

TRAUMATIC ESOPHAGEAL PERFORATION IN A PREMATURE INFANT*

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Summary: Tekant G, Abbasoğlu L, Sever N, Bulut M. (Department of Pediatric Surgery, Şişli Children's Hospital, Istanbul, Turkey). Traumatic esophageal perforation in a premature infant. *Turk J Pediatr* 32: 123-126, 1990.

We presented a case of neonatal hypopharyngeal perforation resulting from extraction of a breech presentation, with symptoms of regurgitation at all feedings and excessive salivation. Inability to pass a nasogastric tube suggested the diagnosis of esophageal atresia. The diagnosis and treatment of this condition is discussed, and the literature is reviewed. Key words: neonate, esophagus, hypopharynx perforation.

Traumatic perforation of the hypopharynx or cervical esophagus was first reported by Eklöf et al¹ in 1969. This condition may occur during or just after delivery, and may present with symptoms of esophageal atresia in a newborn infant. The physician may be unable to pass a nasogastric tube¹⁻⁵. This article presents a case of hypopharyngeal perforation, its diagnosis and treatment, and a review of the literature.

Case Report

A two-day-old male infant who was born prematurely after 36 weeks' gestation and weighed 1600 g was admitted to the pediatric surgery clinic of the Şişli Children's Hospital, with serosanguineous oral drainage and inability to feed. The prenatal history was normal. Delivery was a breech presentation where the obstetrician placed her finger in the infant's mouth to assist in the birth. At birth, the infant had mild cyanosis and respiratory distress. He had a one minute Apgar score of six. With no medical intervention, the infant's general condition improved, and the Apgar rating was upgraded to eight at five minutes. The patient was transferred to the premature care unit because of his low birth weight.

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At admission, the patient vomited his first feeding and constantly regurgitated saliva. Ronchi were also heard over the lungs. An attempt to pass a nasogastric tube failed, and the patient was transferred to the pediatric surgery clinic, with an initial diagnosis of esophageal atresia.

During fluoroscopy, the catheter could not be passed from the nose into the stomach, being arrested in the cervical region. Barium was instilled through the catheter, and x-rays revealed contrast material passing into the stomach (Fig. 1). Contrast material from the upper end of the esophagus diverted into a narrow tract, closely following the esophagus posteriorly and reached the diaphragm.

