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A case of obscure gastrointestinal bleeding in a 18 yerar old woman

In this report, we discuss a case of an 18 year-old woman with obscure gastrointestinal bleeding (OGIB) revealed to be originated from a Meckel's diverticulum.
OGIB is defined as persistent or recurrent bleeding from a difficult to identify source and accounts for approximately 5% of all cases of GI bleeding. Lesions in the small bowel most commonly cause it. OGIB represents one of the most challenging disorders faced by gastroenterologists due to its evasive nature and difficulty in identifying the exact source of the bleeding. Recent technological advances such as capsule endoscopy, balloon-assisted enteroscopy, spiral enteroscopy and CTE have significantly improved our ability to diagnose and manage these patients.
We report this case to assess the importance of laparoscopy that nowadays is the only procedure that successfully detected the site of bleeding in up to 100% of cases.

KEY WORDS: Enterorrhagia, Gastrointestinal bleeding, Meckel's diverticulum, Obscure gastrointestinal bleeding

Introduction

Obscure gastrointestinal bleeding (OGIB) is defined as bleeding from the gastrointestinal (GI) tract that persists or recurs without an obvious etiology after an initial evaluation using bidirectional endoscopy and imaging with a small bowel radiograph[1].
OGIB can be classified as either: (1) occult OGIB, which is manifested by recurrent iron deficiency anemia and/or recurrent positive fecal occult blood test (FOBT) results; or (2) overt OGIB, which is manifested as melena or hematochezia.

One important characteristic of OGIB is that it is almost always recurrent. It accounts for approximately 5% of all gastrointestinal bleeding [2].
Etiologies of OGIB may potentially include any lesion from the oral cavity to the anorectum that can bleed into the GI tract.
The majority of OGIB cases are caused by lesions in the small bowel, which are difficult to assess with traditional endoscopic and radiological procedures. The remaining undiagnosed cases may be due to lesions overlooked on conventional upper endoscopy and colonoscopy.
Angioectasias of the small bowel are the most common source of OGIB in the elderly and account for 30% to 40% of gastrointestinal bleedings [3], whereas tumors such as leiomyomas, carcinoids, lymphomas, and adenocarcinomas are the predominant cause in patients aged 30 to 50 years [4].
The most common causes of upper gastrointestinal bleeding in children older than 12 years are oesophageal

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varices and gastritis. Erosions and ulcers from nonsteroidal anti-inflammatory drug (NSAID) use[5] and Crohn's disease of small bowel are also potential causes of OGIB.
Last but not least Meckel's diverticulum (MD) is also a potential cause of bleeding and should be considered in the differential diagnosis [6].
Meckel's diverticulum is the most common congenital anomaly of the gastrointestinal tract (occurring in 2%–3% of the general population) and it results from failure of complete obliteration of the vitelline duct [7]. Bleeding is the most common complication of Meckel's diverticulum.

Case report

An 18-year-old woman was admitted under the general surgical team with a 3-day history of dark-red per rectal bleed mixed with his stools without haematemesis, abdominal pain, weight loss, or fever. She reported one lipothimic episode had 4 days before. She had no significant previous medical history, no allergies and she was on no regular medication.
On admission clinical examination was unremarkable except for a tachycardia of 94 bpm and paleness of skin and visible mucoses. Blood pressure was 120/60 mmHg. Blood tests showed a haemoglobin level of 7,8 g/dl (MCV 83.2 fL) with normal inflammatory markers, U&Es, LFTs, clotting and amylase.
During first three days of hospitalization we performed various instrumental investigation: esofagogastroduodenoscopy up to the distal duodenum, computer tomography enterography and CT enteroclysis, video capsule endoscopy: all were negative.
The source of bleeding remained unknown. The third day the patient had abundant enterorragia, her hemoglobin value dropped to 6.8 so was necessary to transfuse packed red blood cells.
Patient was subjected to further instrumental investigations: urgent colonscopy (that revealed that entire explored colon was occupied by blood only partially digested so much that it was not possible to further exploration), computed tomography angiography (negative); technetium 99m-labeled red blood cell nuclear scan (negative).
During a week of hospitalization she was transfused with packed red blood cells 7 times and his hemoglobin level was still not stabilized.
It became necessary, therefore, perform a laparoscopy that showed a Meckel's diverticulum bleeding at 40 cm from the ileocecal valve. We proceeded then to diverticulum excision with a 45 mm endocutter (Fig. 1, 2) and to the positioning of a drainage into the Douglas pouch.
The postoperative course has been regular and patient was discharged on the 6th postoperative day with a haemoglobin level of 14,2 g/dl.

