A case of intussuscepted and incarcerated Meckel’s diverticulum in to the coecum

Srdjan Dikic1,2, Svetlana Dragojevic2,3, Darko Zdравкович1,2, Miroslav Djordjević1,4, Vladimir Kovčin2, Aleksandar Milovanovic5
1 Department of Esophago-Gastric Surgery KBC "Bežanijska kosa", Belgrade, Serbia
2 Faculty of Medicine, University of Belgrade, Serbia
3 Department of Obstetrics and Gynecology "Narodni front", Belgrade, Serbia
4 Department of Oncology KBC "Bežanijska kosa", Belgrade, Serbia
5 Institute for Occupational Medicine, Belgrade, Serbia

BACKGROUND: Intussusception with the Meckel’s diverticulum is rare cause of small bowel obstruction in the adults. The Meckel diverticulum is the most common cause of intestinal obstruction in children. METHODS (CASE REPORT): We present a case of 18-year-old boy with developing signs of small bowel obstruction. The onset of disease was the day before the first examination. There was no history of prior surgery. According to the clinical symptoms, physical examinations as well as radiographic and ultrasound examination, surgical treatment was indicated. Surgical approach was inferior medial laparotomy. Intussusceptions of the Meckel’s diverticulum and into the coecum with incarceration were found. De-sincarceration and simple diverticulectomy was done. CONCLUSION: The Meckel’s diverticulum should be consider as a possible cause of the small bowel obstruction in previously healthy patient.

Key words: Meckel’s diverticulum, bowel obstruction, coecum

INTRODUCTION

The Meckel’s diverticulum is part of the spectrum of anomalies involving omphalomesenteric duct remnants and occurs on the antimesenteric border of the ileum, usually 40-60 cm proximal to the ileocecal valve. Bleeding, inflammation, obstruction or umbilical drainage are the most observed symptoms in adults. It was mentioned for the first time by F. Hildanus in 1598. In 1809, an anatomist, J. Meckel, described this anomaly in detail. He described intussusception as invagination of a proximal part of small bowel (intussusceptum) into the adjacent-distal segment (intussuscipiens) like the parts of a telescope1,2. The cause of intussusceptions is unknown, except in the case of polyp placed in the Mekel’s diverticulum, where the one part of intestine can be withdraw into another-distal part by the polyp. Meckel diverticulum are found in approximately 1-3% of the population, being the most common cause of intestinal blockage among children between the age of 3 months and 3 years, twice as more frequently in males3. Slightly more than one half contain ectopic gastric mucosa. Peptic ulceration of this or adjacent mucosa can lead to painless bleeding, perforation, or both4. Intussusception occasionally affects older children. Usually intussusception causes sudden stomach pain and vomiting in otherwise healthy child. The pain becomes continuous and because of shut off the blood flow, the affected intestine may die (develop gangrene) with bacterial abdominal cavity contamination (peritonitis). An unusual case of intestinal obstruction caused by cecal incarcerated Meckel’s diverticulum with ectopic gastric mucosa is presented.

Case Report

An 18-year old boy presented to the emergency room complaining of a periodically strong abdominal pain lasting about 12 hours. There was a history of vomiting and abdominal distension and the absence of flatus, fever and history of previous bleeding. His white blood cell count was 22000/mm3. First abdominal x-rays revealed two intensely and several mildly dilated loops of small bowel as late intestinal obstruction omen (Fig 1). To the gastric tube set, intestinal content appears also as symptom of late bowel obstruction. Ultrasound examination notes a huge intraabdominal amount of liquid, due the transudation, with extremely small bowel dilatation without intestinal motility. In spite of high white blood cell count, x-ray, and ultrasound findings, there were no sign of peritonitis. Most convincing sign imitated mild appendicitis. After 3 hours blood examination presented extremely white blood cell decrease to 6000/mm3. Despite better general condition, patient underwent laparotomy, because of periodically abdominal pain.
During laparotomy, dilated small bowel from ligamentum Treitz were encountered. Intraluminal solid mass as a ribbon, in the length of 40 cm from the coecum, was observed ending up in the coecum and looked like cecal intra-luminal tumor mass. It was seen depression forty centimeters from the coecum, at the beginning of thickening on the antimesenteric border, representing as a beginning of small bowel intussusceptions (Figure 2).

