PERFORATION OF MECKEL'S DIVERTICULUM BY FOREIGN BODIES

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THE PERSISTENCE of a part of the vitello-intestinal duct as a solitary diverticulum of the ileum was described by Ruysch in 1701, but is eponymously linked with the name of Johann Frederick Meckel, who in 1812 first described it accurately.

Many complications of surgical importance due to the presence of a Meckel's diverticulum have been described and commented on; one which has received comparatively little attention, perhaps owing to its rarity, is that of perforation by a foreign body.

The purpose of this report is to record a further case of this occurrence, and to present a bibliography of the other 49 cases which can be found in the world literature.

Case Report

Mrs. E.T., a married woman, aged 28, was admitted complaining of pain in the right iliac fossa for the previous 13 hours, which was increasing in severity. The pain was constant and had not radiated. She had not vomited and had no bowel disturbance. Micturition was normal, as was her menstrual history.

On examination: T. 98.6°F, P. 88, B.P. 120/80 mm. Hg. Her tongue was furred and there was fetor oris. Abdominal examination revealed tenderness around McBurney's point with guarding but no rigidity. Bowel sounds were normal. Rectal examination was negative. Her urine contained no albumin.

A diagnosis of acute appendicitis was made.

At operation, through a gridiron incision, a normal appendix was found. However, as a finger was passed up on the left of the ascending colon a sharp "pin-like" object was felt. This was seized with a hæmostat and found to be a "bristle". Further examination revealed a broad-based Meckel's diverticulum with a small perforation at its tip. In the lumen could be felt another "bristle", the tip of which was already beginning to perforate.

The diverticulum was excised, the appendix removed and the abdominal cavity closed with drainage of the peritoneum.

The patient made an uninterrupted recovery, receiving post-operative chemotherapy with penicillin and streptomycin.

Pathological examination (Dr. J. Scott-Wilson) revealed

1. a normal appendix.
2. a Meckel's diverticulum showing normal mucosa with a small perforation.
3. the "bristles" were fishbones.

The patient denied any particular predilection for fish, and, indeed, could not remember when she had last eaten fish.

Comment

This case follows the common pattern of previous cases in that a pre-operative diagnosis of acute appendicitis was made, only to be disproved at operation. Only when a clear history of a recently swallowed foreign body is given, is it even possible to suspect this condition; and in only two cases in the literature was such a diagnosis made (Fontaine & Bauer (1933); Persson (1939).)

This case also follows the pattern described by Seibert (1950) and Persson (1939) in that symptoms of perforation and peritonitis were mild, although sudden and severe abdominal symptoms have been reported. Perhaps the mildness of the symptoms may be related to the fineness of the perforating object—in over half the cases a fishbone.

Meckel's diverticulum has an incidence of 1-2% of the population, with a ratio of three males to one female. It is perhaps surprising, therefore, that more cases of perforation have not been recorded. The previous reviews by Alhadeff (1955) and Dowse (1961) recorded a total of 30 cases, however neither mentioned any reports earlier than 1899. It is interesting to note that the cases recorded by Denunce (to whom priority belongs, and who saw the case in 1847) and Beale (1852—the first report in the English literature) were both cases in which the foreign body was a cherrystone.

The variety of foreign bodies causing perforation is at first sight extensive, but considering the wide range of foreign bodies swallowed it is perhaps surprising that more of them have not caused perforation. Fishbones caused the perforation in 55% of the reported cases. What is more surprising is that objects such as rolled tomato skins and cabbage stalks can cause perforation. In all 29 objects of animal, 15 of vegetable and five of mineral origin caused perforation.

The sex incidence was 14 female and 35 male, with six cases younger than 10 years and three older than 70. There were only two deaths in the cases reported since 1900.

Addendum

Since the compilation of this report another case, making the fiftieth in the literature, has been reported from Australia. The patient was a twelve year old boy in whom the perforation was caused by the "bristle" of a nylon tooth-brush.

