MECKEL’S DIVERTICULUM INCARCERATED IN AN UMBILICAL HERNIA – CASE REPORT

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Hernias containing incarcerated Meckel’s diverticulum are rare and often asymptomatic. The proper preoperative diagnosis is difficult to establish. The presence of a Meckel’s diverticulum incarcerated in a hernia should be consider in a differential diagnosis of abdominal disease that is not sufficiently apparent. We present a case of a 22 years old male patient with a Meckel’s diverticulum incarcerated in an umbilical hernia.

Key words: Meckel’s diverticulum, umbilical hernia, Littre’s hernia

Meckel’s diverticulum is the most common congenital anomaly of the gastrointestinal tract. Its incidence is estimated to be 1-3% (1) with an annual morbidity ranging from 0.79% to 5.6% (1). It affects both sexes equally. It results from improper closure of the omphalomesenteric duct which connects the midgut with the yolk sac during embryonic life. It should close during 6th week of gestation.

The anatomical localisation of Meckel’s diverticulum differs but it is most commonly found in the 1 m distal portion of ileus on its antimesenteric border (2). Its length also ranges, from 0.5 cm to 85 cm with mean length of 5 cm. Meckel’s diverticulum may contain heterotopic mucosa (gastric, duodenal, pancreatic or colonic). It has been reported in 6 to 17% of Meckel’s diverticuli (3). About 80 – 85% of ectopic tissue in Meckel’s diverticuli is gastric (4). Meckel’s diverticulum is usually asymptomatic and is incidentally found intraoperatively or during autopsy. The complications are more common in male patients. Cullen et al. in their study report that complications were more often among men with the risk of 124/100 000/year, than among women (50/100 000/year). The lifetime risk of developing complications was 6.4% (5). Approximately 60% of patients who need medical attention are under the age of 10 (6). Complications associated with a Meckel’s diverticulum depend on age. According to DiGiacomo et al. intestinal obstruction is the most common complication in adults (33% of complications) (7). Diverticulitis is also common (30%).

Other complications include perforation, peptic ulceration of ectopic mucosa, foreign bodies and neoplasia. Factors predisposing to complications are: male sex, age below 40, presence of heterotopic mucosa and anatomical details (narrow neck of the diverticulum and more than 5 cm of length) (3). Rarely a Meckel’s diverticulum can be a part of the contents of a hernial sac which can also cause intestinal obstruction. Its strangulation in a hernia represents 10% of all possible complications (3). Hernias containing a small bowel’s diverticulum was reported for the first time by Littre in 1700. However the diverticulum itself was described 112 years later by Meckel. We present a case of an umbilical hernia with incarcerated Meckel’s diverticulum.

CASE REPORT

A P.K. 22 years old male (no 15502/10) was admitted to the Department of General and...
Thoracic Surgery, Medical University of Warsaw with a 12 hour history of abdominal pain localized in both lower quadrants. He also complained of nausea, vomiting and difficulties with miction. There was no history of chronic diseases. The patient underwent inguinal hernioplasty during childhood.

On physical examination there was a tenderness on palpation of the hypogastric and umbilical region. No guarding or rigidity of abdominal muscles were present. Peristalsis was normal. There was no fever, tachypnea or tachycardia. Patient’s blood pressure was 120/80. The patient’s white blood cells count was within the normal range, however 6 hours later it was elevated (14 680/µl). In laboratory tests only blood serum amylase was below normal range. C-reactive protein was normal as well as other hematological and biochemical findings. Coagulation markers were unremarkable. There were vestigial amount of proteins, blood and ketone bodies in urine sample. US revealed a single, widened loop of small intestine just below the abdominal wall. The loop extended to the umbilicus. This suggested incarceration of the umbilical hernia.

The patient underwent surgery. A small amount of liquid was found in the peritoneal cavity. The presence of Meckel’s diverticulum (measuring 7 cm) was discovered. The greater omentum was strangulated at the base of the diverticulum which was distended and inflamed.

The hernias ring was cut and a small fragment of the greater omentum was resected. The distal end of a diverticulum was then cut off from the umbilical ring (fig. 1). The ring was sutured from inside. A diverticulectomy was performed and small intestine was sutured. Haemostasis was controlled and a drain was left in the peritoneal cavity. The postoperative hospitalization was uneventful. The histopathological evaluation revealed thickened, inflamed and covered with petechia wall of the diverticulum consistent with Mackelitis phlegmonosa. During 6 months of observation the patient remains in good condition.

DISCUSSION

The preoperative diagnosis of Meckel’s diverticulum is difficult to establish. Less than 10% are diagnosed before surgery (8). If there is a gastric mucosa present Technetium-99m Sodium Pertechnetate scan may be helpful in providing diagnosis (9). Unfortunately in adults the accuracy of this evaluation is less than 50%. The sensitivity and specificity may be increased by using cimetidine, pentagastrin or glucagon. Computed tomography, abdominal X-ray or ultrasonography are rarely helpful.

The Littre’s hernia (containing Meckel’s diverticulum) is not easy to diagnose either. It is more subtle in nature than those with strangulated loops of small bowel and majority of cases are with mild symptoms or even asymptomatic (10). The main symptoms are often inconclusive: fever, nausea, vomiting, local or diffuse abdominal pain. The symptoms tend to be less severe and it takes longer for their manifestation than in other types of hernias. In some cases there is a swelling presenting in the vicinity of the hernia due to local inflammation (3). Fecal fistulas or perforation within the hernial sac may occur (9). Obstruction can manifest when the diverticulum is causing kinking of the intestine, or in cases of chronic diverticulitis (11). Peritonitis is very rare.

Fig.1. Meckel’s diverticulum released from the umbilical ring
The mainstay treatment of Meckel’s diverticulum is surgery. A wedge resection of diverticulum with ileum repair is the treatment of choice in case of Littre’s hernia. The segmental small bowel resection with end-to-end anastomosis may be required in cases of perforation, induration of the inflammatory process or if the base of diverticulum is too wide to suture intestine transversely. It can prevent stricture of the ileal segment containing the diverticulum.

The treatment of incidentally found, asymptomatic diventriculi was always a controversial issue. Cullen et al from Mayo Clinic suggest in their study that incidentally discovered Meckel’s diverticulum should be removed (5). Their study revealed greater risk of a long term complications in case of diverticulectomy performed due to its complications (7%) than in cases of the removal of incidentally found diventriculi (2%).

CONCLUSION

Littre’s hernias are rare complications of a Meckel’s diverticulum. The proper preoperative diagnosis is difficult to establish although it should be considered in a differential diagnosis in every case of abdominal disease that is not sufficiently apparent.

REFERENCES