



## Meckel's Diverticulum's Injury after Penetrating Abdominal Trauma

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### Abstract:

The case report of an injury to the Meckel's diverticulum after penetrating injury to the abdomen (stab right flank) is presented. While there was no initial proof of intra-abdominal injury, the patient was admitted for observation, and developed peritoneal signs within 6 hours. We report right flank stab wound which resulted in a simultaneous injury of Meckel's diverticulum and small bowel without any obvious manifestations of internal organ injury. After laparotomy with ileal segmental resection and primary anastomosis, an uneventful recovery followed.

**Key words:** Abdomen, Abdominal Injuries, Laparotomy, Meckel Diverticulum, Stab Wounds.

### Introduction

In 1595, for the first time, Hildanus described an ileal diverticulum, which was thoroughly scrutinized and defined by Johann Meckelin 1809 [1]. In most cases, Meckel's diverticulum is totally asymptomatic for life and does not cause any complications. In a small number of patients however, this diverticulum can become infected (diverticulitis), invaginate, lead to obstruction or may become ischemic with gangrene [2-6]. The symptomatic cases usually present with gastrointestinal bleeding, inflammation or intestinal obstruction which are the most common Meckel's presentations in adults [7], but can be found at any age. As such Meckel's incidence may be up to 1.5% of all "appendicitis" surgery cases [8].

In this challenging presentation, patient was asymptomatic at presentation. The discovery of simultaneous injury of Meckel's diverticulum and small bowel without any obvious manifestations of internal organ injury due to stab wound has only rarely been reported.

### Case Report

We describe a case of a 37-year-old man who presented at the emergency department (ED) immediately after succumbing to a stab wound in right side of his abdomen [Fig.1]. The patient arrived being hemodynamically stable and abdomen was non-tender on palpation. On rectal examination,

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no blood could be seen. Initial management of the patient involved intravenous fluid, routine blood tests and abdominal X-rays, which were normal and without free air. Ultrasound (US) of the abdomen didn't show free fluid in the peritoneal cavity, so the patient was admitted in observation.

Six hours later the patient developed abdominal pain of increasing intensity, and showed abdominal tenderness. An abdominal X-rays now proved free air in abdominal cavity [Fig.2]. In this situation an emergency laparotomy was decided and done. On exploration, the peritoneal cavity was filled with 600 cc of blood-stained intestinal fluid, while numerous dilated loops of small bowel were present [Fig.3]. At approximately 90 cm from the ileo-caecal junction there was an injury of Meckel's diverticulum, and another transactional jejunal injury 150 cm from the Treitz Ligament. The ileum was repaired as a segmental bowel resection including Meckel's diverticulum; the jejunum was closed in two layers without any tension. The patient has a normal postoperative recovery. The postoperative period was uneventful, and the patient was discharged on the fifth day postoperatively.

## Discussion

The first case of ruptured Meckel's diverticulum was reported by Blanc in 1899 [9]. However, traumatic rupture of Meckel's diverticulum has been reported previously in few instances [1,10-13]. Injury of Meckel's diverticulum after penetrating abdominal trauma may be a rare cause in the adult and has been not reported previously. Anyhow, this is not to say that this entity does not occur. In penetrating abdominal trauma, especially in gunshot to the abdomen with involvement of the large vessels or the parenchymatous organs, bleeding might occur as well as bowel injury. Prioritizing care, the surgeon will stop the bleeding first, pack or remove the solid organs, stop the contamination and will go out of the abdomen. When the revision takes place, any



**Fig.1:** Stab wound in right side of abdomen.



**Fig.2:** Abdominal X-ray.



**Fig.3:** The injury of Meckel's diverticulum.

bowel suture or resection will have lower priority as bleeding control checks are of major importance. So, even if Meckel injuries are there, they will be handled as “normal” bowel injuries, and although realized, will not make it to publication.

Thus, although gunshot Meckel may be present, it is most unlikely to be reported or published. A stab Meckel is of course interesting, as stab injuries to the fixed hollow organs (colon, duodenum, stomach) and to the fixed organs (liver, spleen, kidney) are much more common as to the mobile small bowel. Blunt abdominal trauma may harm a Meckel's diverticulum especially if a residual meso-diverticular band to the Meckel is present, which may rupture tear the diverticulum open on forceful movement of the abdominal contents [10].

## Conclusion

This case shows that in penetrating abdominal trauma injury any bowels as well as the Meckel's if present may be injured. Therapy is straight forward with resection and bowel repair, which leads to an uneventful recovery if done early. Not only during appendectomy, but also during trauma laparotomy a Meckel may be present and is worth being treated if injured.

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