Journal of Academic Research
Vol 30, Issu Special issue, 2026 "10-15"

# Congenital Esophageal Stenosis Presenting as Neonatal Respiratory Distress: A Rare Case Report from Misrata, Libya

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**Article information**

**Key words**

Congenital esophageal stenosis, Broncho-esophageal fistula, Neonatal respiratory distress, esophageal obstruction, Thoracotomy,

Received: 11-09-2025

Accepted: 03-11-2025

Available: 01-01-2026

**Abstract**

**Background:** Congenital esophageal stenosis (CES) is a rare developmental anomaly with an estimated incidence of 1 in 25,000–50,000 live births [1, 2]. It is often misdiagnosed as acquired strictures or tracheoesophageal anomalies due to overlapping clinical features. Congenital esophageal stenosis (CES) is a rare developmental anomaly presenting with feeding difficulties and esophageal obstruction symptoms in neonates and infants.

**Case Presentation:** We report a 3-day-old full-term female neonate who presented with persistent respiratory distress, choking, and feeding intolerance since birth. Initial radiography revealed nasogastric tube coiling in the upper thoracic esophagus. Contrast-enhanced computed tomography (CT) suggested distal esophageal narrowing with possible bronchoesophageal fistula. Surgical exploration via right thoracotomy revealed a 2 cm fibromuscular stenotic segment without fistulous communication. The segment was resected with primary end-to-end anastomosis. The infant recovered uneventfully and demonstrated normal feeding and growth at 5-month follow-up

**Conclusion:** CES should be considered in neonates with unexplained feeding difficulties and respiratory distress. Early imaging and timely surgical intervention can lead to excellent outcomes.

## I) INTRODUCTION:

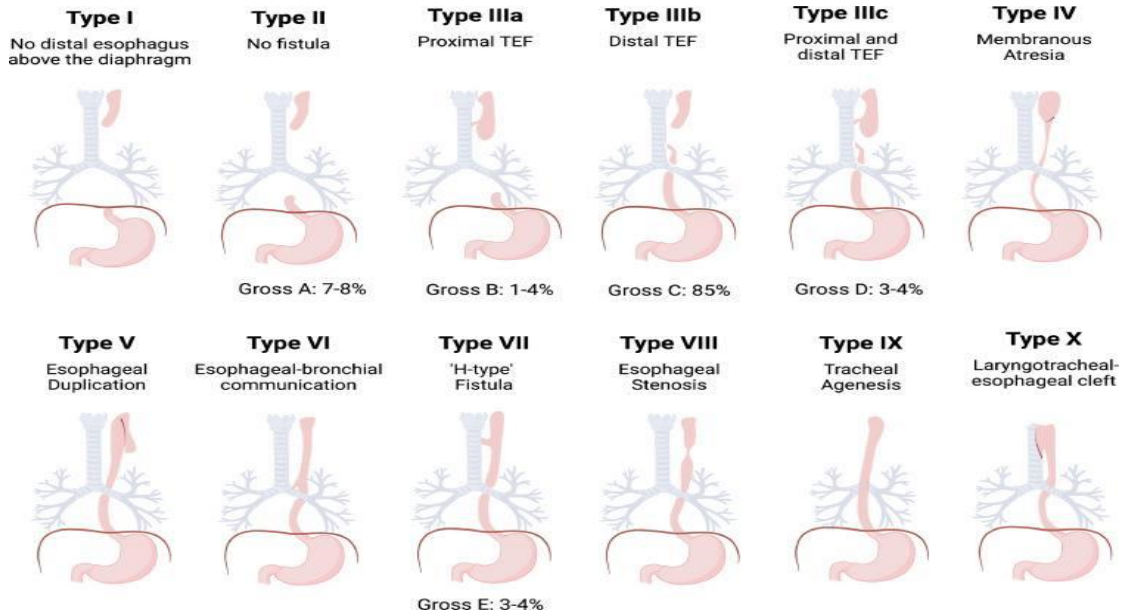
Congenital esophageal stenosis (CES) is a rare congenital anomaly characterized by intrinsic narrowing of the esophageal lumen due to abnormal development of the esophageal wall during embryogenesis. [4] The incidence is estimated at 1 in 25,000–50,000 live births.[1,2] CES can present as a membranous web, fibromuscular thickening, or tracheobronchial remnants.[1,2,3]

Clinical presentation varies according to the severity of narrowing and may include feeding intolerance, choking, regurgitation, and respiratory distress. Diagnosis is often delayed because symptoms can mimic gastroesophageal reflux, acquired strictures, or may be discovered incidentally during repair of a tracheoesophageal fistula (TEF).

