

## DUODENAL PERFORATION AFTER INGESTION OF ENO SALT

Dr. S.T. Ved Bhushan M.S., FAIS, <sup>1</sup>Dr. Ajay Kale M.S. and <sup>2</sup>\*Dr. Aruna Bhushan

Professor of Surgery USM-KLE. International Medical Programme KLE Centenary Charitable Hospital Belagavi-590001. Karnataka, India.

<sup>1</sup>USM-KLE. International Medical Programme KLE Centenary Charitable hospital Belagavi-590001. Karnataka, India.<sup>2</sup>Associate Professor, Department of Pharmacology, BIMS, Belagavi-590001. Karnataka, India.**\*Corresponding Author: Dr. Aruna Bhushan**

Associate Professor, Department of Pharmacology, BIMS, Belagavi-590001. Karnataka, India.

Article Received on 10/04/2017

Article Revised on 30/04/2017

Article Accepted on 20/05/2017

**ABSTRACT**

Eno salt is commonly used for gastric acidity and is available easily without prescription. We report a case of duodenal perforation after ingestion of Eno salt. Duodenal perforation is one of the common surgical emergencies managed at surgical hospitals. Duodenal perforation occurs secondary to peptic ulcer perforation, pre existing peptic ulcer and other causes are drug induced such as NSAIDs, steroids therapy and chemotherapeutic agents

**KEYWORDS:** Duodenal perforation, ENO-salt, adverse reaction, peritonitis.**INTRODUCTION**

ENO- salt is a mixture of sodium bicarbonate (baking soda), citric acid and sodium saccharin.<sup>[1]</sup> Sodium bicarbonate is generally well tolerated and widely used. Risk of oral bicarbonate ingestion includes hypernatremia, metabolic acidosis, gastric rupture, electrolyte imbalance and hypertension.<sup>[2]</sup>

Duodenal perforation is a serious clinical condition which requires urgent management including an exploratory laparotomy and dealing with pathology. In majority of the cases it is the closure of the perforation and with an omental patch. Duodenal perforation is an acute abdomen and clinically diagnosed which needs very few investigations to confirm. It is reasonably easy to manage surgically. There are many causes such as Helicobacter infections, ZE syndrome, major physiological stress or major trauma and sepsis, NSAIDs.<sup>[3]</sup>

Here, we report a case duodenal perforation secondary to Eno salt ingestion in a 38 years old healthy adult.

**CASE REPORT**

A 38 years old man was admitted in the casualty in the month of February 2017, with the history of severe acute abdominal pain within 1-2 hours after taking ENO-salt in water to relieve gastric discomfort.

The patient felt abdominal distension within 30 minutes after taking ENO-salt along with severe abdominal pain which rapidly increased. He took treatment at two nearby clinics but was not relieved. Later was referred to our

hospital. Patient had no history of smoking, alcoholism or on any NSAIDs.

In the casualty, the patient was examined for vital signs BP 100/70mm of Hg, pulse rate 100/min and respiratory rate 22/min. Abdominal examination revealed distended abdomen with generalized tenderness, guarding and rigidity. The bowel sounds was absent. A clinical diagnosis of perforative duodenum as shown in the Fig. 1 and the case was managed.

**Figure 1 showing duodenal perforation**

**Management:** The patient was simultaneously resuscitated as well as investigated and prepared for an emergency laparotomy.

**Operation:** An exploratory laparotomy was done under GA. There was about 300-400ml of bile stained peritoneal fluid which was aspirated, duodenal

perforation was about 3-4mm over the anterior surface of the 1<sup>st</sup> part. Closure of perforation with an omental patch was done and abdomen was closed with two drains. Patient was managed in the ICU for 3 days and later shifted to the ward.

Post-operative period was uneventful. He was discharged on the 10<sup>th</sup> day in good condition. Patient was advised with Tablet Rabeprazole 20mg daily empty stomach along with multivitamin syrup once daily. He is doing well on subsequent follow up.

## DISCUSSION

Eno-salt is an ayurvedic formulation also contains svargiksara and limbukalamam, it is easily available as an over the counter medication. It is commonly used for variety of gastric ailments such as acidity, gaseous distension, heart burn, indigestion, or for flatulence. This is used to provide instant relief of these symptoms. It's mechanism is initially the citric acid is inert as it is dry anhydrous form, mixing with water, it dissolves, dissociates and it reacts with sodium bicarbonate liberating carbondioxide (efferverscence) acts as carminative results in either as belching or as flatus.

In 1986 the authors published a case of spontaneous rupture of normal stomach after sodium bicarbonate.<sup>[4]</sup> There are many such related cases also reported due to ingestion of sodium bicarbonate by Gammelin *et al.*<sup>[5,6]</sup>

In the present case, a systemic approach was used to determine whether the suspected adverse reaction was due to the drug or result of any other factor. To determine the causal relationship between duodenal perforation and Eno-salt, Naranjo adverse drug reaction probability scale was used. Adverse reaction developed within 30 minutes of taking eno salt, severe abdominal pain with increasing intensity. Patient was managed in the intensive care unit with resuscitation, investigation and emergency operation. Due to ethical issues rechallenge of the drug was not done. There was no other alternative cause for duodenal perforation other than eno salt in this case. Hence, duodenal perforation was probably caused by Eno salt (Naranjo scale +6).<sup>[6]</sup> ADR severity causality assessment scale by modified Hartwig and Siegel also scored a severity of level 5,<sup>[7]</sup> where the patient was admitted for the severe ADR and managed in the intensive care unit which required hospitalization for 10 days.

Eno salt is an easily available medication in stores across the city and does not require any prescription. It can cause serious and life threatening adverse reactions as seen in our case. Information and education about these severe adverse reaction need to be highlighted in various media for public awareness. To the best of our knowledge there is no similar case report in India.

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