

MECKEL'S DIVERTICULUM IN A MALE CALF: CASE REPORT\*  
ERKEK BİR BUZAĞIDA MECKEL DİVERTİKULUMU: OLGU SUNUMU

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**ABSTRACT** The following report presents the diagnosis and surgery of Meckel's diverticulum in a male calf. A five months old male cross breed 100 kg weighing calf was used as animal material. After immediate clinical and ultrasound examination, surgery was carried out because suspicions of strangulation and invagination. In ventral abdominal cavity, intestinal segment was partially adhered to umbilical ring. This part was separated with blunt dissection, while an assistant applied pressure from ventral to dorsal of abdomen. After dissection, this part was taken out from the abdominal cavity and the ileum was seen. Meckel's diverticulum was diagnosed in operation.

**Key words:** Calf, Meckel's diverticulum, operation

**INTRODUCTION** Meckel's diverticulum (MD) is a congenital anomaly of gastrointestinal tract and in the majority of cases it remains asymptomatic (1). During early embryonic development the midgut and yolk sac connection is reduced to a narrow duct, named vitelline. Associated with this duct, there are two vitelline arteries that reach the yolk sac. Ultimately this connection is lost and the site is occasionally seen as a small diverticulum named Meckel's of adults jejunum (2). It represents persistence of the embryonic omphalomesenteric duct, which is the embryonic connection between the primitive gut and yolk sac (3). Rarely, it may form a loop due to adhesions its distal end and the bowel or the mesentery or may be a complete diverticulum or only a small fibrous remnant attached to the antimesenteric surface of an otherwise normal ileum (1, 3). The purpose of this case report is to present the clinical signs, surgical management and prognosis of MD in a male calf.

**Case description**

In the presented case; five months old male cross breed calf weighing 100 kg, which referred to Selçuk University surgery department of large animal clinic

\*This case was presented in XII. National Veterinary Surgery Congress, on 19-22 May 2010, in Belek-ANTALYA.

Makale Geliş Tarihi : 24.09.2014

Makale Kabul Tarihi:24.11.2014

**ÖZET** Bu olgu sunumunda erkek bir buzağında görülen Meckel divertikulununun operatif sağaltımı ve sonucu değerlendirilmiştir. Çalışma materyalini beş aylık, erkek, 100 kg ağırlığında melez bir buzağı oluşturdu. Klinik ve ultrason muayenesi sonucunda hayvan strangulasyon ve invaginasyon şüphesi ile operasyona alındı. Abdominal kavitede bağırsak segmentinin göbek deliğine kısmen yapıştığı görüldü. Yapışan kısım eş zamanlı olarak dışardan bir yardımcının ventro-dorsal yönde basınç uygulaması ile küt olarak ayrıştırıldı. Küt diseksiyon sonrası ayrıştırılan kısmın abdominal kaviteden dışarı alındığında ileum olduğu tespit edilerek olgunun Meckel divertikulumu olduğu saptandı.

**Anahtar kelimeler:** Buzağı, Meckel divertikulumu, operasyon

was used as animal material. In the case history, knowledge of no feeding for a week and defecation for five days were noted. The clinical and ultrasound (Fig.1)



Figure 1: Ultrasound examination of abomasum.

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examination were carried out in Selcuk University by internal medicine department of large animal clinic and then immediately referred to surgery clinic because of strangulation and invagination. In ultrasound examination abomasum was full and tense (Fig.1). After routine preparations for surgery, local infiltration anaesthesia with lidocain hydrochloride (Adokain 2 %, 20 ml, Sanovel) was made from left fossa of paralumbal region. Laparotomy was carried out in standing position. A 15 cm length incision was made from left paralumbal fossa. Then abdominal muscles and peritoneum were dissected carefully. Intravenous fluid therapy (NaCl 0.09 %, Ringer Lactate 1000 ml Polifarma) was given during operation. In transperitoneal examination of abdominal organs, no obstruction or pathology associated with invagination were identified. In ventral abdominal cavity, intestinal segment were partially stuck to umbilical ring (Fig.2).



**Figure 2.** Stuck and dissected part of ileum (Meckel's Diverticulum).

This part was separated with blunt dissection, at the same time an assistance made pressure from ventral to dorsal of abdomen. After dissection, this part was taken out from the abdominal cavity and the ileum was determined (Fig.3).



**Figure 3.** Ileum and Meckel's diverticulum.

This segment of bowel at the antimesenteric side of ileum was 4 cm in wide and 5 cm in length found to be

MD. The part of diverticulum had normal intestinal wall thickness, two circular area on serosa with negligible necrosis (Fig.3).

Released part of MD was sutured with vicryl (1 size Ethicon) by bringing together and not creating penetration form vertical lambert sewing technique. Abdominal wall and skin were closed routinely.

Intramuscular penicilline and streptomycin (benzyl peniciline prokain 200.000, dihydrostreptomycin sulfate 200mg, 1 ml, Reptopen-S, CEVA) 10 mg/kg was administered for five days, flunixin meglumine (50 mg flunixin meglumine, 1 ml, Flumed, ALKE) 2.2 mg/kg was administered for three days intramuscularly. The calf was hospitalized for three days in clinic. In the first day of postoperative period, defecation started and general condition was improved. In third day of hospitalization, general condition was controlled and clinical examination was repeated again, and the calf was discharged.

### DISCUSSION

MD was first described by Fabricius Hildanus in 1598. The name derives from the German anatomist Johann Friedrich Meckel, who described the embryological and pathological features in 1809. Meckel's diverticulum is observed between five and seven weeks of fetal life in humans. Normal omphalomesenteric channel should be closed in these weeks. MD results from the persistence omphalomesenteric duct (4, 5). In domestic animals, it is most commonly found in horses and swine, rarely reported in cattle (3, 6). In this report, MD was diagnosed in a male calf.

No impaction, strangulation or intussusception of MD have been reported in animals previously (1-3). In this case after physical and ultrasound examination, operation was required because of strangulation and invagination. But only impaction and small necrosis effecton on serosal surface were determined in the operation.

Most cases of small intestinal diverticulosis reported in the literatures have been presented with acute or chronic abdominal pain or both, associated with small intestinal perforation or obstruction (7, 8). There was no abdominal pain associated with intestinal perforation detected in this report.

The majority of the cases remain asymptomatic, but complications include hemorrhage, intestinal obstruction, diverticulitis, umbilical discharge, perforation, and peritonitis (1). Most common complication of MD's are obstruction, diverticulitis and gastrointestinal bleeding. In humans, obstruction and diverticulitis are most commonly encountered. Invagination, perforation and adhesion occurred in MD due to these complications (9). In our case, impaction and adhesion were identified. Because of these findings no gastrointestinal motility was detected, furthermore, there was no feeding for a week in the anamnesis.

In this case, MD in the antimesenteric border of the jejunum was identified and causes rarely no feeding and defecation. These anomalies likely occurred during embryonic or fetal development, however did not cause any clinical signs until the small intestine became impacted or entrapped in the blind sac. Therefore, if a

diverticulum is discovered during an exploratory laparotomy for reasons other than strangulation, one should consider the part of diverticulum sutured by bringing together and not creating penetration form of vertical lambert sewing technique to prevent strangulation in the future. However, once strangulation occurs, prompt surgical treatment with resection and anastomosis of strangulated bowel may result in a favorable outcome.

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