Small bowel re-position with sample drawing was not possible, because of a serious risk of bowel rupture. However, desinvagination was possible after palpable intracecal mass desincarceration, by pressing over the coecum and through the Bauchini valve. Gangrenous and edematous apex of the Meckel’s diverticulum was cause of incarceration (Figure 3a,3b). Intussuscepted ileum was not congestive and markedly distended, and because of healthy diverticulum baseline, simple diverticulectomy was performed.

**DISCUSSION**

The intestinal intussusception caused by the Meckel’s diverticulum is uncommon in adults, and represents 4 percent of cases of intestinal obstruction. Incarcerated intussuscepted small bowel caused by Meckel’s diverticulum is more unusual. The usual place of intussusception is proximal to the ileocecal valve. Other pathological process identified as causative factors of intussusceptions are: tumors (52%), postoperative complications (36%) and idiopathic with the prevalence of 8%. Complications of Meckel diverticulum are numerous and include: hemorrhage, inflammation, gangrene and perforation, inversion and intestinal obstruction, neoplasma, and stone impaction. Intussusception of the small bowel by Meckel diverticulum, might be a cause of serious complications such as small bowel obstruction and compromise the blood supply at the end point producing gangrene and peritonitis. The exact diagnosis of intestinal obstruction caused by inverted Meckel diverticulum in adults is difficult.

The clinical evaluation with periodically strong abdominal pain and distension, vomiting, without previous operations raises suspicion of small bowel obstruction. For detection small bowel obstruction, X-ray and ultrasound examination are most important diagnostic procedures. In case of Meckel diverticulum perforation, peritonitis and white blood cell count are leading parameters. In case of asymptomatic or mild symptomatic periodically abdominal pain, barium x-ray examination as well as CT scan may be useful in the diagnosis of Meckel’s diverticulum.

Most of asymptomatic Meckel’s diverticulum found incidentally during laparotomy. To prevent future complications some authors suggests resection. Lifetime risk of developing symptoms of Meckel’s diverticulum is low (6.2%). Having in mind the information that morbidity and mortality associated with asymptomatic Meckel’s diverticulectomy is 4.1% and 0.2%, incidental diverticulectomy discouraged some surgeons. In pediatric patients some surgeons advise the removal even of asymptomatic diverticulum, particular those with long mesodiverticular vascular strand or those with adhesions because of possible strangulation or volvulus. Symptomatic Meckel’s diverticulum should undergo resection. Whether diverticulectomy or segmental resection should be performed is mater of small bowel condition. In case of good Meckel’s diverticulum baseline condition, sample diverticulectomy may be performed. Otherwise, segmental small bowel resection is method of choice.
In our case report, gangrenous apex of inverted Meckel’s diverticulum with ectopic gastric mucosa, without previous history of bleeding, and small bowel intussusceptions incarcerated in cecal valve caused ileus. With healthy Meckel’s baseline and good small bowel condition, sample diverticulectomy was performed. Seven days after surgical procedures 18 years old boy was dismissed.

SUMMARY

SLUČAJ INTUSUSCEPCIJE I INKARCERACIJE MECKEL-OVOG DIVERTIKULUMA U CEKUM

Uvod: Intususcepcija i opstrukcija tankog creva uzrokovana Mekel-ovim divertikulumom je retko oboljenje kod odraslih osoba. Kod dece je pak Meckel-ov divertikulum najčešći uzrok intususcepcije i crevne opstrukcije.

Materijal i metoda: U prikazu slučaja opisana je intususcepcija tankog creva kod mladića od 18 godina sa izraženim znacima crevne opstrukcije. Prvi simptomi crevne opstrukcije se javili jedan dan pre prvog pregleda, a u ličnoj anamnезi pacijenta, ne postoji podatak o prethodnoj operaciji. Shodno simptomima bolesti, dijagnostika je provedena fizikalnim pregledom, radiografijom abdome, ultrazvukom, kao i biohemijskim ispitivanjima. Po završenom ispitivanju postavljena je indicacija za hirurško lečenje. Operativno lečenje je potvrdilo preoperativno postavljenu dijagnozu intususcepcije tankog creva, ali sa inkarceracijom Meckel-ovog divertikuluma u cekum.

Hirurško lečenje se sastojalo u dezinkarciji Meckel-ovog divertikuluma iz cekuma i njegovom odstranjivanju.

Zaključak: Meckel-ov divertikulum može biti uzrok intususcepcije i crevne opstrukcije i kod starijih, prethodno združenih osoba. Veoma retko može doći do inkarceracije Meckelovog divertikuluma u cekum kroz Bauchinini valvu.

Ključne reči: Meckel-ov divertikulum, opstrukcija creva, cekum

REFERENCES