# II. PEDIATRICS

# MALLORY–WEISS TEAR IN AN 11 YEARS OLD PATIENT WITH ACUTE LYMPHOBLASTIC LEUKEMIA

**A Pirvan, N Miu, G Popa, Cristina Blag**
2nd Clinic of Pediatrics, University of Medicine and Pharmacy "Iuliu Hatieganu" Cluj-Napoca

**Abstract:**

We describe the case of an 11 years old boy followed-up in our hospital for acute lymphoblastic leukemia (ALL) type L1, who presented vomiting during the specific chemotherapy. The antiemetic drugs were ineffective and the esophagogastroscopy showed a Mallory-Weiss tear. After prokinetic treatment, antacid medication and hydrogen pump inhibitors, his evolution was favorable, with the cessation of vomiting and the healing of esophageal tear.

**Key words:** leukemia, vomiting, Mallory-Weiss tear

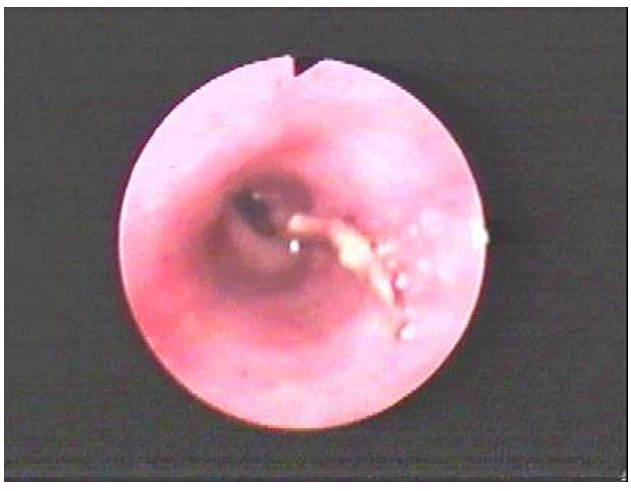
**Background:**

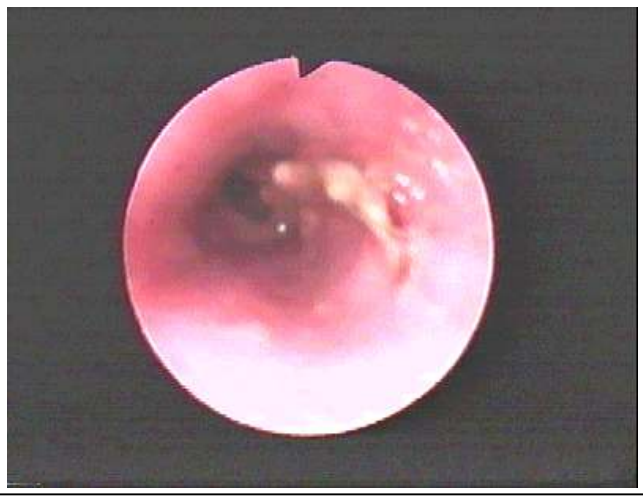
Mallory-Weiss syndrome is an uncommon cause of upper gastrointestinal bleeding in adults, several studies estimating a prevalence of 5-10% of the total cases of upper gastrointestinal bleeding1. In children, the prevalence of upper gastrointestinal bleeding due to Mallory-Weiss syndrome varies with age[2], apparently being less than in adults[3].

**Case report:**

P.C. aged 11 years, male, has been followed-up in our hospital since January 2004 with the diagnosis of acute lymphoblastic leukemia type L1, CD 10+, medium risk group. He received induction chemotherapy according to BMF 95 Non B ALL, MRG protocol, his clinical evolution being favorable. In November 2004, while the outpatient received maintenance therapy with Methotrexat po and Purinetol, he presented vomiting which could not be controlled by the administered medication, the patient being unable to tolerate Metoclopramide. The vomiting became incoercible even when the cytostatic agents were stopped. After three weeks with persistent vomiting, the patient came in our service for investigations. Clinical findings at admission consisted of malaise, fatigue, intense paleness, stable hemodynamic, biliary vomiting, polakiuria and disuria due to a hemorrhagic cystitis on a scleroatrophic urinary bladder.