Discussion and Comments

The small bowel is up to 8 m long, occupying three fourths of the whole gastrointestinal tract.
Since massive small intestinal bleeding lacks specific clinical symptoms and signs, it is often difficult to diagnose and locate it by routine examinations [1,2,8].
Meckel's diverticulum is the most common congenital abnormality of the gastrointestinal tract, occurring in 1% to 3% of the population [7].
Bleeding is the most common complication of Meckel's diverticulum.
Although its pathologic and clinical features are well known, a preoperative diagnosis remains difficult to make [7].
There are many diagnostic examinations that can be useful in the diagnosis of MD, but most of them have their own limitations [9].
Evaluation of OGIB involves two types of investigations: radiological and endoscopic evaluations and in literature are proposed many diagnostic algorithms for it's therapeutic management [8,10,11].
The Tc-99m pertechnetate scintigraphy is the most commonly used diagnostic tool. It has a high accuracy (90%)

Fig. 1: Meckel's diverticulum surgical specimen.

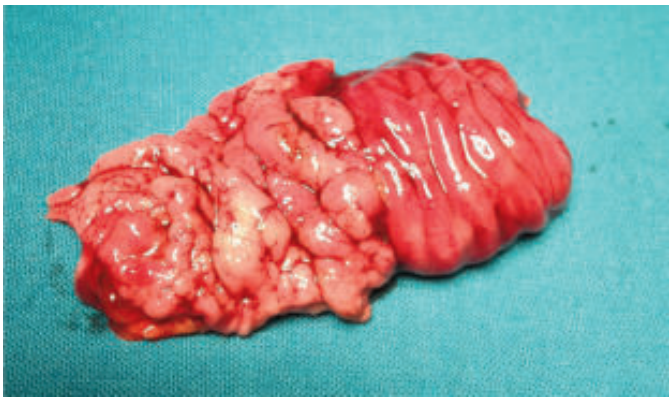

Fig. 2: Mucosal lining of resected bleeding Meckel's diverticulum.

in the pediatric patients but a low accuracy (46%) in the adult population [7].
Angiography could be useful in the setting of active bleeding but the diagnosis of Meckel's diverticulum is usually unsuspected [7].
Both capsule endoscopy [12] and double-balloon enteroscopy [13] are useful to investigate obscure gastrointestinal bleeding caused by Meckel's diverticulum.
Diagnostic limitations of imaging the small bowel create problems in accurate, early diagnosis.
The judicious use of video capsule endoscopy (VCE) and double balloon enteroscopy (DBE) could be useful diagnostic tools. A prospective study of patients with OGIB demonstrated a diagnostic detection rate of 80% and 60% for VCE and DBE, respectively 14 and these methods can be employed to detect Merckel's diverticulum presenting with OGIB. Although highly effective, capsule endoscopy has technical limitations, including a long turnaround time, visualization of only the mucosal surface, and the risk of capsule retention; in addition, incomplete studies are obtained in up to 20% of cases [15,16].
Other diagnostic methods to consider include contrast-enhanced computed tomography (CT) and CT angiography. Standard angiography and CT angiography have diagnostic limitations and require on-going bleeding. A Meckel's scan has high sensitivity for a Meckel's diverticulum except when there is active bleeding, as it induces a washout of the radioisotope in the Meckel's diverticulum.
As the last diagnostical step, according to the algorithms presents in literature, there is the laparoscopic approach [10]. Laparoscopy can clearly, directly and conveniently observe the whole intestinal serosa and mesentery and the small intestinal conditions can be managed with its assistance [17,18].
The safety and efficacy of diagnostic but also therapeutic laparoscopy are widely accepted [9].

Conclusions

Diagnostic laparoscopy, ultimately, can still be regarded as a definitive method in OGIB. As reported in literature, laparoscopy can successfully detect the site of bleeding in up to 100% of cases [14] and our experience supports this thesis especially as regards OGIB derived from an MD.
In addition, of course, the possibility to be therapeutic directly in course of diagnosis makes it extremely practical for the resolution of acute massive small intestinal bleedings.

Riassunto

Nel nostro lavoro presentiamo il caso di una giovane donna di 18 anni con sanguinamento occulto gastrointestinale (OGIB) che si è rivelato provenire da un diverticolo di Meckel.
Con il termine OGIB intendiamo un sanguinamento persistente o ricorrente di origine difficilmente identificabile e che si stima rappresentare circa il 5% dei casi di sanguinamento gastro-intestinale; molto spesso l'origine è dal tenue.
L'OGIB rappresenta una patologia con varie sfaccettature e pone serie problematiche di diagnosi per la difficoltà di identificare l'esatta fonte del sanguinamento.
L'introduzione di nuove tecnologie come la videocapsula endoscopica, l'enteroscopia balloon-assisita, l'enteroscopia spirale e la CTE hanno notevolmente migliorato la nostra capacità di diagnosticare e gestire questi pazienti.
Riportiamo questo caso per asserire l'importanza della laparoscopia che è oggi l'unica procedura che ha rilevato con successo il sito di sanguinamento in fino al 100% dei casi.

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