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Colon Interposition in the Management of Total Gastric and Esophageal Stricture Following Lye Ingestion

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A case is presented in which ingestion of 300 ccs of liquid lye as a suicidal attempt resulted in caustic esophagogastritis, followed by a fibrotic process involving the entire esophagus and stomach down to the first portion of the duodenum. Successful colon bypass was performed from the cervical esophagus to the second portion of the duodenum.

COLON interposition for the management of extensive esophageal stricture is a well accepted procedure. We were recently involved in the care of a patient who developed a severe stricture of both the esophagus and stomach secondary to a suicide attempt by ingestion of 300 ccs of liquid lye. Management involved interposition of the right colon from the cervical esophagus down to the second portion of the duodenum. A survey of the literature revealed only three other patients treated with a colon interposition bypass involving both the esophagus and stomach. Only one was still living at the time of report a year and a half later.

Case Report

A thirty-four-year-old Negro female was brought to the emergency room at Hurley Hospital, Flint, MI, on February 28, 1970. She had intended to commit suicide by swallowing approximately 300 ccs of liquid lye. Shortly afterwards she complained of severe abdominal pain and vomited a small amount of liquid material. On initial examination her weight was 130 pounds. There were burns involving the mucosa of the oral cavity, soft palate, and tonsillar fossa. Epigastric tenderness was also present.

She was treated conservatively with steroids and antibiotics. Roentgenograms of the upper gastrointestinal tract, obtained on March 13, 1970, revealed mucosal destruction of the distal esophagus with atonic dilatation of the stomach (Figure 1). Liquid diet was started on March 14, 1970, and soft diet on March 20, 1970. Dysphagia was progressive.

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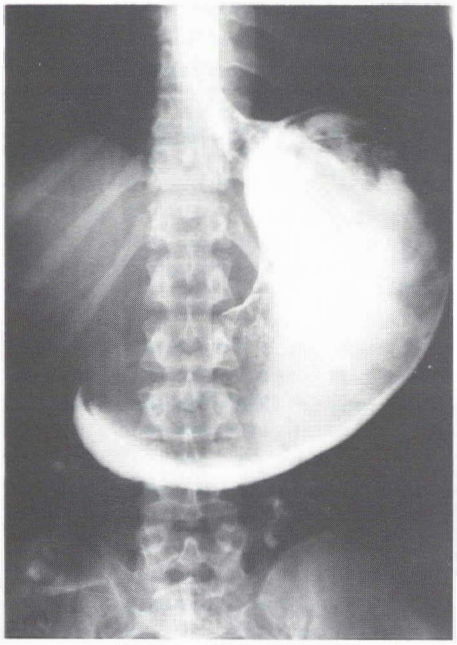

Figure 1
Film of the esophagus and stomach two weeks after ingestion of lye. The absence of mucosal markings and muscular activity is striking.

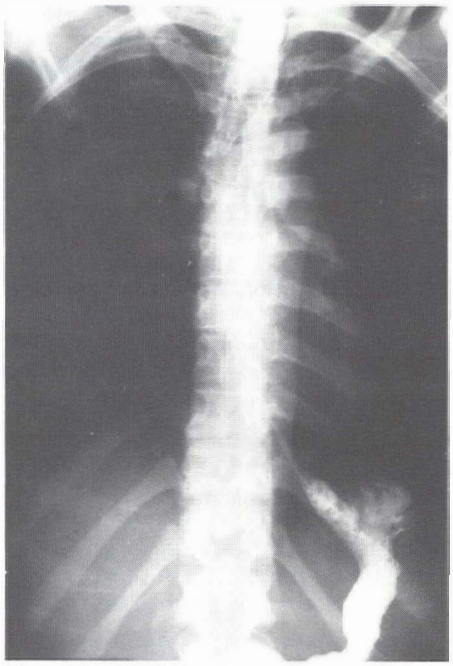

Figure 2
Film made seven weeks after lye burn shows stricture of entire thoracic esophagus and cicatricial deformity of stomach.

A repeat x-ray series on April 20 revealed stricture of the entire thoracic esophagus. Contracture was already becoming evident on the distal stomach (Figure 2). Esophageal dilatations were performed on April 27 and repeated on May 13. The patient's weight at this time was 92 pounds. On May 15, she was discharged from the hospital and placed on a liquid diet.

On May 26, 1970, she was readmitted to the hospital with inability to swallow liquids, general malaise, and progressive cachexia. Her weight at this time was 72 pounds. Thoracic surgical consultation was obtained. In preparation for surgical intervention, she was treated with hyperalimentation, blood transfusions, and albumin solution. Her general condition remained stationary and her weight prior to surgery was 75 pounds.

Colon interposition was performed on July 2. Exploration of the abdomen revealed that the entire stomach was rigid and scarred. There was no place available for anastomosis since the stricture involved even the first portion of the duodenum. Therefore, it was decided to proceed with colon interposition between the cervical esophagus and the second portion of the duodenum. The esophagus and stomach were left in place, the colon was brought into the neck through a tunnel made behind the sternum and anastomosed to the cervical esophagus in an end-to-end fashion closing the distal esophagus in the neck.

