BOLUS OBSTRUCTION AFTER PARTIAL GASTRECTOMY

BY

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The occurrence in six months of three cases of bolus obstruction after partial gastrectomy prompted an investigation into the subject, and it was found that in the period 1951-60 nine patients suffering from this condition were treated by the gastric unit at St. James' Hospital, no fewer than six of them in the last two years. It is realized that these cases were all admitted by a hospital in which over 300 partial gastrectomies are performed each year, and the policy of the hospital is to accept any patient who has previously been under its care; however, bolus obstruction is a common condition and will become increasingly common as more people have partial gastrectomies. It deserves to be well known. Brief reports of these nine cases are outlined below.

Case Reports

Case 1.—A woman aged 61 had had a Billroth I partial gastrectomy at St. James' Hospital eight years previously. She gave a three-day history of colicky pain and constipation. An obstruction was found at the lower end of the ileum, caused by four segments of partially digested orange. The bolus was removed by enterotomy. She made an uneventful recovery.

Case 2.—A man aged 72 had a history of partial gastrectomy (of a type not ascertained) performed at the age of 65. He was a Lancastrian and was very fond of tripe, which he found difficult to chew, being edentulous. Several times he had noticed that after a meal of tripe he had colicky pain for a few hours and his abdomen was distended. He had eaten tripe two hours before the onset of pain on this occasion and had suffered severe colic and vomiting for five hours before admission. At laparotomy a large bolus of tripe was found in the mid-ileum. It was broken up and milked on to the large gut, having been observed through a small enterotomy. The patient made an uneventful recovery.

Case 3.—A woman aged 64 had had a Billroth I partial gastrectomy for gastric ulcer at St. James' Hospital six years before admission. She had been having colicky abdominal pain and vomiting for nine hours. At operation a chunk of orange was found obstructing the ileum, and it was milked on to the caecum. The patient made an uneventful recovery.

Case 4.—A man aged 36 had had a valved Polya-type partial gastrectomy (conversion from a gastroenterostomy) nine years previously. He was operated on 12 hours after the onset of acute small-bowel obstruction, and was found to have a brussels sprout lodged in his ileum. The bolus was removed by enterotomy. He had to have a further operation a fortnight later for fresh adhesions around the enterotomy site, and was very ill with a pelvic abscess before he left hospital six weeks after admission.

Case 5.—A man aged 59 had had a previous operation—a valved Polya-type partial gastrectomy for duodenal ulcer—performed at St. James' Hospital three years previously. He was admitted with a 24-hour history of acute obstruction, and was found to have a bolus consisting of gooseberry skins impacted in a part of the ileum narrowed but not obstructed by adhesions. An enterotomy was performed. The patient made an uneventful recovery.

Case 6.—A man aged 47 had had a Polya-type partial gastrectomy without a valve at another hospital five years earlier. He was operated on 24 hours after being admitted

with an obstruction. A bolus of orange pith was revealed impacting the mid-jejunum. This was removed by enterotomy. A wound infection slowed the recovery. Culture of the pus revealed bowel organisms.

Case 7.—A man aged 65 had had a Billroth I partial gastrectomy for gastric ulcer nine years earlier at St. James' Hospital. He was admitted with a 10-hour history of colic and vomiting, and said he had eaten an orange without chewing it properly 12 hours before admission. The diagnosis of orange-pith obstruction was confirmed at laparotomy and the bolus milked on into the caecum. The patient made an uneventful recovery.

Case 8.—A man aged 65 had had a Polya-type valved partial gastrectomy for duodenal ulcer at St. James' Hospital 17 years earlier, and had been symptom-free since then until the day before admission. He had suddenly developed a severe colicky pain in the upper abdomen 28 hours before admission. This had become a lower-abdominal pain an hour or two before he was admitted. He confessed to having eaten his daily orange (which he had taken almost every day for 17 years) without putting in his dentures. The diagnosis of orange-pith obstruction was made, and it was thought that the obstructing lesion had travelled down the gut a considerable distance, so that it was worth while trying conservative treatment. This had achieved nothing after 12 hours, and at laparotomy a bolus of orange pith in the terminal ileum was found just proximal to a kink due to the insertion of the ileocaecal fold. The bolus was milked on into the caecum and the fold divided. The patient made an uneventful recovery.

Case 9.—A man aged 58 had had a Billroth I partial gastrectomy for gastric ulcer at St. James' Hospital one year earlier. He had been suffering from colicky abdominal pain and vomiting for 24 hours before admission. At operation a large bolus was found obstructing the lower ileum. The nature of the bolus could not be identified, and it was milked on into the caecum. The patient made an uneventful recovery.

