
Pediatric Surgical Images

Edited by Geoffrey K. Blair, MD

H-Type Tracheoesophageal Fistula

By Sonia A. Butterworth, Eric M. Webber, and Douglas H. Jamieson

A 12-day-old boy born at 33 weeks' gestation was referred to surgery because of desaturation with nasogastric feeding. A "pull-back" esophagogram was performed that showed an H-type tracheoesophageal fistula (Fig 1). On day 13 of life, the fistula tract was isolated and divided via a right cervical approach. Post-operatively, the patient had a normal contrast swallowing study, and subsequently tolerated oral feedings.

H-type tracheoesophageal fistula, without concomitant esophageal atresia, accounts for approximately 4% of congenital anomalies of the esophagus. Seventy percent of these fistulae are located at or superior to the second thoracic vertebra. The fistula typically courses obliquely and inferiorly from the posterior membranous wall of the trachea to the anterior esophageal wall (hence has been termed *N-type* fistula, but the vernacular is *H-type*).

Radiologic identification can at times be difficult, and it is worthwhile here to review briefly the established and sensitive imaging methodology best utilized to confirm the presence of an H-type fistula. In cases that are not identified by a routine esophagogram, diagnosis is best made utilizing a prone esophagogram, or so-called "pull-back" esophagogram. This technique involves placing the baby in the prone position and injecting contrast through a tube placed in the distal esophagus. The tube gradually is pulled up the esophagus during the contrast injection. Full distention of the esophagus is required, and care must be taken to avoid aspiration. This technique requires video or rapid sequence filming to increase the likelihood of seeing the momentary filling and quick emptying of the fistula. The same method also can

be used to identify recurrent tracheoesophageal fistulae. A properly performed pull-back esophagogram should be a more sensitive technique of confirming a fistula when compared with esophagoscopy and bronchoscopy.

Surgical division of a congenital tracheoesophageal fistula most often can be performed via a right cervical approach. Preoperative placement into the fistula of an angiogram wire or a small Fogarty catheter, or marking

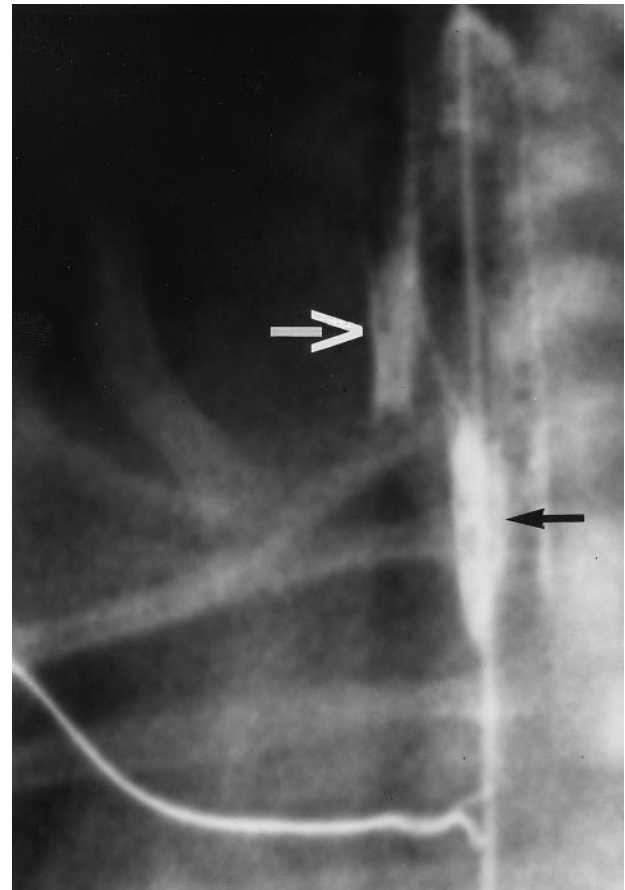


Fig 1. Esophagogram shows H-type tracheoesophageal fistula with the trachea indicated by the white arrow and the esophagus highlighted with the black arrow.

Submitted by Sonia A. Butterworth, Eric M. Webber, and Douglas H. Jamieson, The Departments of Surgery & Radiology, British Columbia's Children's Hospital, Vancouver, Canada.

Submissions to *Pediatric Surgical Images* should be sent to Geoffrey K. Blair, MD, Departments of Surgery, British Columbia's Children's Hospital, Vancouver, BC, Canada V6H 3V4.

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0022-3468/01/3606-0034\$35.00/0

doi:10.1053/jpsu.2001.24005

the fistula with methylene blue can aid in its intraoperative identification.

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