After the routine hematological, biochemical and bacteriological exams, esophagogastroscopy was performed using an Olimpus Exera CV 160 videoendoscope, preceded by sedation with Midazolam (Dormicum). The endoscopy revealed intense paleness of the esophageal mucosa, no lesions in the upper two thirds, but one longitudinal tear pericardial, in the upper superior quadrant, with minimum bleeding, covered by fibrin and blood clots. At the same time, a gastric prolapse and a minimum hiatal hernia were noticed. The entire gastric cavity could be examined and no pathological features were found, excepting the paleness of the mucosa and minimum stasis (gastric liquid, bile), but without any sign of bleeding. (Fig.1,2).





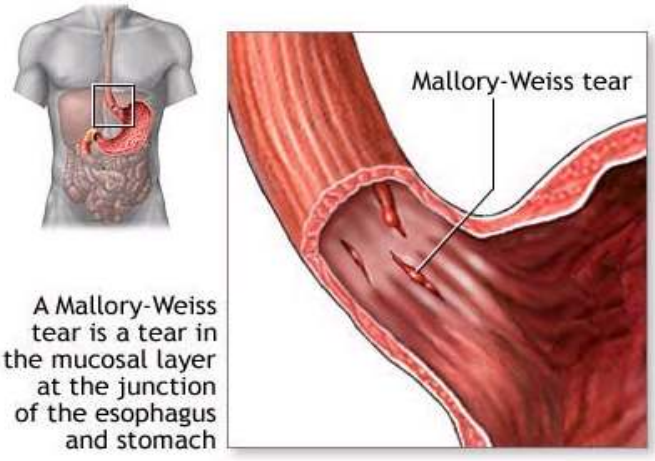
The persistence of vomitings for three weeks correlated to the endoscopic aspect (described above) led us to the diagnosis of Mallory-Weiss tear in a patient receiving chemotherapy.

Treatment included a proton pump inhibitor – Pantoprazole (Controloc) 40 mg/day iv, an antacid – Sucralfat (1 g po tid) and Erythromycine in prokinetic dose of 5 mg/kg/day po. With this therapy, vomiting remitted progresively and the endoscopy performed 7 days later showed the healing of the esophageal lesion.

The ultimate diagnosis was: Acute lymphoblastic leukemia, Mallory-Weiss tear, Hiatal hernia, Scleroatrophic urinary bladder, Hemorrhagic cystitis.

**Discussions:**

Mallory-Weiss tear consists in longitudinal or ellipsoidal ruptures of the lower esophageal mucosa, close to the gastro-esophageal junction[4,5,6], which classically occur after a vomiting effort, although this can be absent sometimes. Bleeding appears when the rupture reaches to the esophageal venous or arterial plexus (Fig.3). It occurs especially after alcohol drinking, chemotherapy or some drugs administration. Patients suffering of portal hypertension may develop more severe Mallory-Weiss tears[7].




The most important presenting clinical features include: nausea, vomiting effort, hematemesis. History is typical in just 50% of the cases, so that the diagnosis is established by esophagogastroscopy[8,9].

In adults, the incidence of Mallory-Weiss tear varies by different authors. According to American Society of Gastrointestinal Endoscopy Bleeding Survey, this lesion is the seventh cause of upper gastrointestinal bleeding[1] (Table 1).

Table 1: Etiology of upper gastrointestinal bleeding in adults (*American Society of Gastrointestinal Endoscopy Bleeding Survey*)[1]

| Cause | Number of patients | Incidence |
|---|---|---|
| Gastric erosion | 620 | 29.6 % |
| Duodenal ulcer | 477 | 22.8 % |
| Gastric ulcer | 457 | 21.9 % |
| Varices | 323 | 15.2 % |
| Esophagitis | 269 | 12.8 % |
| Duodenitis | 191 | 9.1 % |
| **Mallory-Weiss tear** | 168 | 8.0 % |
| Neoplasm | 78 | 3.7 % |
| Esophageal ulcer | 46 | 2.2 % |
| Stomal ulcer | 39 | 1.9 % |
| Telangiectasia | 10 | 0.5 % |
| Other | 152 | 7.3 % |

In pediatric patients, large trials showed a less incidence of Mallory-Weiss syndrome as a cause of upper gastrointestinal bleeding, 0.3% respectively[3]. In children, the incidence of upper gastrointestinal bleeding due to Mallory-Weiss tear varies with age[2,4,5]. It is supposed that the lesion does not occur in neonate. For children aged 1 to

24 months it is the fourth cause. For the ages of 2 to 7 years Mallory-Weiss tear is the second cause of upper gastrointestinal bleeding, being more frequent than esophagitis, ulcers or esophageal varices. In 7 to 17 years patients, Mallory-Weiss is less frequent than gastritis, esophagitis and ulcers, but more frequent than esophageal varices. (Table 2).

