

THE PREDICTABILITY OF ESOPHAGEAL BURNS AFTER CAUSTIC INGESTION IN CHILDREN*

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It is generally accepted that early diagnostic esophagoscopy is essential following caustic ingestion, as the subsequent therapy depends on the presence or absence of esophageal burns^{1,2}.

On the other hand, caustic ingestion in childhood, which is more common in the 1-5 year-old age group, is seldom witnessed³. Even if the event is witnessed, it is not clear whether the caustic material had been swallowed or expelled⁴, and therefore the patient is evaluated for presumptive ingestion. Esophagoscopy examination of all children suspected of caustic ingestion leads to unnecessary esophagoscopies that involve some risk and cost⁵.

Although some authors contend that there is no predictor sign or symptom of caustic esophageal injury, and that the diagnosis should be excluded by esophagoscopy⁶, others suggest that children should be examined by esophagoscopy only if mouth burns and/or instances of drooling or dysphagia are present⁴⁻⁷.

The aim of this study is to decide whether or not routine esophagoscopy should be carried out in children following caustic ingestion or only after the appearance of certain signs and symptoms.

Materials and Methods

One hundred and forty-eight patients were admitted to the Department of Pediatric Surgery of the Hacettepe University Children's Hospital between 1976-1986 with a history of caustic ingestion. There were 80 boys (54%) and 68 girls (46%), and 135 of the subjects were younger than five years of age (91%). Seventy-eight (52.7%) of the patients had ingested bleaching agents, 20 (13.5%) a ten-percent solution of benzalkonium chloride, 20 (13.5%) acids, 12 (8%) caustic

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soda preparations, four (2.7%) lime, four (2.7%) ammonia, and ten (6.9%) other corrosive materials. All of the patients were examined by esophagoscopy within 48 hours following the ingestion.

The signs and symptoms at admission and the results of the esophagoscopic examinations were evaluated retrospectively. The patients were grouped according to the presence and/or absence of signs and/or symptoms. The patients with a history of caustic ingestion were divided into four groups: Group A consisted of patients without signs and symptoms of caustic ingestion; Group B, patients with symptoms but no signs of oropharyngeal burns, Group C, patients with signs of oropharyngeal burns without accompanying symptoms, other than discomfort, Group D, patients with both signs and symptoms of caustic ingestion. The predictive values for each of the groups were determined by esophagoscopic examinations.

Results

Fifty-three patients comprising Group A had neither signs nor symptoms at admission, but esophageal burns were detected in five (9.4%) patients during esophagoscopy.

Fifty-four patients comprising Group B had symptoms but no signs of oropharyngeal burns. Esophagoscopic examinations revealed burns in seven (13%) patients of this group. Vomiting gastric contents was the most common symptom seen in Group B. Esophageal burns were found in four (8%) of the 49 patients who had vomited. Two of four patients with instances of drooling and one with dysphagia also revealed esophageal burns at esophagoscopic examination.

Eleven patients comprising Group C revealed oropharyngeal burns without accompanying symptoms, other than discomfort. Esophageal burns were found in six (54.5%) of these patients.

Thirty patients comprising Group D revealed both signs and symptoms of caustic ingestion. Esophagoscopic examinations showed esophageal burns in 26 patients (86.7%). The most common symptom accompanying the oropharyngeal burns was vomiting. Esophageal burns were seen in 12 of the 13 patients who had vomited. Seven of eight patients with accompanying dysphagia, three of five patients with instances of dysphagia and drooling, two patients with coughs and two patients with respiratory distress also revealed esophageal burns at esophagoscopic examination (Table I).

Discussion

Caustic ingestion in childhood differs from that encountered in adults. Ingestion of corrosive materials in children usually occurs accidentally and is seldom

TABLE I: Esophageal Burns Encountered in the Various Groups

Group	Number of patients with esophageal burns	Number of patients without esophageal burns	Total
A	5 (9.4%)	48 (90.6%)	53
B	7 (13.0%)	47 (87.0%)	54
C	6 (54.5%)	5 (45.5%)	11
D	26 (86.7%)	4 (13.3%)	30
Total	44 (30.0%)	104 (70.0%)	148

witnessed. The first indication that a child may have ingested a harmful substance is the container lying around⁸. In addition, upon taking the caustic material into his mouth, the child usually instead of swallowing the substance, ejects it⁴. Therefore routine esophagoscopy in all admissions results in some unnecessary attempts, and identifying some predictor signs and symptoms of esophageal burns following caustic ingestion become important in lessening the need for esophagoscopy among children⁵.

No esophageal burns in patients without signs of vomiting, drooling and dysphagia, and symptoms of oropharyngeal burns have been reported⁵. In order to decrease the number of unnecessary esophagoscopies, it has been recommended that esophagoscopy be carried out if mouth burns and/or drooling or dysphagia are present⁴⁻⁷. On the other hand, esophageal burns have been reported to occur in 10-30 percent of patients without oropharyngeal burns³. Attempts to define predictive signs and symptoms are also reported to have resulted in failure. Among 80 patients without signs and symptoms, ten (12%) were reported to have had mild esophageal burns⁶. In our study, we found that 107 patients had no oropharyngeal burns, but 12 of them revealed esophageal burns. In the 53 (9.4%) patients comprising Group A, without accompanying symptoms, there was a risk of esophageal involvement which was lower compared to the patients comprising Group B (13%) with symptoms.

The risk of esophageal involvement in the presence of oropharyngeal burns is reported to be 20-33 percent, and it is agreed that esophagoscopy examination be performed in children if mouth burns are present³⁻⁹. Oropharyngeal burns were also an important predictor sign in our patients. Thirty-two of 41 patients (78%) comprising both Groups C and D, who had oropharyngeal burns, also revealed esophageal burns during esophagoscopy. The incidence of esophageal involvement was found to be higher when accompanying symptoms were present (86.5%), and lower when accompanying symptoms were absent (54.5%). The higher incidence of esophageal involvement in our patients compared to the 20-33

percent incidence reported in the literature was due to the difference in the concentrations of the caustics used in our country.

The presence of oropharyngeal burns have revealed an overall predictive value of esophageal involvement, but the absence of both signs and symptoms have not excluded the possibility of esophageal burns following caustic ingestion in children. Therefore esophagoscopy examination of children admitted with a history of suspected or definite caustic ingestion, remains the accurate method of evaluation.

Summary

148 patients who were admitted between 1976-1986 were given esophagoscopy examinations within 48 hours following caustic ingestion are evaluated retrospectively. It was found that although the presence of oropharyngeal burns revealed a high predictive value, the absence of both signs and symptoms did not exclude the possibility of esophageal burns. Therefore routine esophagoscopy is recommended.

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