Annals of Medical Case Reports

ISSN: 2689-5927

Case Report

Symptomatic Meckel´s Diverticulum in an Adult Diagnosis and Surgical Management: Case Report

Heriberto Ochoa Cantú, Samuel Rodrigo Gómez Arenas, Diego Andrés de León Rosas, Diego Andrés Bolaños Maya, David Eugenio Guzmán de la Garza, Juan de Dios López Montero and Rogelio Alejandro Sifuentes Gallardo*

Department of General Surgery, Christus Muguerza Hospital Alta Especialidad, México

Abstract

A 27-year-old male patient who had started 3 hours earlier with hematemesis and syncope, accompanied by hematochezia and hypovolemic shock. He was resuscitated and an upper endoscopy and colonoscopy where performed which failed in finding the source of gastrointestinal bleeding. It was decided to perform a diagnostic laparoscopy where a Meckel´s diverticulum was finded, it was surgically resected and sent to pathology, where the Meckel`s diverticulum was confirmed with ectopic gastric mucosa in it. This case reminds us of the importance of having this type of pathology among our differential diagnoses for gastrointestinal bleeding despite not being in the age of highest incidence and taking into account that it may go undetected in endoscopic studies. While having the knowledge we could lead to a beneficial prognosis for our patients and contribute with these relevant cases to other readers.

Keywords: Hematochezia; Gastrointestinal bleeding; Upper endoscopy; Colonoscopy; Acute blood loss anemia; Meckel's diverticulum

Introduction

Meckel's diverticulum is a relatively common congenital gastrointestinal malformation of the ileum, caused by incomplete obliteration of the yolk sac in the embryo, giving rise to a pouch-like structure of the intestinal [1]. It's usually formed around the fourth week of gestation and involuted or reabsorbed around the fifth to ninth week [2]. Meckel's diverticulum has a reported prevalence of between 0.3% and 2.9% in the general population; it's more common in males and in pediatrics than in adults [3]. This persistent malformation of the bowel can usually go unnoticed as it is mostly asymptomatic, however it can cause a number of clinical problems, including gastrointestinal bleeding, volvulus, intussusception or obstruction, leading to serious complications [2,3]. The importance and relevance of this study is to see that in spite of the advanced technology we may have with our diagnostic studies, there are pathologies such as this one that still require surgical approach to reach the diagnosis and perform the required treatment.

Case Presentation

We present a case of a 27-year-old Mexican male patient, professional, single with economic independence and a BMI of 24. He reports having no relevant medical history or significant allergies, he started 3 hours prior to his admission to the emergency department when he presented hematemesis up to 3 times in a sudden way, with an episode of syncope, when he regained consciousness he presented abdominal pain of stabbing type located in the epigastrium accompanied by 2 episodes of hematochezia, reason for which he was taken to the emergency department. He denies heredofamilial history of relevance and occasional alcohol and tobacco consumption.

On arrival, he was diaphoretic, tachycardic and hypotensive, laboratories reported iron deficiency anemia with a hemoglobin of 8.5 (14-18 g/dl), Mean Corpuscular Volume (MCV) of 93.5 (80-94 fL), Mean Corpuscular Hemoglobin (MCH) of 30.6 (28-32 pg), leukocytes of 7,020 (4,500-11,500) with neutrophils 40.5% (50%-70%), eosinophils 5% (1%-3%), other studies within normal parameters, he was managed by an emergency physician for fluid replacement and was referred to the gastroenterology department that once the patient was stabilized they decided to perform an esophagogastroduodenoscopy without identifying bleeding data (Figure 1), so it was decided to perform a colonoscopy, the colon was explored up to the ileocecal valve, finding only hematic remains with no data of active bleeding, advanced to the terminal ileum 80 cm, identifying hematic remains and clots of possible bleeding from the small intestine without locating the site of bleeding (Figure 2), so it was decided to consult the department of general surgery for joint management.

The general surgeon made the decision to schedule a diagnostic laparoscopy to make the diagnosis and perform the necessary surgical treatment to treat the gastrointestinal bleeding. The procedure was performed by 2 external doctors with general surgery experience as well as a fourth-year general surgery resident, performed in a high specialty hospital in northern Mexico. Prophylactic antibiotic therapy was started with cephalothin (2 g IV) 1 hour preoperatively.

