A Case of Eosophagus Stricture because of Corrosive Substance Ingestion

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ABSTRACT

Corrosive damage because of corrosive substance ingestion is a very common pediatric problem, requiring urgent attention. It is stated that accidental ingestion of corrosive substance has a high risk in children who are under 5 years of age, and has it's pick at 2 years old. Children who fall under this age range have more domestic accidents than other children, thereby causing severe problems and increased morbidity and mortality. In this study, a patient who developed eosophagus stricture because of accidental ingestion of a corrosive substance is analyzed. *(JAREM 2016; 6: 59-61)*

Keywords: Corrosive substance, eosophagus stricture, childhood

INTRODUCTION

Corrosive substance ingestion, which is frequently encountered in children, is a very serious home accident that still constitutes a major public health problem in our country. It causes a great deal of morbidity and mortality in childhood because of serious problems in the acute and chronic stages. Although numerous studies have been performed, the number of home accidents associated with corrosive substance ingestion has not decreased, and the severity continues to increase. Corrosive substance ingestion usually occurs after the oral intake of industrial cleaners (detergents) that are easily accessible to children. Corrosive substances frequently cause esophageal burns in the acute stage and cause esophagus stricture, stenosis, and even cancer in the chronic stage (1-7). In this article, the case of a patient who developed a long-term esophagus stricture because of the accidental ingestion of a corrosive substance, which is very common in children, is analyzed.

CASE PRESENTATION

A six-year-old male patient was admitted to the pediatric emergency service with complaints of recurrent vomiting and esophageal burns as a result of accidental ingestion of an unknown amount of oil solvent at home. In the patient's history, it was learned that the patient's parents were non-kin; the mother had a smooth, term pregnancy; the patient was born weighing 3500 g after a normal spontaneous vaginal delivery; and he was not in the postnatal period. The parents stated that as soon as they realized that their son had ingested some amount of oil solvent, they fed him some yogurt in order to lessen the damage; the patient then started vomiting recurrently. According to the patient's physical examination, his body weight was 22 kg (25 to 50 p), his height was 114 cm (25 to 50 p), his general medical condition was moderate, his lips were hyperemic and edematous, and he was restless and had difficulty swallowing his saliva. In the cardiovascular system, CTA was 120/min, rhythmic, without any additional sounds and murmurs. The bilateral breath sounds were natural–normal, and DSS was 34/min. The patient's abdomen was untroubled and had no hepatosplenomegaly. Findings of laboratory tests were as follows: Hgb: 11.8 g/dL, Hct: 34%, WBC: 7500/mm^3, and thrombocyte: 295 000/mm^3. No pathology was found in the patient's liver and kidney functions. The patient was hospitalized, his oral intake was stopped, and he was started on antibiotics and antacid therapy with a proton pump inhibitor (PPI). Elective esophageal endoscopy was performed, and generalized circular and sporadic hemorrhagic erosions were detected from the esophageal vestibule. The patient was diagnosed with stage 2B esophagitis (Figure 1). In addition to antibiotics and antacid therapy and cessation of oral feeding, 1 g/m^2 steroids (3 days) IV and total parenteral nutrition were started. On the 10th day of treatment, sufficient improvement was not achieved, except for some improvement in the endoscopic examination of the membranes; therefore, total parenteral nutrition continued. In the endoscopy that was performed two weeks after the patient's admittance, although significant improvement was observed in the linear hemorrhagic and membranous lesions, a circular appearance observed in the esophagus, 15 to 20 cm from the esophageal vestibule, was considered to be stricture development. The patient was started on a liquid diet. At the 3rd week, the patient showed clinical development and midline–esophageal strictures, and irregularities in the mucosa were detected in his esophagus–stomach–duodenum radiography (Figure 1-3). After consulting the pediatric surgery clinic, after 5 weeks, the patient was started on 3 minute-dilation treatment under 6 bar pressure via balloon in the esophagus. At the pediatric surgery clinic, esophageal dilatation was performed on the patient every 15 days, 8 times in total. The patient's oral intake was gradually increased, and he was started first on semi-solid and then on solid food. The patient is still under our control and can tolerate oral intake.

DISCUSSION

Esophagus and stomach injuries associated with corrosive substance ingestion occur with the ingestion of industrial chemicals, detergents used for housecleaning, and drugs. The corrosive damage resulting from the ingestion of corrosive substances is a

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Figure 1. Endoscopic view of the patient in the first 24 hours after corrosive substance ingestion

Figure 2. Midline–esophageal strictures and irregularities in the mucosa

common pediatric emergency problem. It is stated that accidental ingestion of a corrosive substance has a high risk in children who are under five years of age, and is extremely dangerous at two years of age (8, 9). Children who fall under this age range have not yet gained full autonomy; they cannot establish a cause-effect relationship and are rather inquisitive. Therefore, they have more domestic accidents than other children. In recent years, poisoning by corrosive substances has increased because these subtances are more frequently used, especially at home and at work (5, 10-12). However, lack of education and carelessness of families is also considered to be a factor that increases the number and severity of this type of poisoning incident (5). A study

Figure 3. Midline–esophageal strictures and irregularities in the mucosa

conducted by Doruk et al. (13) revealed that the education level of the parents whose children ingested corrosive substances is quite low, and the majority of mothers of those children do not have jobs. It was reported that 92% of children admitted to the hospital due to corrosive substance ingestion were identified as self-ingestion cases due to parental imprudence (13). As stated in the literature, our case also experienced corrosive substance ingestion as a result of the carelessness of his poorly educated parents. The approach modality towards children who are suspected to have ingested corrosive substances is still controversial. However, because severe esophageal injuries and the high risk of developing esophageal stricture have high morbidity, the approach to the diagnosis and treatment of patients is important. The results of the studies examined in the literature show that there are significant differences between burn degrees (12, 14, 15). The reason for these different esophagus burn degrees may be the relationship between the substance and the amount digested; the difference may also be due to the absence of a specific standard in the manufacture of these substances. The oral ingestion of corrosive substances by children may not result in any damage but may also have clinically severe or fatal outcomes. The primary complication of corrosive substances is corrosive esophagitis; stricture development is a secondary complication (16). It is stated that corrosive substances have opposite effects in the esophagus and stomach. The esophageal squamous epithelium is generally sensitive to alkaline agents; however, alkaline substances that reach the stomach can be neutralized by stomach acid. Contrastingly, the esophageal mucosa is more resistant to acids, and acid agents do more damage in the stomach (17). In our case, an unknown amount of an unknown substance with an unknown alkaline degree was ingested; as a result of the yogurt given orally by the family, the child vomited recurrently, severe burns occurred in his esophagus, and the patient subsequently developed stenosis.

CONCLUSION

While important advances have been made in treatment for the prevention of complications from corrosive substance ingestion, taking protective measures to solve this problem is more important. The lids/caps/covers on corrosive substance containers should be childproof; warning labels should be included in the packaging of cleaning agents that are sold in used soda and water bottles, especially in the summer; these agents should be kept in places that are not accessible to children; and parents should also be educated about poisoning. As a result of the increase in the diversity of corrosive substances used in household cleaning, the appealing odors and colors of these substances and the imprudence of parents constitute a great danger for children. When the seriousness of the situations that can result from recklessness and imprudence is considered, it becomes obvious that it is vitally important to inform parents about the proper storage conditions of these substances and about first response and first aid after corrosive substance ingestion; also, children of this age group should be educated about these substances according to their developmental characteristics.

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