Early diagnosis and management are crucial to prevent complications such as aspiration pneumonia, failure to thrive, and severe respiratory compromise. We present a rare case of CES in a term neonate with an unusual presentation of respiratory distress since birth, highlighting the diagnostic challenges and importance of surgical management.

## II) Case Presentation

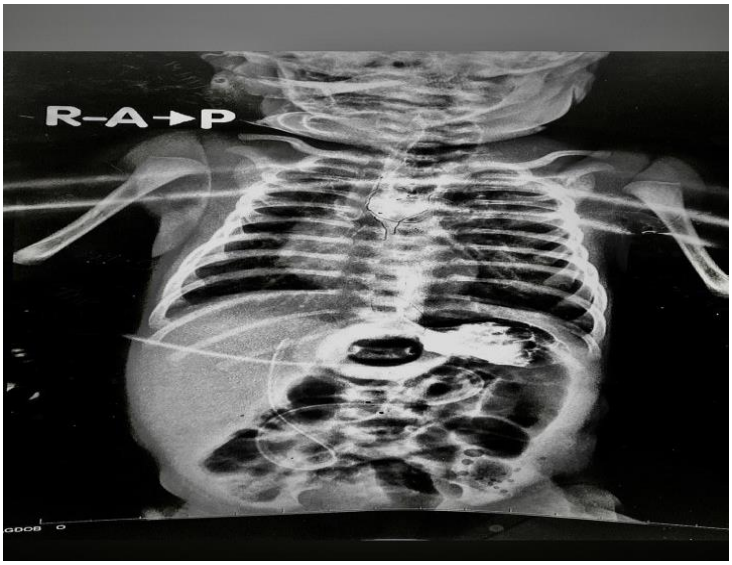
Patient Information: A 3-day-old full-term female neonate, birth weight 3 kg, was delivered by urgent



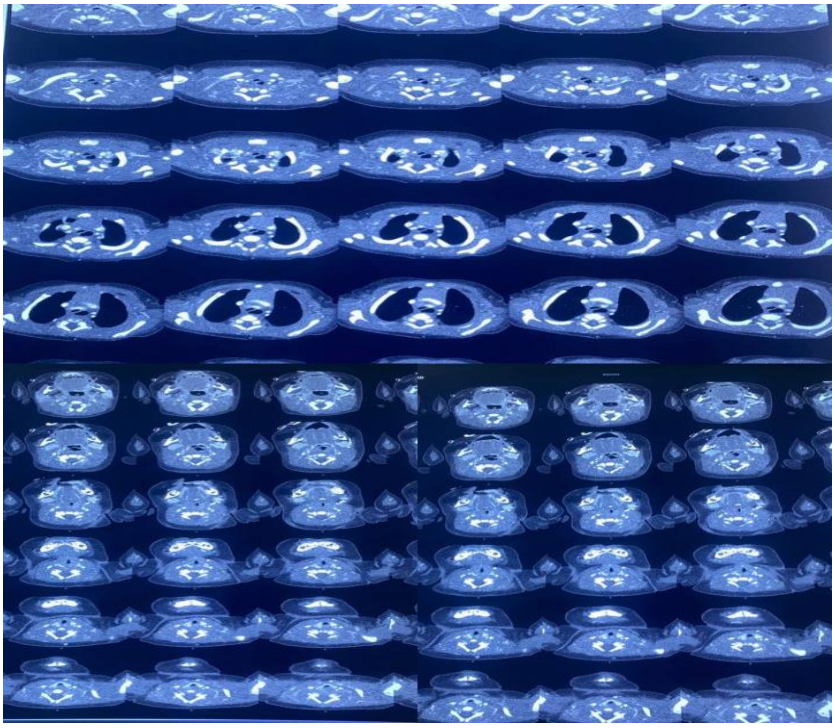

cesarean section due to premature rupture of membranes (PROM) for 7 hours, low lying - partial placental abruption, and elevated inflammatory markers (positive C-reactive protein). Antenatal history was unremarkable, the mother was a 41-year-old woman with a history of four previous cesarean sections (G7P5A1, post 4 C/S). She presented at 37+ weeks gestation , The pregnancy was planned, with no reported history of polyhydramnios. Antenatal care was routinely maintained, and the pregnancy progressed without notable complications until the current presentation.