Under balanced general anesthesia, a laparoscopic approach was started with the patient in French position, insufflating pneumoperitoneum with Veress needle with intra-abdominal pressure at 15 mmHg, placing 1 trocar of 11 mm through the umbilical scar, another of 5 mm to the left flank and one more of 5 mm in the right flank, using a 5 mm lens, the cavity is found to be clean with no bleeding or free liquid, we proceed to explore from the ileocecal valve to the ligament of Treitz, identifying Meckel's diverticulum at

Citation: Cantú HO, Arenas SRG, de León Rosas DA, Bolaños Maya DA, de la Garza DEG, Montero JDL, et al. Symptomatic Meckel´s Diverticulum in an Adult Diagnosis and Surgical Management: Case Report. Ann Med Case Rep. 2023;5(1):1042.

Publisher Name: Medtext Publications LLC

Manuscript compiled: Oct 30th, 2023

***Corresponding author:** Heriberto Ochoa Cantú, General Surgery Department, Christus Muguerza Hospital Alta Especialidad, Monterrey, Nuevo León, México, Tel: +52-8110654209

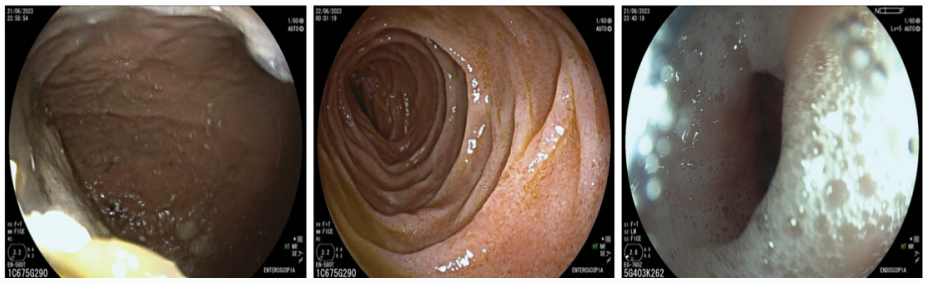

Figure 1: Upper endoscopy negative for upper hemorrhage.

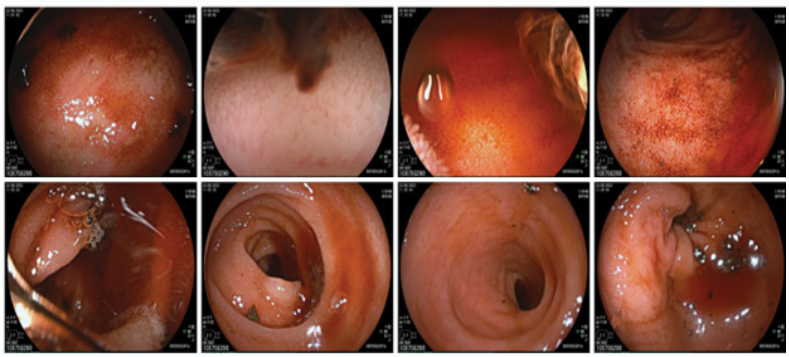

Figure 2: Enteroscopy is advanced to the terminal ileum finding only hematic debris and clots without identifying the site of hemorrhage.

approximately 80 cm from the ileocecal valve, inflamed with data of possible intraluminal hemorrhage distal to it, it is verified that there is no other alteration in the rest of the intestine. The segment of terminal ileum containing the diverticulum is exteriorized through the umbilical port, which was enlarged to a diameter of 3 cm × 3 cm, using a flexible wound retractor type Alexis O, small size, to extract the loop of ileum with Meckel's diverticulum (Figure 3). It is decided to perform a resection of the intestinal segment of the terminal ileum including the diverticulum in its entirety, 10 cm of intestine is sectioned, with its diverticulum of 4 cm × 2 cm (Figure 4) and an anastomosis of the terminal ileum is performed with a linear mechanical stapler blue cartridge and manual closure of enterotomy with total stitches with a continuous suture of Stratafix 2-0 barbed suture. Pneumatic test was verified without leakage data from the anastomosis site and the intestinal loop was reintroduced, a laparoscopic time was performed again to corroborate hemostasis, once it was verified, trocars were extracted under direct vision and ports were closed by planes, the fascia of the extended umbilical port was closed with 2-0 PDS and then cellular tissue with 2-0 vycryl and skin of the 3 ports with 3-0 monocryl. The surgical time end and the patient passed to stable recovery.

