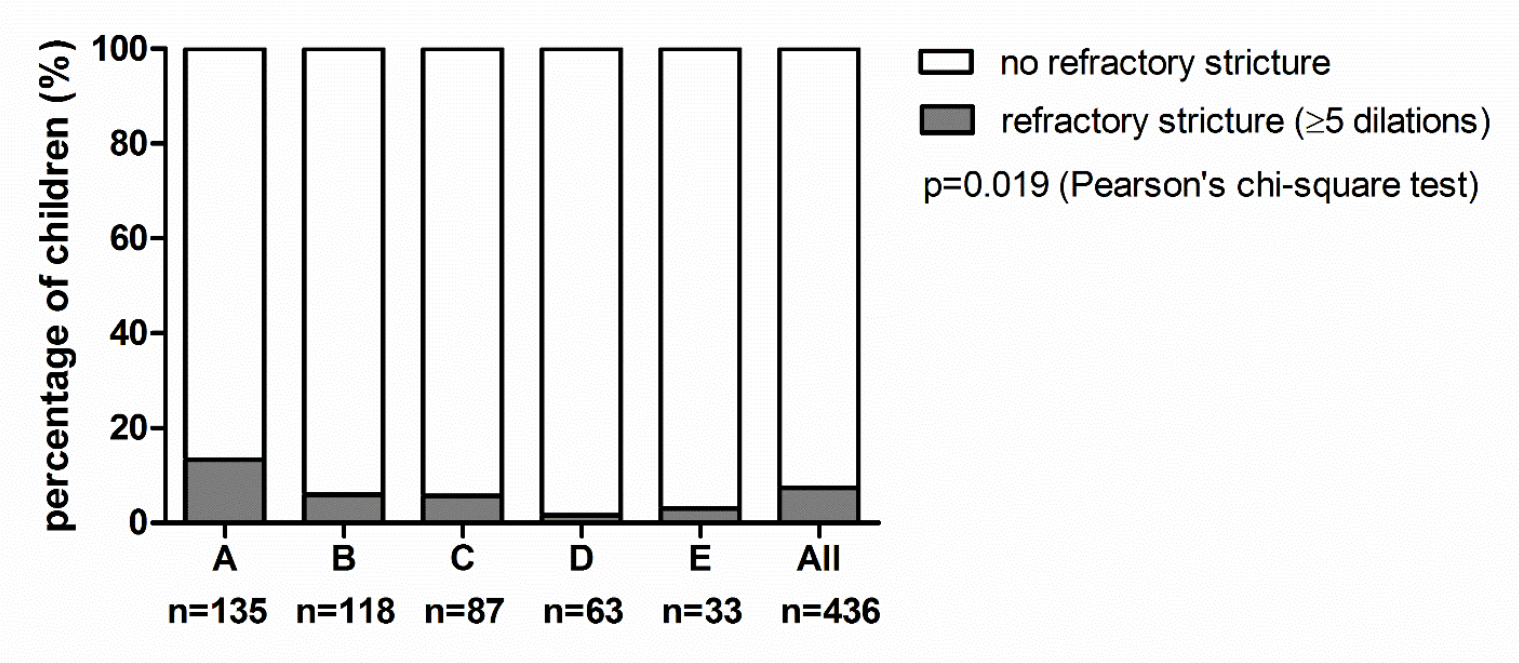
SUPPLEMENTARY MATERIAL

Supplementary Figure 1: Per centre: development of refractory strictures (≥5 dilations) of oesophageal end-to-end anastomosis



Supplementary Table 1: Stent placement, mitomycin application and stricture resection

Treatment of stricture	n
Stent placement [a]	
Intraluminal solid silicone stent	25
Self-expanding silicone stent	7
Stent of unknown type	12
Mitomycin application [b]	6
Stricture resection with end-to-end anastomosis [c]	8

[a] *Forty-four stents were placed in seven children (median of 3 (range 1-25) stents. The initial stent was placed after a median of 15 (range 6-26) dilations. In all seven children strictures reoccurred after the first stent placement.*
[b] *Mitomycin was applied in two children, in both cases additional dilations were still required.*
[c] *Resection surgery was performed in eight different children after median of 14 (range 0-30) dilations, in four children the stricture reoccurred.*

Supplementary Table 2: Strictures of oesophageal end-to-end anastomosis (N=436): characteristics of children with and without an anastomotic stricture requiring ≥3 dilations