Clinical Findings: was referred to our tertiary care center with persistent respiratory distress, choking, and non-bilious vomiting since birth The neonate exhibited tachypnea, excessive salivation, frequent regurgitation, and non-bilious vomiting since birth. Abdominal examination was normal. Nasogastric tube insertion was unsuccessful beyond 10 cm.

**Diagnostic Assessment:** Chest X-ray demonstrated coiling of the nasogastric tube in the upper thoracic esophagus, indicative of esophageal obstruction. An upper gastrointestinal contrast study confirmed impaired passage of contrast into the stomach. Bronchoscopy was also performed and did not reveal any tracheobronchial anomalies.

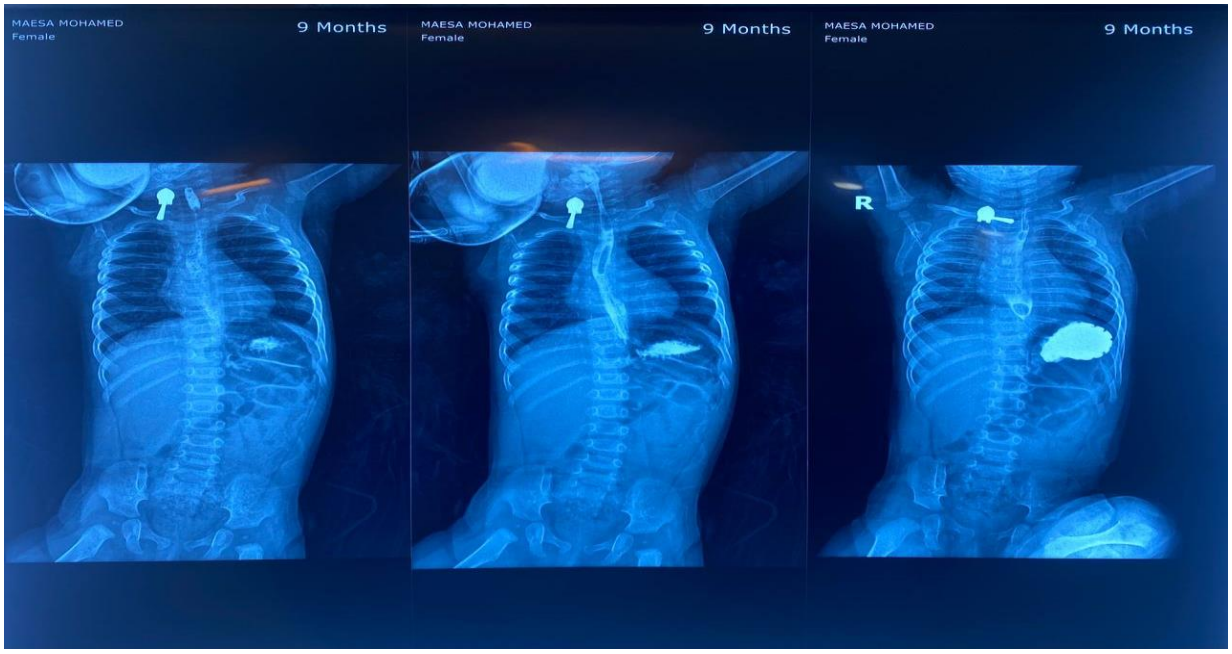



Contrast-enhanced CT scan of the chest revealed a focal narrowing of the esophagus near the left bronchus, raising suspicion for a possible bronchoesophageal fistula. Echocardiography demonstrated a patent foramen ovale (PFO) with a right-to-left shunt. Abdominal and brain ultrasounds were unremarkable. All other routine investigations performed at the time of admission were within normal limits.



