Medical Memoranda

Resection of Two-thirds of the Small Intestine

A case of an old gunshot wound of the abdomen is presented in which 14 feet (4.26 metres) of small intestine from the mid-jejunum to the terminal ileum was removed at an operation for extensive gangrene resulting from volvulus due to a solid adhesion of the jejunum to the abdominal wall. The patient was well and gaining weight six weeks after operation.

The length of the small intestine may vary between 15 and 30 feet (4.5 and 9 metres); the average is usually stated to be about 22 feet (6.7 metres). Survivals after resections of up to 19 feet (5.8 metres) have been recorded, but there is no very clear evidence of how much small intestine is necessary for life, or, indeed, of what proportion of patients survive extensive resections such as the one here reported. This case suggests that a man may become accustomed to the non-function of part of his small intestine and as a result accommodate himself to resections which in others might well prove fatal.

CASE REPORT

W. E. B., aged 54, had received a gunshot wound of the abdomen in 1917. He had an immediate laparotomy, and was subsequently twice operated on for intestinal obstruction, in 1918 and 1926. On the latter occasion it was reported that a volvulus of the small intestine had been found and reduced. Between 1927 and 1945 he had occasional pains but no attacks of obstruction. In 1922 he sustained a fractured pelvis, and in 1934 he was shown to have a gastric ulcer, for which he received medical treatment on several occasions.

In December, 1945, he began to have colicky abdominal pain. This was diagnosed as intestinal obstruction, and he was treated conservatively by intubation with some success at another hospital. In January, 1946, symptoms recurred, and he was admitted to Queen Mary's Hospital, Roehampton. Intubation with a Miller-Abbott tube gave but slight improvement, and on Jan. 18 laparotomy was performed. The upper part of the small intestine was found to be greatly distended and many adhesions were present. The patient was in poor condition, and a side-to-side anastomosis between two loops of bowel was made, excluding the most distended area. His convalescence was stormy, but by the summer he was able to get about and was almost free from pain.

On July 24, 1946, he complained of a sudden severe pain in the abdomen. The pain became colicky in nature and remained of the same intensity. He was seen at 2 p.m., four hours after the pain had started. There appeared to have been no exciting cause for the attack, and he stated that he had been as well as usual on the previous day. On examination he was in shock. His pulse was 80 and of poor quality, his extremities were cold and clammy, and his blood pressure was 60/45. After morphine and a pint (568 ml.) of serum his condition improved somewhat, and operation was decided on.

At operation (Mr. Gillis) a right paramedian incision was made. On entering the peritoneal cavity a moderate amount of bloody fluid was seen. Almost the whole of the small intestine was grossly distended and black. The cause appeared to be an adhesion of the upper jejunum to the anterior abdominal wall which had resulted in a volvulus. His condition improved markedly when the massive amount of gangrenous bowel was delivered from the peritoneal cavity. This portion was excised, and a side-to-side anastomosis made between the jejunum and the caecum, the appendix being removed. Two enterostomy tubes were inserted—one through the anastomosis, and one from the blind end of the jejunum and brought out through a stab incision in the flank. The specimen of small intestine removed was examined later. It was approximately 14 feet (4.26 metres) in length and contained two side-loops where a previous side-to-side anastomosis had been done. These side-tracked loops were 6 feet (1.82 metres) long in all, so that about 8 feet (2.44 metres) of functioning intestine was removed. It was estimated that roughly 4 to 5 feet (1.22 to 1.52 metres), or perhaps less, of small intestine had been left *in situ*; two-thirds of the functioning small intestine had been removed.

The patient's post-operative course after the first few critical hours was remarkably satisfactory. He was given two further pints (1.14 litres) of serum during and after operation and intravenous glucose and saline for 24 hours. He received penicillin, 20,000 units every three hours intramuscularly for ten days, and a high-protein and high-carbohydrate diet with supplementary vitamins as soon as he could take it by mouth. He also received casein hydrolysate for

the last four weeks of his stay in hospital. The enterostomy tubes came out on the seventh day and the wound healed well.

Laboratory studies after operation may be tabulated as follows:

	Aug. 1	Aug. 8	Aug. 14	Aug. 15	Aug. 21	Aug. 28
Weight (lb.)	113	113	115½		118½	
Serum proteins (mg./100 ml.)	4.9	2.8		4.9		5.1
Albumin (mg./100 ml.)	2.9	1.6		3.2		3.6
Globulin (mg./100 ml.)	2.0	1.2		1.7		1.5
Serum chlorides (mg./100 ml.)	560	577				
Serum calcium (mg./100 ml.)	11.0					
Blood urea (mg./100 ml.)				35		
Haemoglobin	78%					
Red blood cells (millions)	4.00					

Two pints of serum were given between Aug. 8 and 15. The patient's appetite was poor for the first two weeks after operation, but then it improved, and when he left hospital on August 30 he was able to eat a more or less normal diet. At that time he was feeling well and his general condition was quite satisfactory. He had put on 7 lb. (7.2 kg.) in weight. He had no other complaints except occasionally a little tightness in the abdomen; his bowels were open twice in 24 hours, the motions being quite loose but not very voluminous.

Cineradiography of the gastro-intestinal tract demonstrated that a barium meal which had been swallowed 40 minutes previously was already passing down the descending colon while there was some still present in the stomach. There was no increased urge to evacuate the bowels.

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Recent Cases of Methyl Bromide Poisoning

The fact that methyl bromide is a dangerous and insidious poison is not widely recognized among members of the profession, and non-medical people know little of its risks. The initial symptoms (nausea, vomiting, and urgent evacuation of bowel and bladder) soon pass off, to be followed by a latent period of apparent recovery. In mild cases headache and malaise may follow, but where much of the gas has been inhaled, unconsciousness, asphyxia, anuria, and violent convulsions come on quickly after a few hours. In a recent group of eight simultaneous cases, six boys died within 24 hours of exposure. The two survivors were critically ill for several days. A detailed report by the clinicians in charge of the cases is in course of preparation, but meantime this note may serve as a warning and help to prevent similar fatalities which otherwise might occur through ignorance.

The boys, aged 11 to 14, secretly established "gang headquarters" in the hold of a barge. A fire-extinguisher of a type used in naval vessels and aircraft was accidentally or intentionally discharged in the evening. All recovered from the primary effects in a short time, and employed the hours of darkness smoking, eating chocolates and biscuits, and playing cards, and probably dozing. Next morning two left the vessel and went home. The alarm was raised when they suddenly became ill two hours later. The police discovered the others almost at once—one dead and five unconscious.

Of the five boys found unconscious four died within 24 hours, and one of the two who had gone home died within the same period. The post-mortem findings varied, but the general picture was one of lung and brain haemorrhages.

The extinguisher is a copper cylinder 14 in. (35 cm.) long and marked with a warning. Other extinguishers of the same type have a larger warning but no note of the contents (methyl bromide). Similar extinguishers may be on disused vessels and in Service stores being dispersed or destroyed, thus constituting a potential death-trap to the uninformed.

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Grants to a total of £133,150 towards the cost of homes and other welfare schemes for old people have been recommended by their advisers to the Governors of the National Corporation for the Care of Old People since it was established on Aug. 1, 1947. Of this sum £64,000 has so far been recommended from the resources of the Lord Mayor's National Aid Raid Distress Fund.