

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 malignancy 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 ($7,26 \times 10^9$ cells/litre) and lymphocytes ($1,6 \times 10^9$ 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 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 6cm 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 exist 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 2cm in diameter & 2 inches in length and is situated in a distance of 2 feet proximal from the ileocaecal valve.

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 intussusception

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

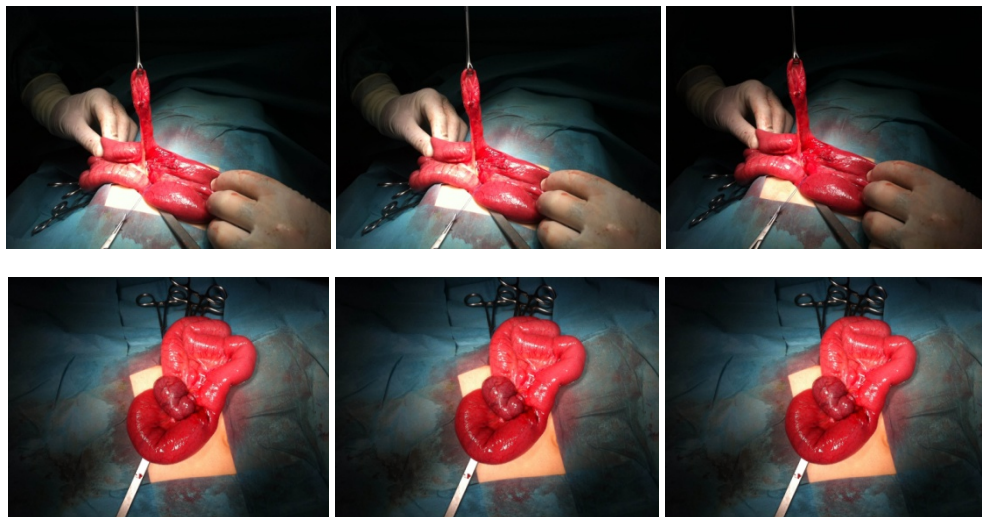


Figure 2, The surgical specimen of the twisted Meckel's diverticulum

It diverticulum may coexist 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

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 οξεία μεκκελίτιδα και σπανιότερα η κακοήθεια.

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.

Εδώ περιγράφεται η περίπτωση εντερικής απόφραξης η οποία προκλήθηκε από τη συστροφή μίας 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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