Postoperatively the patient had a right pneumothorax which required a closed tube thoracotomy. Figure 3, taken one week following operation shows the extreme degree of her malnutrition. An upper gastrointestinal examination on July 9 disclosed a normally functioning colonic graft without evidence of stricture (Figure 4). On July 12, the patient began a liquid diet which was progressively advanced to a regular diet. Prolonged hospitalization was required because of her extreme state of malnutrition prior to the operation. She was discharged on August 26, weighing 98 pounds.

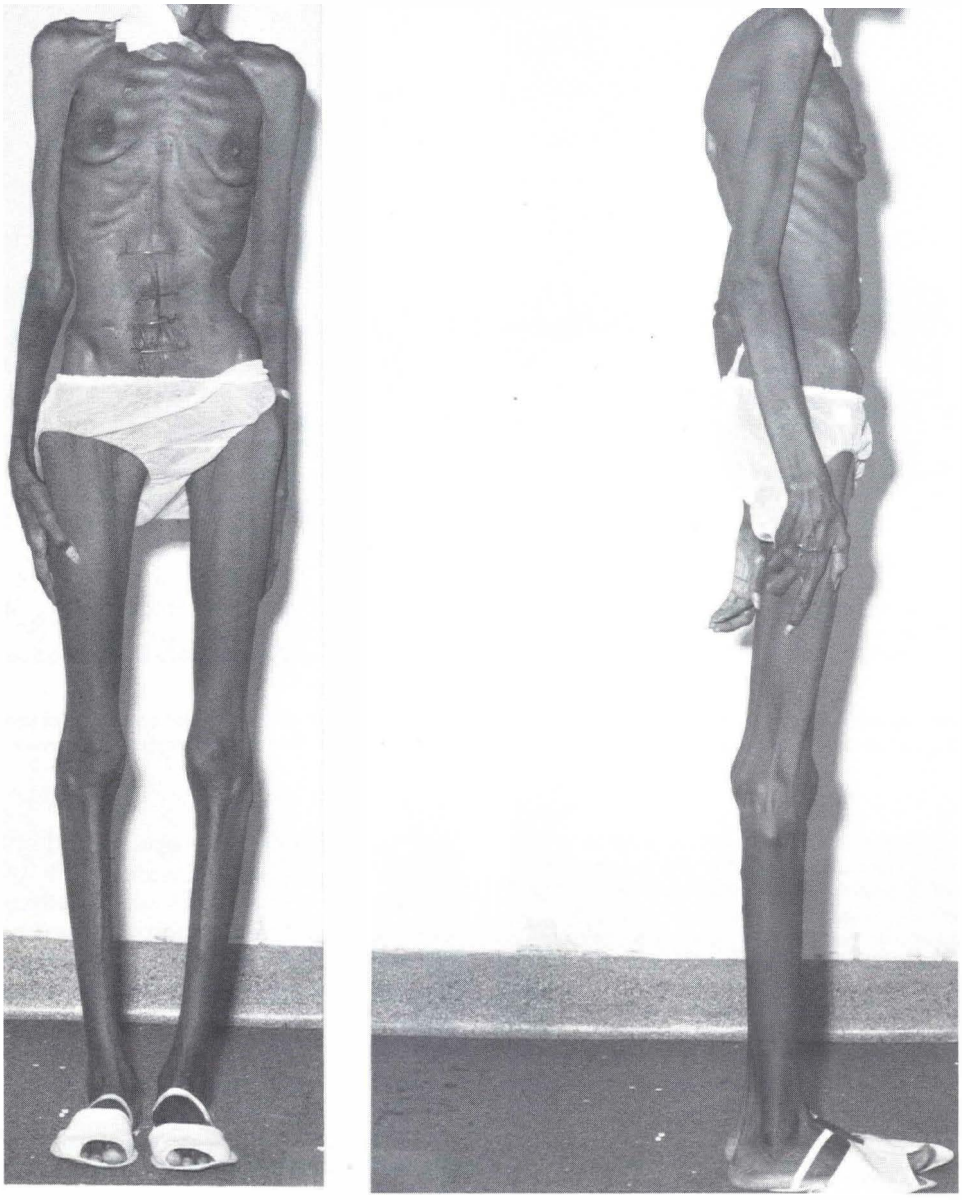

Figure 3
Photographs of patient one week after colon interposition operation, four months after lye ingestion.