The histopathology report confirmed the diagnosis of Meckel's diverticulum, reporting a true diverticulum containing all the layers of the intestinal wall, with body-type gastric mucosa with parietal and principal cells and in its lamina propria there are some superficial lymphoid and neutrophilic aggregates, without the presence of pancreatic tissue (Figure 5). Postoperatively, cephalothin (1 g IV every 8 hours), ketorolac (30 mg IV every 8 hours), acetaminophen (1 g IV every 8 hours) and omeprazole (40 mg IV every 24 hours) were used. One of the difficulties at the time of diagnosis is that it could not be identified at the time of endoscopic studies. We should always keep in mind this differential diagnosis in upper gastrointestinal tract bleeding, especially in young patients with sudden bleeding.

The patient had an adequate postoperative evolution, with good tolerance to diet and pain, so it was decided to discharge him on the third postoperative day, with alarm data and evaluation in the consultation room. A follow-up appointment was made on the 7th day after discharge for wound assessment. No laboratory or imaging studies were requested at the consultation. Postoperative instructions were relative rest, normal diet, no heavy lifting, normal wound washings and acetaminophen (500 mg O.V. every 8 hours for 7 days) for pain management. The clinical outcome was favorable and expected with respect to the pathology and evolution, following the established literature.

Discussion

Approximately 75% of gastrointestinal bleeding can be found in the small intestine. In young people they may be due to small bowel tumor, Meckel's diverticulum, Crohn's disease, in those over 40 years of age due to vascular lesions or intestinal disease due to NSAID use [4]. Intestinal diverticula are rare in patients under 60 years of age,

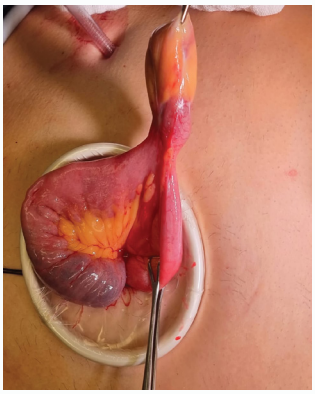

Figure 3: Segment of terminal ileum containing Meckel's diverticulum exteriorized through the umbilical port with Alexis O flexible retractor, showing the presence of intraluminal bleeding in the segment distal to the diverticulum.

Figure 4: Resected piece of terminal ileum with Meckel's diverticulum measuring 4.4 cm × 2.2 cm × 2 cm.

being found only in up to 20% of patients under 40 years of age [5]. According to some authors, the location of Meckel's diverticulum may vary depending on the age of the patient, being reported at 34 cm from the ileocecal valve in patients under 2 years of age, 46 cm in patients aged 3-21 years and up to 67 cm in adults [6].

In terms of diagnosis, the capsule endoscope is a technological tool for the search of small bowel lesions in a non-invasive and simple way. It has been proven in a variety of studies that this endoscopic capsule has the ability to detect small bowel lesions in gastrointestinal bleeding. It is a tool that can visualize the entire gastrointestinal tract. Diagnostic laparoscopy is often a safe and efficient way to locate small bowel lesions, functioning also as a therapeutic tool to resect Meckel's diverticulum. It is only not recommended in the first instance because it is more invasive [7].

As for treatment, we can find diverticulectomy or segmental resection, done by laparoscopic surgery or laparotomy. Recent studies have reported that both can be performed, taking as a reference the size of the diverticulum, being that the type of surgery will depend on the location of the ectopic tissue. It's recommended that diverticulectomy can be performed in diverticula larger than 2 cm and segmental resection in diverticula smaller than this size [8]. Blouhos et al. [9] reported that the presence of ectopic tissue is usually found at the tip or body of the diverticulum, hardly at the base. Since there is no way to know until the histologic report the presence or not of ectopic tissue, if the pathology reports residue or ectopic tissue in our diverticulectomy margins, it is recommended to return to do the segmental resection in the second surgical time.

