findings at Operation.—An annular constricting carcinoma of the jejunum, which had almost completely occluded the lumen, was found approximately 18 in. (45 cm.) from the duodeno-jejunal flexure. The hypertrophy of the jejunum proximal to the cancerous stricture was striking, whilst the rest of the small gut was narrow and collapsed (see Fig.). The glandular involvement in the mesentery was such that operative cure was regarded as impossible. There were no secondary deposits in the liver and no obvious peritoneal seedlings. A resection and end-to-end anastomosis was performed.

Pathological Report.—The gross specimen showed an annular growth involving the jejunum. Representative sections revealed a well-differentiated adenocarcinoma whose morphology was alveolar, papilliform, and cribriform. Focal necrosis was present. There was a complete malignant penetration through the muscular coats of the bowel wall. An enlarged lymph node showed a bulky metastatic deposit of a necrotic carcinoma.

The post-operative course was uneventful and he was discharged from hospital 14 days later. When seen three and six months later there were no signs of recurrence and he felt well.

COMMENT

Our case was not definitely diagnosed pre-operatively. The barium enema was negative, and, although this does not positively exclude colonic disease, it was thought that the cause of his recurrent obstructive symptoms did not lie in the large bowel, but rather in the small bowel. A barium meal may well have produced a diagnostic picture, but as careful and repeated radiological examination will reveal no more than 50% of tumours of the small intestine (Maxwell, Crile, and Dinsmore, 1948), and as we did not wish to run the risk of having an acutely obstructed patient on our hands, we prepared him for theatre and proceeded. The patient made an uneventful post-operative recovery.

Thanks are due to Mr. Roy Parkinson, under whose care the patient was admitted, for permission to publish the case; also to the pathological department of Queen Mary's Hospital for the East End for preparation of the sections and the photographic plate, to Dr. Woodhouse Price for his pathological report, and to Dr. O. R. Robinson, who performed the barium enema.

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BIBLIOGRAPHY

- Caris, T. N., Eisen, B., and Gilpatrick, C. W. (1955). *U.S. armed Forces med. J.*, 6, 1371.
Fraser, K. (1945). *Brit. J. Surg.*, 32, 479.
Kiefer, E. D. (1933). *New Engl. J. Med.*, 208, 1042.
Malingot, Rodney (1955). *Abdominal Operations*, 3rd ed. Lewis, London.
Maxwell, E. A., Crile, G., and Dinsmore, R. S. (1948). *Surg. Clin. N. Amer.*, 28, 1149.
Mayo, C. W., and Nettrour, W. S. (1937). *Surg. Gynec. Obstet.*, 65, 303.
Ogilvie, T. A. (1956). *Med. Ill. Lond.*, 10, 373.
— and Shaw, H. M. (1955). *Brit. med. J.*, 1, 142.
Rankin, F. W., and Mayo, C. (1930). *Surg. Gynec. Obstet.*, 50, 939.
Rinsma, S. G., and Eggink, S. J. (1954). *Arch. chir. Neerl.*, 6, 65.
Shallow, T. A., Eger, S. A., and Carty, J. B. (1945). *Amer. J. Surg.*, 69, 372.

Heat Hyperpyrexia Following a Turkish Bath

Heat syndromes are relatively uncommon in the British Isles. A case of heat hyperpyrexia which occurred in a patient taking a Turkish bath is described.

The descriptive title "heat hyperpyrexia" is confined to patients with temperatures of 107° F. (41.6° C.) or above. It may result from exposure to high environmental temperatures; from pyrexial illness, particularly malaria; or, less commonly, from thyrotoxicosis, from excessive intake of protein, or from severe muscular exercise. In all cases the mechanism is the same—namely, the inadequacy of the normal mechanism of heat dissipation, particularly sweating, to cope with the increased body temperature. Fluid and electrolyte disturbances and cardiovascular collapse may complicate the picture.

The predisposing factors include coincidental illness, alcoholism, and the wearing of unsuitable clothing in a hot environment. Subjects who have previously become acclimatized to high temperatures and who then lose their acclimatization are particularly susceptible to heat hyperpyrexia.

CASE HISTORY

A woman of 57 was unconscious when admitted to hospital at 5 p.m. on May 30. She had gone that afternoon to the Turkish baths for the first time for about a year, although she had previously taken Turkish baths at short intervals over a period of many years. She settled in the first of the steam rooms, temperature 100° F. (37.8° C.), and began to read, but then appeared to fall asleep. After an interval of 40 minutes an unsuccessful attempt was made to rouse her. An ambulance was called and she was sent to hospital. She arrived in the ward about two hours after entering the Turkish bath.

She was an obese woman of plethoric type, height 5 ft. 2 in. (157 cm.), weight 12½ stones (79.4 kg.). Her face was red and suffused, her skin hot and dry, and she was breathing