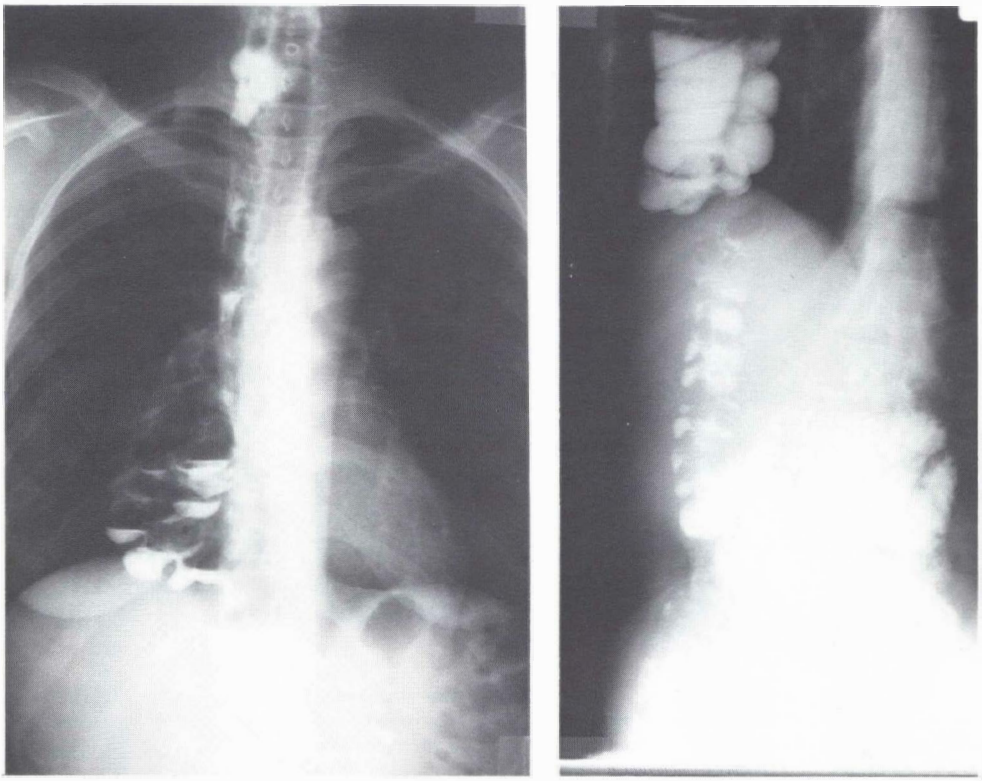

Figure 4
Barium swallow one week after colon interposition between cervical esophagus and second portion of duodenum. A, Postero-anterior view. B, Lateral view. Barium has entered the jejunum.

She continued to do well up until two years later. On August 30, 1972, she experienced a sudden choking sensation after eating steak. An esophagoscopy was done to remove the meat. Her weight at this time was 125 pounds (Figure 5). The upper GI x-ray series at this time revealed stricture of the upper esophago-colonic anastomosis. Esophageal dilatations were then performed starting with a #20 bougie and going up to the #32 size. The patient has continued to do well, having been instructed to continue with periodic dilatations with a #32 bougie.

Discussion

Long term survival following caustic burns involving the esophagus and stomach are unusual since this kind of burn is usually fatal. In reviewing the literature we have been able to find only three other cases in which both the esophagus and stomach were replaced with a colon interposition. The first patient, reported by Björk,[1] had a total gastrectomy for adenocarcinoma. The colon was used for replacement of the esophagus after local recurrence. The patient expired one and a half years later of wide spread metastasis. The second patient, reported by Gryboski,[2] had a total gastric resection following alkali burn of the stomach and esophagus. A colon interposition was performed on the twentieth postoperative day. The patient expired three and one half months later from hepatitis with almost total hepatic destruction. The third patient

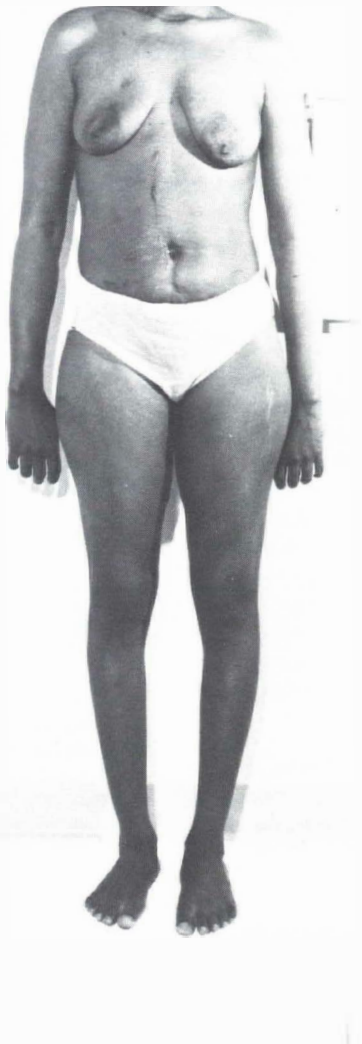

Figure 5
Photograph of patient two years after operation.

was reported by Shaw.[3] It involves a two-and-a-half-year-old boy who required a total gastrectomy following lye ingestion. Subsequently, a colon interposition was performed. The patient was living at the time of report — a year and a half following operation. Of interest in our case is the fact that even though gastric necrosis was not evident at the time of admission, the stomach over the next few weeks became progressively involved by a fibrotic process down to the first portion of the duodenum so that the distal anastomosis on the colonic bypass had to be performed to the second portion of the duodenum.

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