Although this type of intestinal lesion is considered benign, there is evidence that Meckel's diverticulum may be malignant [8], and studies have reported neoplasms in the range of 0.5%-3.2% [10].

Methods

This case report has been reported in line with the SCARE Criteria [11].

Conclusion

This case shows us the importance of keeping in mind this diagnosis, as infrequent as it may seem and that it is not the usual age, as well as knowing the different tools that we can use to reach the diagnosis and know the different surgical methods that we can implement in it. Keeping in mind that we must individualize each case that is presented to us, always looking for the best result, with benefit to our patient. For better diagnostic studies that we have at hand not all will give us the diagnosis but a joint support will lead us to the resolution of our pathology.

References

1. Hariharan A, Amin S, Munankami S, Shrestha M, Altomare J. Symptomatic Meckel's Diverticulum Presenting as Recurrent Gastrointestinal Bleeding in an Adult. Cureus. 2023;15(7):e41723.
2. Rayan MN, Tang X, Khazem M, Clements W, Bray C. Case for Thought: Meckel's Diverticulum in the Adult Population. Cureus. 2022;14(4):e24494.
3. Hansen CC, Søreide K. Systematic review of epidemiology, presentation, and management of Meckel's diverticulum in the 21st century. Medicine (Baltimore). 2018;97(35):e12154.
4. Lee JY, Jang JY, Kim MJ, Lee TI, Kim JW, Chang YW. Congenital Jejunal Diverticular Bleeding in a Young Adult. Clin Endosc. 2017;50(5):495-99.
5. Peery AF, Barrett PR, Park D, Rogers A, Galanko JA, Martin CF, et al. A high-fiber diet does not protect against asymptomatic diverticulosis. Gastroenterology. 2012;142(2):266-72.e1.
6. Arnold JF, Pellicane JV. Meckel's diverticulum: a ten-year experience. Am Surg. 1997;63(4):354-5.
7. Kuru S, Kismet K. Meckel's diverticulum: clinical features, diagnosis and management. Rev Esp Enferm Dig. 2018;110(11):726-32.
8. Lindeman RJ, Søreide K. The Many Faces of Meckel's Diverticulum: Update on Management in Incidental and Symptomatic Patients. Curr Gastroenterol Rep. 2020;22(1):3.
9. Blouhos K, Boulas KA, Tsalis K, Barettas N, Paraskeva A, Kariotis I, et al. Meckel's Diverticulum in Adults: Surgical Concerns. Front Surg. 2018;5:55.
10. Thirunavukarasu P, Sathaiah M, Sukumar S, Bartels CJ, Zeh H, Lee KKW, et al. Meckel's diverticulum--a high-risk region for malignancy in the ileum. Insights from a population-based epidemiological study and implications in surgical management. Ann Surg. 2011;253(2):223-30.
11. Agha RA, Franchi T, Sohrabi C, Mathew G, Kerwan A, SCARE Group. The SCARE 2020 Guideline: Updating Consensus Surgical CAse REport (SCARE) Guidelines. Int J Surg. 2020;84:226-30.

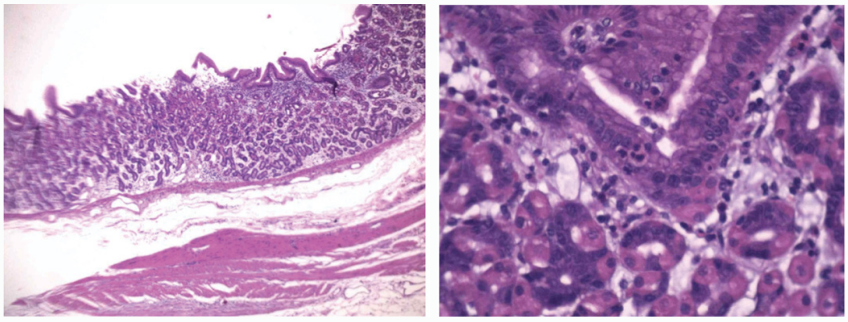

Figure 5: True diverticulum containing all layers of the intestinal wall, with body-type gastric mucosa with parietal and principal cells and in its lamina propria there are some lymphoid aggregates and superficial neutrophils, with no pancreatic tissue in it.