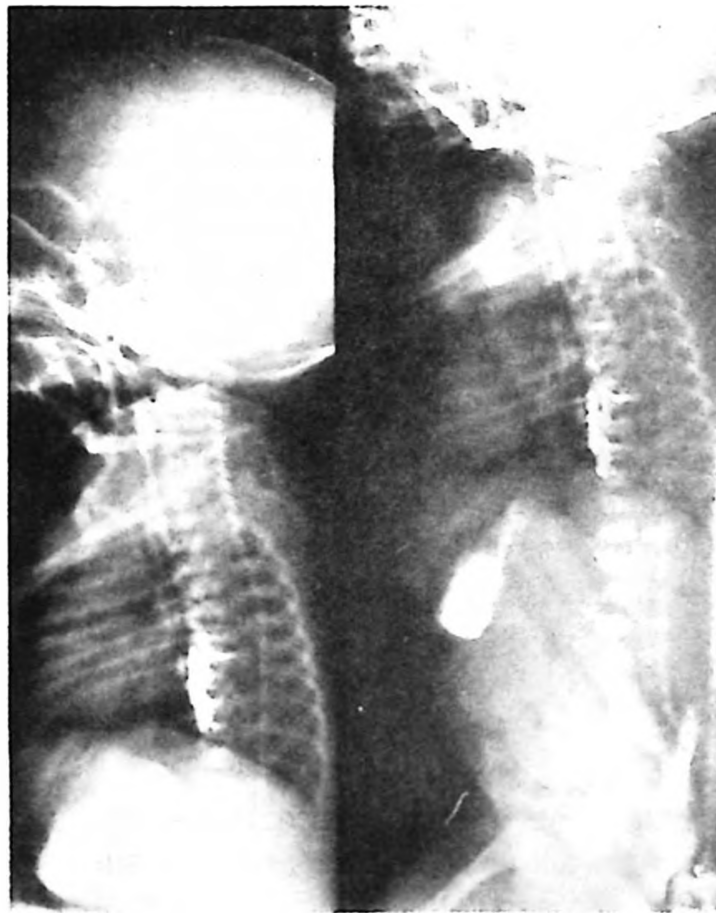


Fig. 1: Contrast material seen in the stomach and the posterior mediastinum.

Esophagoscopy revealed a semilunar tear in the posterior wall of the esophagus just above the cricopharyngeal narrowing. A diagnosis of traumatic esophageal perforation was made and the oral feedings were immediately discontinued. Total parenteral nutrition (TPN), systemic antibiotics and cimetidine were administered for ten days along with repeated oropharyngeal aspirations till the infant's regurgitation of secretions decreased and swallowing started. An 8 F catheter was passed into the stomach under endoscopy and alimentation was continued with a nasogastric tube for ten days. Repeat esophagoscopy showed healing to

be complete and oral feedings were started. Chest x-rays taken twenty-five days after admission were normal except for the barium remnants detected in the posterior mediastinum (Fig. 1).



Fig. 2: Remnants of contrast material still seen in the posterior mediastinum.

Discussion

Cricopharyngeal perforation during the newborn period may result from traumatic maneuvers, such as the placement of an endotracheal or nasogastric tube or delivery of a breech presentation¹⁻⁵. Routine use of suction catheters in delivery wards, especially in low birth-weight infants with the baby's neck in an extended position, may lead to trauma of the cervical esophagus⁵. Besides, to assist in the delivery of a baby during a breech presentation, the obstetrician places his finger in the mouth of the newborn. Forceful manipulation may easily perforate the fragile hypopharynx of the neonate. If symptoms of excessive salivation, choking and cyanosis are present in a neonate that has been vigorously manipulated, rupture of the cervical esophagus must be considered³⁻⁵. In such event, the perforation is a result of the obstetrician's act during extraction of the infant.

Infants with this injury present with signs of severe esophageal obstruction, with inability to feed, excessive salivation, and cyanosis. This condition has been attributed by Girday et al² to be a spasm of the cricopharyngeus.

Inability to pass a nasogastric tube when these signs are present leads to an initial diagnosis of esophageal atresia. A definite diagnosis is made by radiographic and endoscopic investigation. Radiologic studies demonstrate the tract lying posterior to the esophagus, while endoscopy can identify a tear in the cervical esophagus¹⁻⁴.

Differential diagnosis includes congenital esophageal diverticula, esophageal duplication, esophageal atresia, and laryngotracheoesophageal cleft⁴. Proper interpretation of radiographs and endoscopy will assure correct evaluation and provide proper therapy for these infants.

Since none of the reported patients with perforation of the cervical esophagus present with life-threatening mediastinitis, pneumomediastinum or pneumothorax, the choice of therapy is conservative. It consists of the administration of TPN, systemic antibiotics and oropharyngeal aspiration^{3,4}. Total parenteral nutrition is life-saving therapy for these children, who are unable to receive oral feedings for at least 10 to 14 days, till the esophagus is completely healed. Our patient received TPN for ten days, with no serious metabolic complication, till nasogastric feeding could be tolerated. If TPN cannot be administered, a feeding gastrostomy may be performed.

In this situation, immediate surgery is not desired because the esophagus heals spontaneously. Surgical intervention should be reserved for complications of mediastinal or cervical abscess, pneumomediastinum and pneumothorax. This situation contrasts with the adult, who generally requires drainage and repair of the perforation^{3,4}.

As a result, early diagnosis and correct medical therapy is sufficient to avoid the stress of surgery in these already non-tolerant premature infants.

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