Table 2: Etiology of upper gastrointestinal bleeding in children [2]:

| 0-1 month | 1-24 months | 2-7 years | 7-17 years |
|---|---|---|---|
| Esophagitis | Esophagitis | Gastritis | Gastritis |
| Gastritis | Gastritis | **Mallory-Weiss tear** | Esophagitis |
| | Ulcers | Esophagitis | Ulcers |
| | **Mallory-Weiss tear** | Ulcers | **Mallory-Weiss tear** |
| | | Esophageal varices | Esophageal varices |

In most cases bleeding stops spontaneously in 24 to 48 hours[9,6]. But, because of the potential persistence of vomiting, of restarting the bleeding, or even of the esophageal rupture (Boerhaave syndrome) it is important to promptly remove all the vomiting causes and to carefully monitor the patient.

Whether the hemorrhage is active, the treatment may include Vasopresine (0.1-0.4 U/min iv[3]) administration or endoscopic measures[9] Adrenaline 1/10000, thermal probe or angiographic embolization.

As cited in several articles[10,11,12] the hemorrhage did not become visible in our case until the admission in our hospital, when stool exam proved positive Gregersen reaction.

**Conclusions:**

Even if the prevalence of Mallory-Weiss tear seems to be less than in adult pathology, the large number of upper gastrointestinal bleeding conditions in children, their potential of dramatic outcome and the possibility of endoscopic examination in young children, impose a prompt cessation of vomiting and performing esophagogastroscopy.

**References:**


1. Gilbert DA, Silvertein FE, Tedesco FJ, et al.: The national ASGE survey on uppergastrointestinal bleeding. III. Endoscopz in upper gastrointestinal
2. Rousset A. Voie intra osseuse. In : Pédiatrie d'Urgence 4 ème édition, G Labrune B. Flammarion Médecine Sciences, Paris 2000: 1221.
3. Bak-Romaniszyn L, Malecka-Panas E, Czkwianianc E, Planeta-Malecka I.: Mallory-Weiss syndrome in children.Department of Pediatrics, Military Medical University, Institute of Polish Mothers' Memorial Hospital, Lodz
4. Ament ME, Gans L, Christie DK: Experience with esophagogastro-duodenoscopy in diagnosis of 79 pediatric patients with hematemesis, melena or chronic abdominal pain. Gastroenterology 1975; 68: 858-61.
5. Countryman D, Norwood S, Andrassy RJ: Mallory-Weiss syndrome in children. South Med J 1982 Nov; 75(11): 1426-7.
6. Graham DY, Schwartz JT: The spectrum of the Mallory-Weiss tear. Medicine (Baltimore) 1978 Jul; 57(4): 307-18.
7. Harris JM, DiPalma JA: Clinical significance of Mallory-Weiss tears. Am J Gastroenterol 1993 Dec; 88(12): 2056-8.
8. Bishop PR, Nowicki MJ, Parker PH.: Vomiting-induced hematemesis in children: Mallory-Weiss tear or prolapse gastropathy? Department of Pediatrics, Division of Pediatric Gastroenterology and Nutrition, Blair E. Batson Children's Hospital, University of Mississippi Medical Center, Jackson 39216, USA.
9. Chris A Liacouras, MD: Mallory-Weiss Syndrome Director of Pediatric Endoscopy, Associate Professor, Department of Pediatrics, Division of Gastroenterology and Nutrition, Children's Hospital of Philadelphia and University of Pennsylvania
10. Kelly JA: Mallory-Weiss tear. In: Altschuler SM, Liacouras CA, eds. Clinical Pediatric Gastroenterology. Philadelphia, Pa: Chuchill-Livingstone; 1999: 303-305.
11. Kerlin P, Bassett D, Grant AK: The Mallory-Weiss lesion: a five-year experience. Med J Aust 1978 May 6; 1(9): 471-3
12. Yu PP, White D, Iannuccilli EA: The Mallory-Weiss syndrome in the pediatric population. Rare condition in children should be considered in the presence of hematemesis. R I Med J 1982 Feb; 65(2): 73-4