

Case Report

Curling ulcer in scalded patient: a case report

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ABSTRACT

Stress-related gastrointestinal erosive syndrome is defined as the presence of erosions of the gastric mucosa originating from physiologically stressful events. SA "Curling Ulcers" which occur after burns involving more than 30% of the total burned body surface area. Its most frequent location is in the stomach or in the duodenum. We present the case of a 62-year-old male with 49% SCTQ burn. 3 weeks later presents data of probable bleeding of upper gastrointestinal tract so diagnostic endoscopy is performed and the presence of duodenal ulcer Forrest III is evidenced. This type of ulcer occurs primarily in patients with physiological stress, its management is focused on prophylaxis and should be suspected in those patients with high risk factors; when these are presented the management is conservative and the complete resolution after the basic pathology must be evidenced. At present treatment is not contemplated as a therapeutic action merely aimed at healing the ulcerative niche, the importance of treatment is to detect and properly classify those patients with high risk factors for the development of this type of ulcer and thus be able to initiate an adequate prophylaxis; same management that was performed in our patient for presenting risk factors, in addition to clinical compatible, and laparoscopic diagnosis of Curling ulcer, with adequate response; and subsequent follow-up that evidenced its complete resolution.

Keywords: Curling ulcers, Burns, Surgery, Endoscopy

INTRODUCTION

Stress-related gastrointestinal erosive syndrome was described for the first time in 1971.¹ This is defined as the presence of erosions of the gastric mucosa caused by physiologically stressful events.² The most important risk factors for the development of this type of ulcers are mechanical ventilation for more than 48 hours, coagulopathies, sepsis, use of vasopressors, use of high-dose corticosteroids, liver failure, renal failure, multiorgan failure, burns, Craniocerebral trauma, history of digestive tube bleeding in the last year.³ The incidence is poorly known. The most common presentation is by bleeding from the upper digestive tract; this occurs in 1.5 to 15% of patients who have it.³ A type of stress ulcers are the so-

called "curling ulcers" which occur after burns that involve more than 30% of the total burned body surface area. It is most found in the stomach or duodenum.⁴ Physiologically speaking, we have to say that the parietal cells in the gastric mucosa are responsible for the production of hydrochloric acid (pH=2) these under response to neurohormonal signals; prostaglandins and nitric oxide are responsible for maintaining a layer that protects the gastric epidermis from the destructive effect of Hcl, and bicarbonate which removes hydrogen ions and reduces acidity. Ulcers are caused by an imbalance between the two mechanisms mentioned above; this is thought to be due to the loss of function of gastrointestinal mucosa glycoproteins due to high concentrations of bile salts or uremic toxins; and reflux due to the critical illness of the

patient as well as the increase in gastric production and consequent increase in HCL production.^{5,6} Alterations in gastric flow secondary to hypotension or need for use and vasopressors have also been evidenced.⁷ Clinical signs range from a silencing or unspecific form such as abdominal pain, dizziness, stunning and drowsiness; to clinical manifestations secondary to digestive bleeding such as hematemesis, rectal bleeding, melena, hematochezia, diaphoresis, tachycardia, syncope, hypotension and hypovolemic shock.⁸

The diagnosis in those cases of occult bleeding is presumptive and most do not carry out additional studies; however, when suspected, it is important to follow up the patient until they are sure of the absence of sacrosanct in feces. For those with evident bleeding and/or clinical repercussions, it is indicated the realization of diagnostic endoscopy and/or therapy, which evidences the erosions that by common characteristics are shallow, well delineated and mainly affect the superficial layers of gastric epithelium. Sometimes they can be quite deep.⁹

The most important management is not only the resolution of bleeding in those cases where it is necessary and which is performed endoscopically preferably, the importance of medical management lies in the prophylaxis of stress ulcers, which according to the statistics should be limited to patients with a high risk of developing it. Several studies show that the use of proton pump inhibitors has a lower rate of high digestive bleeding compared to those in which histamine receptor antagonists have been used.^{10,11}

Due to the low incidence of presenting evident bleeding from the digestive tract, as well as the importance in early prevention of this condition we consider it important to report the case of an adult patient with burn of 49% of total burned body surface that developed Curling ulcer at duodenal level and who received management of his basic illness by the plastic surgery service, aesthetic and reconstructive department of the university hospital of Puebla together with the general surgery service and the intensive care unit of the same institution.

