Case Report

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Oesophageal elongation with traction sutures (FOKER procedure) in a newborn baby with long-gap oesophageal atresia (LGEA): Maybe too early, maybe too dangerous?

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ABSTRACT

In children with long gap oesophageal atresia (LGEA), the FOKER technique (oesophageal elongation with traction sutures) has been criticized for its high complication rate. We advocate analysing such problems to increase the safety in the future. The present case report will focus on timing. A female newborn (3000 g) with LGEA (gap of 5 cm) was delivered in an outward hospital. On day two of life, she received traction sutures on both pouches. By day five, all sutures had torn out, and a primary anastomosis was attempted. However, it leaked severely. Thus, on day ten, the oesophagus was approached from the neck converting the proximal end into a spit fistula and closing the distal end blindly. Furthermore, the gastro-oesophageal (GE-) junction was wrapped with a Teflon sling. When the baby arrived in our institution, she suffered from cavernous oesophageal masses extending from the thoracic inlet down to the diaphragm and fistulas draining them into the neck as well as into the right lung. Moreover, the Teflon sling had dislodged allowing for GE-reflux. In several stages, the oesophageal remnants were resected without any complications. Finally, Prof. Alaa Hamza performed a colonic interposition, which is working well today. In conclusion, the present case aims to caution paediatric surgeons to apply traction sutures for oesophageal elongation in newborns with LGEA.

Key words: Complications, foker procedure, newborn

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INTRODUCTION

In children with long gap oesophageal atresia (LGEA, defined as a gap > 4 cm), the FOKER technique (oesophageal elongation with traction sutures[1,2]) has been criticized for its high complication rate. We advocate analysing such problems to increase the safety in the future. The present case report will focus on timing.

CASE REPORT

A female newborn (3000 g) was delivered in an outward hospital and diagnosed with LGEA (gap of 5 cm). On day two of life, she received traction sutures on both pouches. By day five, all sutures had torn out, and a primary anastomosis was attempted. However, it leaked and caused a severe mediastinitis. Thus, on day ten, the oesophagus was approached from the neck, closing the distal end blindly and converting the proximal end into a spit fistula. Furthermore, the gastro-oesophageal (GE) junction was wrapped with a Teflon sling.

When the baby arrived in our institution, she suffered from cavernous oesophageal remnants extending from the thoracic inlet down to the diaphragm and fistulas draining them into the neck and into the right lung [Figure 1]. Moreover, the Teflon sling had dislocated allowing for GE-reflux. In several stages, we resected the oesophageal remnants completely [Figure 2] without any complications. Histology confirmed acute and chronic inflammation in each specimen. Finally, Prof. Alaa Hamza performed a colonic interposition, which is working well today.

DISCUSSION

The timing of surgery for children with LGEA remains a matter of vivid discussions. Traditionally, many



Figure 1: Retrograde filling of the (small) stomach and simultaneous radiological assessments revealed that the contrast medium refluxed into a lower oesophageal remnant, which fed fistulas into the lung and connected to an upper oesophageal pouch

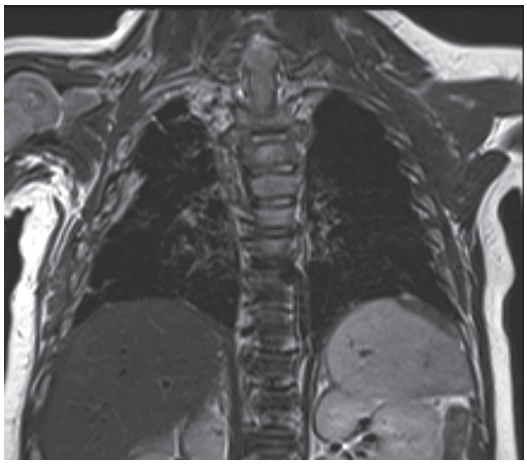


Figure 2: After resecting the oesophageal remnants and fistulas, the lung parenchyma showed almost no more infiltrations (T2-TSE 2 mm, respiratory triggering)

paediatric surgeons would refrain from any challenging reconstructions immediately after birth, but wait for a few weeks to observe, whether spontaneous growth of the oesophageal remnants occurs.[3]

Recently though some authors have shown the feasibility of a primary gastric interposition even within the first week of life.[4] This early approach to oesophageal substitution of LGEA may tempt some paediatric surgeons to start an oesophageal reconstruction in newborns as well. We questioned the rationales for such an approach and searched the medical literature (PubMed). One case report could be identified,[5] which described the placement of traction sutures on day four of life in a preterm baby (33 + 4 gestational week, gap length 6 cm). Within 20 days, the authors achieved enough length to perform a primary anastomosis. However, the anastomosis leaked and required a re-do anastomosis due to severe strictures 2.5 months later. Thus, this case report cannot really support the Foker procedure already in neonates.

Instead, it may caution paediatric surgeons and remind them of the technical finesse involved. Dr. Foker pointed out that too superficial sutures could tear out under tension and too deep sutures could invade the lumen and cause infections.[1,2] Such surgical precision may be easier in older children.

Furthermore, there is little evidence in the literature how to cope with ruptured Foker sutures. Especially in the presence of considerable defects and local infection, the present case suggests neither to reapply the sutures nor to perform an anastomosis. Finally, there is almost no advice in the literature how to abort the Foker procedure. Again, the present case teaches a lesson: Leaving the oesophageal remnants *in situ* may serve as an emergency solution to avoid a thoracotomy, but later such remnants could develop into huge masses, causing chronic infections and fistulas. Resection of such organs may offer many complications and long term sequelae.

In conclusion, there is no controlled study available analyzing the optimal age for the Foker treatment. However, the present case illustrates that a Foker elongation in a newborn with LGEA may cause severe complications and may require demanding reoperations.

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