Discussion

The subject of intestinal obstruction by foodstuffs has been extensively reviewed by Ward-McQuaid (1950); and Davies and Lewis (1959) also discussed many aspects of the problem, including the association of this complication with previous partial gastrectomy. Butler (1959) presented three cases and was able to collect 30 from the literature but only one case following upon a Billroth I operation (Norberg, 1956), and at the same time Davies and Lewis reported on four cases following Polya-type gastrectomies or gastro-jejunosomies. In an extensive correspondence in the *British Medical Journal* five other cases were detailed (Gall, 1957; Corbett, 1957; Colabawalla, 1957; Goodman, 1957; Cade and Qvist, 1957), one of which—that described by Gall—followed upon a Billroth I partial gastrectomy. Recently five more cases have been added to the literature—all occurring after Polya operations (Spurzem and Desser, 1957; Fleming, 1959; Nagel and Bergera, 1960).

Included in the present series are four that occurred after Billroth I partial gastrectomy. It is a principle of the unit that the stoma in a Billroth I operation is made at least half the width of the stomach, and a longitudinal incision is often made in the duodenum to facilitate this. The high incidence of bolus obstruction after the Billroth I partial gastrectomy demonstrates that a large stoma can be produced. Two cases were diagnosed pre-operatively, but this is a reflection of the increasingly high incidence of the condition, because it is in the minds of the registrars and house-surgeons dealing with the patients.

It seems clear from the history of Case 2 that attacks occur in which operation is not required, and that prompts one to wonder how many patients who are admitted with acute obstruction after partial gastrectomy and who settle on conservative treatment are actually obstructed by a bolus. One should look out for this syndrome in order to advise such patients to be careful about mastication of food.

It must be emphasized that in most cases the bolus can be milked on into the caecum. The story of Case 4 illustrates the added risk involved in doing an enterotomy at operation, and the wound infection in Case 6 was probably due to the enterotomy. Davies and Lewis (1959) stress this aspect of treatment.

An endeavour is now made at St. James' Hospital to impress upon every patient who has a partial gastrectomy the importance of chewing food well, though this was not always the case. This should be a universal piece of advice, to be given to every patient who has a partial gastrectomy.

Summary

Nine cases of food bolus occurring after partial gastrectomy are described. A brief discussion of the condition and its treatment is added. It is noted how common the condition is becoming, and prevention of its cause is stressed.

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BRUCELLOSIS—AN ISLAND EPIDEMIOLOGICAL STUDY

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Human brucellosis was first diagnosed among the resident population of the Isle of Wight in 1930. Sporadic cases were subsequently reported in 1933, 1945, 1950, and 1958 (Dalrymple-Champneys, 1959).

Brucellosis was also known to have occurred among dairy cattle on the island. *Br. abortus* was recovered from 10 out of 58 aborted calves examined between 1954 and 1958. Between April, 1957, and October, 1959, *Br. abortus* was found in the milk produced by 25 dairy herds, comprising about 400 head of cattle.

The winter population of the Isle of Wight is about 93,500 (Registrar-General's estimate for 1959), but the yearly influx of visitors raises the resident population in August to nearly 180,000.

Plan of Investigation

The present paper describes the results of investigations made between December, 1958, and December, 1959, in an attempt to assess the extent of human and animal brucella infection on the island.

1. A search was made for cases of active human infection. Family and hospital doctors were asked to notify suspected cases to the county medical officer of health, who reviewed the evidence and suggested further investigations where necessary.

2. Brucellin skin-tests and agglutination tests were used to assess the extent of infection among adults and children.

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Skin-testing was done with a Heaf multiple-puncture gun, using a preparation of brucellin specially made available by the Standards Laboratory of the Public Health Laboratory Service at one thousand times the strength supplied routinely for intradermal skin-testing (Wallis, 1959). Results were read after 72 hours, and were scored in terms of the number of indurated papules developing in that time. A further reading on the 10th day could be made in only a few instances. Skin reactions were regarded as positive when two or more papules were noted after 72 hours. Agglutination tests were made with the agglutination suspension of *Br. abortus* issued by the Standards Laboratory of the Public Health Laboratory Service, in plastic agglutination plates with 0.5% phenol in 0.9% saline as diluent. The tests were kept overnight in a 36° C. incubator, then stood for 24 hours at 5° C., and finally left at room temperature for half an hour before reading. The end-point taken was the highest serum dilution showing a clear pattern of sediment on standing, with agglutinates visible to the naked eye after stirring. Skin tests, and in many instances agglutination tests, were done on a number of adults whose occupations involved contact with live cattle or their carcasses. A number of adults and children drinking milk from infected herds were similarly investigated.

3. Skin-testing was used to examine a group of primary-school children and a number of patients in a psychiatric hospital. Agglutination tests were done on some of these patients.

4. Agglutination tests were done on a number of sera from blood donors, and also on blood specimens taken from expectant mothers in the course of routine antenatal care.