Torsion of Meckel's Diverticulum

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Abstract

Although somewhat controversial, current surgical opinion seems to advocate removal of an incidentally found Meckel's Diverticulum only if there are associated features likely to predispose to complications. Torsion or Axial Volvulus of Meckel's Diverticulum is a rare complication and thought to be associated with bands attached to the diverticulum tip, around which the diverticulum rotates (Gough & Gorey, 1990). A case of torsion of a Meckel's Diverticulum resulting in gangrenous infarction was encountered, in the absence of associated bands and intrinsic diverricular pathology, and is reported.

Key words: Meckel's Diverticulum; torsion; axial volvulus

Introduction

It has been controversial as to whether an asymptomatic, incidentally found Meckel's Diverticulum should be removed. Because of the recently found decrease in the estimated complication rate, Soletero & Bull (1976), have challenged the time honoured dictum that all incidentally found Meckel's Diverticulum should be prophylactically removed.

Resection is advocated when the incidentally encountered diverticulum is associated with features, believed to, predispose to and/or precipitate potential complications.

Torsion, resulting in infarction, of a Meckel's Diverticulum is a rate and infrequently reported. Most reported cases occurred when the diverticulum was associated with features that could have predisposed to torsion.

We report a case where torsion of a Meckel's Diverticulum occurred in an otherwise "innocent" diverticulum which would not have been removed had it been incidentally encountered during surgery for an unrelated cause.

Case Report

A 15 year old boy presented with a 24 hour history of colicky periumbilical pain which localised to the right iliac fossa 12 hours prior to admission. He also suffered anorexia, nausea and had vomited once, bringing up previously eaten food.

On examination he looked toxic, had a pulse rare of 100/min and a temperature of 37.5°C. His abdomen was tender generally with maximal tenderness in the right iliac fossa. Guarding and rebound tenderness was present in the right iliac fossa.

The Hb was 14.2 g/dl and white cell count was 15.1 x 10/L. A clinical diagnosis of appendicitis was made. Appendicectomy was advised and he consented.

At operation, through girdiron incision, dark coloured blood srained peritoneal fluid was found. A gangrenous congested mass was present in the right iliac fossa. This was initially thought to consists of ischaemic bowel. The fluid was evacuated and the incision was extended to facilitate delivery of the mass which was found to result from a Meckel's Diverticulum which had undergone axial volvulus around its longitudinal axis one and the half times resulting in gangrenous infarction.

The diverticulum was 7cm long and 2cm wide, arising from the antimesenteric border of the ileum, 50 cm from the ileocaecal junction.

The part of the diverticulum distal to the twist had undergone irreversible ischaemic change. There were no associated para diverticular bands, adhesions or palpable abnormalities within the diverticulum. The appendix was normal.

Appendicectomy was performed. Segmental resection of ileum encompassing the diverticulum was performed and continuity restored by end to end anastomosis.

Postoperative course was uneventful. He was discharged on the eighth postoperative day. At follow up in the outpatient clinic on the 21st postoperative day he was well and was discharged from follow-up.

Histopathological examination showed early ischaemic necrosis of a Meckel's Diverticulum.

Discussion

Meckel's Diverticulum results from the incomplete obliteration of the omphalomesenteric (Vitteline) duct and is acknowledged to be the most common congenital abnormality of the gastrointestinal tract (Mackay & Dineen, 1983).

It is commonly stated to be 2 inches long, 2 feet from the iliocaecal junction and to occur in 2 % of the population. Most (90%) are found within 90cm of the iliocaecal junction but diverticulum have been reported up to 180cm from the junction. (Weinstein *et al.*, 1962). The incidence from large autopsy series is quoted between 0.8% - 4% of the population (Michas *et al.*,

1975).

Although the abnormality was originally thought to result in significant complications in 15-35% of cases, recent literature suggests that 4% is a more accurate estimate (Gough & Gorey, 1990).

Removal of an incidentally found diverticulum is currently advocated in the presence of features that could predispose to complications like, associated bands, palpable abnormalities within the diverticulum, and a narrow neck.

Complications include inflammation, ulceration, bleeding, perforation and torsion with resultant diverticulum ischaemia and gangrene or intestinal obstruction and ischaemia and blind loop problems including bacterial overgrowth, bolus obstruction and fish bone perforation.

Torsion of a Meckel's Diverticulum is a very rare and infrequently reported complication. In most reported cases, there were associated mesodiverticular or omphalodiverticular fibrous or fibrovascular bands attached to the diverticulum tip, around which torsion of the diverticulum is thought to occur, and/or associated diverticular pathology which could have predisposed to the twist.

Moore & Johnson (1976) reported 4 cases of torsion in their review of 50 symptomatic cases. All were associated with mesodiverticular bands. Osborne *et al.* (1978) reported 2 cases of torsion, one in the presence of a mesodiverticular band and the other, an omphalomesenteric band. Larson & Ellinger (1989) reported a case of torsion that occurred between the base of the diverticulum and a Vitteline duct remnant.

Other reported occurrences of torsion have been in the presence of i) a fibroma near the tip of the diverticulum (Almargo & Erickson, 1982) and ii) a leiomyosarcoma at the distal end of the diverticulum (Niv & Abu Avid, 1986).

In this patient, torsion occurred in the absence of bands and intrinsic diverticular pathology. The predisposing factor, precipitating factor and mechanism is not known.

Unless it was the surgeons unequivocal policy to resect all incidentally encountered Meckel's Diverticulum, this particular patient's Meckel's Diverticulum would have been left alone had it been found incidentally at laparotomy for an unrelated cause.

On the strength of only one case where torsion was found without associated pathology or predisposing factors, removal of "innocent" incidentally found diverticulum cannot be advocated.

However this case report will possibly provoke further consideration and debate as to whether all incidentally encountered diverticulum should be removed. Perhaps large autopsy series may determine the incidence of Meckel's Diverticulum with associated bands, palpable abnormalities and narrow necks which have remained uncomplicated throughout the individuals lifetime.

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