Therapeutic Intervention: The patient's condition worsened, requiring non-invasive positive pressure ventilation, surfactant administration, blood transfusion, and empirical antibiotics for suspected neonatal sepsis. Definitive management involved right thoracotomy, which revealed a 2 cm fibromuscular stenotic segment in the distal esophagus without fistulous communication. Resection with primary end-to-end anastomosis was performed.

Follow-Up and Outcomes: Postoperative recovery was uneventful. Oral feeding was resumed on




day 7, and the patient was discharged on postoperative day 10. At 5 months, the infant had normal feeding, growth, and development.

## III) Discussion

CES remains a rare but important cause of neonatal feeding difficulties and respiratory compromise. The histological classification into membranous web, fibromuscular thickening, and tracheobronchial remnants is essential, as it influences management strategies. [5 ]In our case, histology confirmed fibromuscular thickening.

The primary diagnostic challenge lies in differentiating CES from acquired esophageal strictures, achalasia, and tracheoesophageal anomalies [1,2,3]. In our patient, CT raised suspicion for bronchoesophageal fistula, but surgical exploration excluded this diagnosis.

Diagnosis is challenging, particularly in the absence of gross anatomical abnormalities. Imaging, particularly contrast studies and CT, plays a vital role in identifying the nature and extent of esophageal anomalies.

In this case, while CT raised suspicion for a bronchoesophageal fistula, surgical exploration confirmed an isolated fibromuscular stenosis without fistulous communication. Differentiating CES from acquired strictures or fistulas is crucial for management, as CES typically requires surgical resection rather than dilation alone.

A review of the literature indicates that CES is frequently diagnosed during attempted dilation for presumed strictures, or during surgical repair for TEF. [6,7] Early imaging, particularly contrast studies and CT, is crucial in defining the anatomy.

Early surgical intervention offers excellent outcomes, as demonstrated by the full recovery in this patient. Multidisciplinary collaboration among neonatologists, radiologists, and pediatric surgeons is essential for optimal diagnosis and treatment

Comparison with Previous Reports: In a series by Nihoul-Fékété, et al., surgical resection with primary anastomosis was associated with excellent long-term outcomes, similar to our case. However, unlike most reported cases where feeding difficulties predominate, our patient presented primarily with respiratory distress, underscoring the need to consider CES in the differential diagnosis of neonatal respiratory failure.

| Reference | Age at Diagnosis | Histological Type | Main Presentation | Diagnostic Modality | Treatment | Outcome |
|---|---|---|---|---|---|---|
| **Nihoul-Fékété, 1989** | 2–10 years | Membranous web, | Progressive dysphagia | Endoscopy, contrast study | Surgical resection or dilation | Good in most |
| **Elhalaby, 2006** | 2 weeks–12 years | Fibromuscular thickening Tracheobronchial remnants, Fibromuscular | Dysphagia ± aspiration | Contrast study, bronchoscopy | Resection or dilation | Excellent |
| **Kuga, 2022** | 1 month | Tracheobronchial remnants | Dysphagia | Contrast study, CT | Resection | Uneventful recovery |
| **Current case** | 3 days | Fibromuscular thickening | Respiratory distress, choking, feeding intolerance | Contrast study, CT | Resection with primary anastomosis | Excellent, normal growth at 5 months |

## IV) Conclusions:

CES should be considered in neonates with unexplained respiratory distress and feeding intolerance. Prompt imaging and surgical intervention can prevent life-threatening complications and ensure favorable outcomes.

## V) Consent and Acknowledgments

Written informed consent was obtained from the patient's parents for the publication of this case report and any accompanying images. We sincerely thank the patient's family for their trust, cooperation, and support throughout the management process . Furthermore, I extend my heartfelt appreciation to my dedicated colleagues on the medical team for their tireless efforts, professionalism, and collaborative spirit in managing the patient's care. Their commitment was pivotal in ensuring the patient's successful recovery and safe discharge.

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## VII) Unlimantion :

Fibroscopy was not available at the time of evaluation. As an alternative, oral contrast was administered, and X-ray imaging was performed to assess the findings and guide the diagnostic evaluation.