CASE REPORT

The male patient, 62 years old, who is taken to the emergency department of the University Hospital of Puebla, BUAP; for presenting fall and loss of alertness when in a sauna; suffering so; burns by second degree mixed scalding; At the entrance vital signs: blood pressure 130/90 mmHg, FC 129 lpm, FR 22 rpm, temperature 36°C, oxygen saturation in ambient air of 88%, neurologically disoriented, cooperator; presence of burns on upper extremities, lower extremities, thorax and glutes, covering 49% of SCTQ; Referring to severe pain in the upper limbs and increase in volume of the same; laboratory studies within normal parameters, management with intravenous solutions based on Parkland formula is initiated, Surgical treatment+fasciotomy in both upper extremities is decided for the presence of data on compartment syndrome; during

trans surgery with need for high-dose vasopressors and evidence of laryngeal edema; Therefore, no extubation is achieved and their entry into the UTI is decided where 3 weeks later there is evidence of severe pain in the mesogastrium and a decrease of 2 grams of serum haemoglobin without data on bleeding from the digestive tract; therefore, it was decided to perform endoscopy where it was evident at the duodenum; An oval-shaped, approximately 20 mm deep wound on the back side with raised hyperemic edges Figure 1. Ulcera duodenal Forrest III.

Conservative management based on high-dose proton pump inhibitors is indicated; with adequate response, no gastrointestinal bleeding data during the rest of their hospital stay; continuing with multiple surgical cleanings; primary closure of fasciotomies performed in the first surgical intervention; placement of biological dressings (Epifast) on burns of upper limbs, lower limbs and chest ; with subsequent discharge to his home and follow-up by external plastic surgery consultation, aesthetic and reconstructive; with endoscopy performed 1 month after the previous one and without evidence of ulcer at duodenal level.



Figure 1: Ulcera duodenal Forrest III.

DISCUSSION

Curling ulcers occur in patients with burns with a body surface area greater than 30%, as in this clinical case.⁴ It is important to recognize the associated risk factors according to the literature; in this clinical case, they are compatible with mechanical ventilation for more than 48 hours, use of vasopressors, high-dose corticosteroids, renal failure, multiple organ failure, and, most importantly, a body burn of more than 30%.³ Its incidence is little known and the main management is based more on prophylaxis in those patients who have high risk factors for their development; same management is carried out mainly by using proton pump inhibitors.¹¹

Another rare form of clinical presentation is through data or symptoms that suggest bleeding from the upper gastrointestinal tract, as occurred in our patient, and therefore diagnostic endoscopy was performed, evidencing the presence of Curling ulcer at the level of

two-denals without bleeding data therefore, it did not require advanced management and was only maintained with high doses of IBP.⁸ The incidence of complications such as bleeding from the upper digestive tract occurs in 1.5 to 15% of patients who present it.³ When this occurs, endoscopic treatment should be performed preferably.¹⁰ In our case, the patient did not require advanced management and resolved with established medical treatment.

It has been considered that its appearance is the result of an imbalance between aggressive factors (presence of acid and intraluminal pepsin, and reflux of bile to the stomach), to which the gastric mucosa is exposed, and defensive (mucosal permeability, mucosal blood flow, intramucosal alkalization during proton secretion, gastric epithelium mucosal barrier, epithelial cell renewal, prostaglandins PGE2 and PGI2), present in endogenous form.⁵⁻⁷

CONCLUSION

Treatment is not currently considered to be a therapeutic action merely aimed at healing the ulcerative niche, the importance of treatment lies in identifying and properly classifying patients with high risk factors for developing this type of ulcers so that they can initiate adequate prophylaxis; The same treatment as that performed in our patient for presenting risk factors, clinical adems compatible, and laparoscopic diagnosis of Curling ulcer, with adequate response; and subsequent follow-up that evidenced its complete resolution.

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