An unusual case of intestinal obstruction by volvulus of Meckel’s diverticulum in a 10-year-old child: a case report

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ABSTRACT: Intestinal obstruction, gastrointestinal haemorrhage, adherence, intussusception, acute diverticulitis and rarely malignity are the most common complications of Meckel’s diverticulum in children. Reported mechanism of intestinal obstruction in Meckel’s diverticulum include invagination, adherence and volvulus. Obstructive ileum caused by volvulus of Meckel’s diverticulum is not a very frequent medical condition. Here we describe a case of intestinal obstruction caused by volvulus of non-inflamed Meckel’s diverticulum in a 10-year-old child. Considering the potentially life-threatening obstructive ileum in cases of children with deteriorating clinical picture, surgical exploration should not be delayed.

Key Words: Meckel’s diverticulum, intestinal obstruction

INTRODUCTION

Meckel’s diverticulum has described as the remnant of the omphalomesenteric duct and is the most common congenital abnormality of the gastrointestinal tract. It is present in about 2% of the population at a ratio of 3 males to 1 female. It has length 10-12cm and is situated in a distance of 30-60cm from the ileocaecal valve. Meckel’s diverticulum may contain intestinal mucosa or heterotopic gastric or pancreatic tissue. Most patients are asymptomatic but patients with clinical symptoms have a higher incidence of heterotopic tissue. Meckel’s diverticulum is a usually incidentally discovered benign condition which may coexists with other congenital abnormalities such as congenital megacolon or esophageal atresia.

CASE PRESENTATION

A 10-year-old greek boy with no other medical history or trauma presented to the Emergency Department of a central Hospital with a 12h history of pain in the periumbilical region and vomits. Clinical examination revealed no significant findings and vital signs were within normal range. There was no pyrexia. The child was discharged home with no further investigations. However, within 12h the child presented to another hospital with increasing central abdominal pain and bilious vomits but normal levels of vital signs again. Laboratory blood tests revealed only a mild increase of neutrophils (7,26 x 10⁹ cells/litre) and lymphocytes (1,6 x 10⁹ cells/litre) and also elevated levels of the erythrocyte sedimentation rate ESR. The abdominal x-ray confirmed of intestinal obstruction and the child was taken to the operation room for an exploratory laparotomy.

Figure 1. The abdominal x-ray of the boy confirmed intestinal obstruction

At emergency laparotomy, sufficient quantity of white/yellow liquid was evacuated from peritoneal cavity. The diagnostic laparotomy, carried out through a Lanz incision, evidenced the existence of a big, twisted, non-inflamed Meckel’s diverticulum containing gastric mucosa. The subsequent surgical exploration revealed adherences and volvulus of the diverticulum which was followed by ischemia of the ileum. The affected area was resected with a primary anastomosis and the child was discharged home in a good condition with no further complications.

Figure 2. The abdominal x-ray of the boy confirmed intestinal obstruction

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inflamed Meckel’s diverticulum in a distance of 60cm from the ileocaecal valve.
The segment of ileum containing the diverticulum was resected and histology confirmed the presence of hyperemic intestinal tissue with no malignity.
Throughout the course of the mesentery observed many big lymph nodes. Venous stasis and intestinal hyperemia caused by intestinal obstruction The macroscopically normal non-inflamed appendix had a length of 6 cm and was also excised. Histology of appendix confirmed the presence of mild lesions of acute appendicitis.
The child made an uncomplicated postoperative recovery and was discharged home 6 days later.

DISCUSSION

Meckel’s diverticulum may exists in a big number of anatomic variations and usually follows the rule of “2”. It is present in about 2% of the population, it is discovered in the first 2 years of life, it is 2 cm in diameter & 2 inches in length and is situated in a distance of 2 feet proximal from the ileocaecal valve.

It diverticulum may coexists with other congenital abnormalities such as congenital megacolon, esophageal atresia, anomalies of the heart, exomphalos, atresia of duodenum, Down syndrome and Beckwith-Wiedemann syndrome but there is not direct relationship of diverticulum with these anomalies.

Patients with intestinal obstruction usually have classic symptoms such as abdominal pain and distension, bilious vomiting and obstipation. These patients are being diagnosed preoperatively from their medical history and physical examination.

Intestinal obstruction may be caused either by volvulus of diverticulum around the mesodiverticular band or by a persistent vitelline artery.

Also there is a controversy if radiologic examination (technetium – 99m by detecting heterotopic tissue in diverticulum) can be helpful in diagnosing an obstruction caused by the Meckel’s diverticulum that has formed an intussusceptions.

Some authors have mentioned the utility of wireless capsule endoscopy.

Patients with obstruction to an intussuscepted Meckel’s diverticulum can often be diagnosed with an air enema.

The important is that volvulus was uncommon compared to other presentations referred to complications from Meckel’s diverticulum in children.

One big conflict exists in the medical society. An incidentally discovered asymptomatic Meckel’s diverticulum must be resected or not? Many doctors report that the risk for complications during the life of people who have Meckel’s diverticulum is only 4%. But some others support that the preventive excision of this congenital abnormality of the small bowel protects from possible complications and morbidity. In young children, because of the increased possibility to have complications during life and the low morbidity with excision, an incidentally discovered diverticulum probably should be excised.
Ασυνήθης περίπτωση εντερικής απόφραξης από απλή συστροφή μη φλεγμαίνουσας μεκκελείου απόφυσης σε παιδί 10 ετών: παρουσίαση περίπτωσης

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ΠΕΡΙΛΗΨΗ: Οι συνηθέστερες επιπλοκές της Μεκκελείου απόφυσης στα παιδιά είναι η εντερική απόφραξη, η αιμορραγία από το γαστρεντερικό σωλήνα, ο εγκολεασμός, η ωτοειδήση και επανεξέλιξη της κακοήθειας. Ο συνηθέστερος μηχανισμός πρόκλησης εντερικής απόφραξης από Μεκκέλειο απόφυση είναι ο εγκολεασμός ενώ ο αποφρακτικός ειλεός από απλή συστροφή της μεκκελείου απόφυσης δεν αποτελεί συχνή ιατρική περίπτωση. Αποφεύγεται η περίπτωση εντερικής απόφραξης η οποία προκλήθηκε από τη συστροφή μιας μη φλεγμαίνουσας μεκκελείου απόφυσης σε ένα παιδί 10 ετών.

Λαμβάνοντας υπόψη το γεγονός ότι ο αποφρακτικός ειλεός είναι δυνητικά απειλητικός για τη ζωή των παιδιών με επιδεινούμενη κλινική εικόνα, η ερευνητική λαπαροτομία δεν θα πρέπει να καθυστερήσει καθόλου.

Λέξεις Κλειδιά: Μεκκέλειος απόφυση, εντερική απόφραξη

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