SUMMARY OF CASES

1.	1851	Denunce	Male	?	Cherrystone	Post-mortem, no operation
2.	1852	Beale	Male	14	Cherrystone	Post-mortem, no operation
3.	1899	Blanc	Male	41	Fishbone	Recovered after operation
4.	1900	Piquard and Grenet	Female	45	Fishbone	Post-mortem, no operation
5.	1909	Aschan	Male	42	Fishbone	Recovered after operation
6.	1912	Schwenk and Pollnow	Female	21	Gramophone needle	do.
7.	1920	Hagler and Stewart	Male	39	Fishbone	Died after operation
8.	1921	Henrichsen	Male	25	Fishbone	Recovered after operation
9.	1926	Lindquist	Male	21	Wood splinter	do.
10.	1927	Berry	Male	36	Wood splinter	do.
11.	1931	Walkling	Male	8	Fishbone	do.
12.	1832	Wilcox	Male	71	Fishbone	do.
13.	1933	Hiller and Bernhard	Male	41	Tomato skin	do.
14.	1933	Bock	Male	7	Needle	do.
15.	1933	Webb	Female	15	Fishbone	do.
16.	1933	Fontaine and Bauer	Female	19	Knitting needle	do.
17.	1937	Donovan	Male	11	Wood splinter	do.
18.	1937	Peterson	Female	15	Fishbone	do.
19.	1939	Persson	Male	75	Fishbone	do.
20.	1939	Persson	Male	21	Fishbone	do.
21.	1939	Persson	Male	18	Wood splinter	do.
22.	1940	Williams	Male	62	Fishbone	do.
23.	1940	Tamraz	Male	49	Fishbone	do.
24.	1942	Aguirre Silva	Male	32	Chicken bone	do.
25.	1942	Weinstein	Male	54	Fishbone	do.
26.	1943	Rossman	Male	17	Fishbone	do.
27.	1948	Macfarlane	Female	21	Cabbage stalk	do.
28.	1950	Seibert	Male	14	Fishbone	do.
29.	1950	Ward-McQuaid	Male	60	Tomato skin	do.
30.	1951	Mastrosimone	Female	14	Ascaris	do.
31.	1951	Whelan	Male	70	Fishbone	do.
32.	1951	Blomquist	Female	37	Fishbone	do.
33.	1954	Longo and Broggi	Male	32	Artichoke spine	do.
34.	1955	Alhadeff	Male	24	Wood splinter	do.
35.	1955	John	Male	10	Pin	do.
36.	1956	Chorzewski	Female	27	Fishbone	do.
37.	1956	Rawlinson	Male	57	Fishbone	do.
38.	1956	Bernatz	Male	52	Fishbone	do.
39.	1957	Gillette & Zoltowski	Female	35	Fishbone	do.
40.	1958	Reinalda	Female	42	Fishbone	do.
41.	1958	Rumore	Male	41	Fishbone	do.
42.	1959	Komarov	Male	17	Grape seeds	do.
43.	1960	Principe	Male	9	Prune stone	do.
44.	1961	Dowse	Female	60	Fishbone	do.
45.	1961	Dowse	Male	9	Tomato skin	do.
46.	1961	Ashe	Female	34	Wood splinter	do.
47.	1962	Ker	Male	Adult	Fishbone	do.
48.	1963	Roesell	Male	1½	Liberty bell	do.
49.	1964	Binks	Male	12	Fishbone	do.
50.	1965	Rosswick	Female	28	Fishbone	do.

I am indebted to Mr. A. J. Walton for kind permission to publish this case and to Professor V. W. Dix for advice and encouragement.

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SPONTANEOUS NECROSIS OF THE GALL BLADDER

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RUPTURE of the gall bladder is not an uncommon phenomenon usually associated with gangrene following acute calculous cholecystitis. Cases have been reported following non-calculous cholecystitis (Maingot, 1957) and there are other isolated cases of rarer causes.

Case Report

A male, aged 58, presented with a history of bleeding per rectum for six months. Routine sigmoidoscopy showed a carcinoma 11 cm. from the anus, confirmed by histological examination.

On 7th January, 1964 laparotomy showed a mobile

carcinoma of the rectum with no obvious metastases. The gall bladder and other abdominal viscera were normal. A routine abdomino-perineal excision of the rectum was performed and his immediate recovery was satisfactory. On the ninth post-operative day pus was drained from his wound which had become inflamed and three days later he developed general peritonitis. Laparotomy showed a biliary peritonitis, there being about a pint of free bile in the abdomen. A large swelling was found in the right upper abdomen consisting of omentum wrapped round the gall bladder. On freeing the omentum, the gall bladder was found to be deeply bile stained and black at the fundus and there was a little bile