	Stricture requiring ≥3 dilations [a] (N=61) n (%) median (min; max; IQR)	No stricture requiring ≥3 dilations (N=375) n (%) median (min; max; IQR)	p-value
Male gender	35 (57.4)	234 (62.4)	0.454
Gestational age (weeks)	37.3 (25.6; 42.0; 35.9-39.0)	38.3 (25.6; 42.9; 35.9-40.0)	**0.036**
Prematurity	26 (42.6)	123 (32.8)	0.158
Birthweight (gram)	2600 (725; 4210; 2000-2965)	2800 (735; 4505; 2154-3251)	**0.016**
Isolated OA (Gross type A)	7 (11.5)	7 (1.9)	**0.002**
Major associated anomaly	18 (29.5)	115 (30.7)	0.845
Major cardiac anomaly	3 (4.9)	35 (9.3)	0.255
Thoracoscopy	12 (19.7)	40 (10.7)	**0.044**
Staged repair	14 (23.0)	16 (4.3)	**<0.001**
Chest tube	18 (29.5)	111 (29.6)	0.988
Anastomotic leakage	14 (23.0)	44 (11.7)	**0.017**
Recurrent tracheo-oesophageal fistula	4 (6.6)	12 (3.2)	0.258
History of gastro-oesophageal reflux	36 (59.0)	163 (43.5)	**0.007**
Anti-reflux surgery	1 (1.6) [a]	49 (13.1)	**0.009**
Early stricture (≤28 days after anastomosis)	17 (27.9)	16 (4.3)	**<0.001**

OA: oesophageal atresia. Non-parametric Mann-Whitney U test for continuous variables and Pearson's chi-square test or Fisher's exact test (if expected counts were <5) for categorical variables.

[a] Anti-reflux surgery was performed in 29 of 61 (47.53%) children with a stricture requiring ≥3 dilations: one prior to and 28 after the third dilation of the stricture.

Supplementary Table 3: Multivariable logistic regression analysis for anastomotic strictures requiring ≥3 dilations in children with oesophageal end-to-end anastomosis (N=436)

	OR	95% CI	p-value
Gestational age (weeks)	0.96	0.86-1.06	0.403
Isolated OA (Gross type A)	5.79	1.80-18.57	**0.003**
Thoracoscopy	0.72	0.30-1.72	0.460
Anastomotic leakage	2.93	1.33-6.43	**0.007**
Early stricture (≤28 days after anastomosis)	10.59	4.50-24.90	**<0.001**

CI: confidence interval; OA: oesophageal atresia; OR: odds ratio. Adjusted for centre. Hosmer & Lemeshow goodness of fit test p=0.274. Due to missing values for gestational age 6/436 children were excluded from the multivariable logistic regression analysis.

Supplementary Table 4: Strictures of oesophago-jejunal anastomosis (N=13): characteristics of children with and without an anastomotic stricture requiring ≥3 dilations

	Stricture requiring ≥3 dilations [a] (N=6) n (%) median (min; max; IQR)	No stricture requiring ≥3 dilations (N=7) n (%) median (min; max; IQR)	p-value
Male gender	5 (83.3)	1 (14.3)	**0.029**
Gestational age (weeks)	35.1 (31.4; 37.6; 32.6-37.1)	37.1 (27.9; 38.1; 33.4-38.0)	0.431
Prematurity	4 (66.7)	3 (42.9)	0.592
Birthweight (gram)	2203 (1875; 2729; 2020-2509)	2840 (932; 3230; 1642-2905)	0.668
Isolated OA (Gross type A)	6 (100)	6 (85.7)	1.000
Major associated anomaly	2 (33.3)	3 (42.9)	1.000
Major cardiac anomaly	0	1 (14.3)	1.000
Thoracoscopy	0	0	-
Staged repair	6 (100)	7 (100)	-
Chest tube	4 (66.7)	5 (71.4)	1.000
Anastomotic leakage	1 (16.7)	0	0.462
Recurrent tracheo-oesophageal fistula	0	0	-
History of gastro-oesophageal reflux	2 (33.3)	4 (57.1)	1.000
Anti-reflux surgery	0	0	-
Early stricture (≤28 days after anastomosis)	1 (16.7)	0	0.462

OA: oesophageal atresia. Non-parametric Mann-Whitney U test for continuous variables and Pearson's chi-square test or Fisher's exact test (if expected counts were <5) for categorical variables.

[a]. Anti-reflux surgery was performed in three of six (50.0%) children with a stricture requiring ≥3 dilations, all three were performed after the third dilation of the stricture.

APPENDIX: DCEA STUDY GROUP

Members of the centres that participated:

Erasmus MC University Medical Center - Sophia Children's Hospital (Rotterdam, The Netherlands): R.M.H. (René) Wijnen, H. (Hanneke) IJsselstijn, M.C.W. (Manon) Spaander, M.J. (Marco) Bruno, J. (John) Vlot, B.A.E. (Barbara) de Koning.

Paediatric Surgical Center of Amsterdam (Academic Medical Center and VU Medical Center): M.W.N. (Matthijs) Oomen, W.G. (Wendela) Leeuwenburgh, M.P. (Michiel) van Wijk, J.J.G.H.M. (Jacques) Bergman.

Radboud University Medical Center-Amalia Children's Hospital (Nijmegen, The Netherlands): M. (Maarten) Schurink, H. (Horst) Scharbatke, G.M. (Gerard) Damen, P.D. (Peter) Siersema, I. (Ivo) de Blaauw.

University Medical Center Groningen-Beatrix Children's Hospital (Groningen, The Netherlands): J.B.F. (Jan) Hulscher, T.H. (Anton) van Dijk, F.T.M. (Frans) Peters

Maastricht University Medical Center (Maastricht, The Netherlands): M. (Marc) Dirix, W. (Wim) van Gemert, R. (Rogier) de Ridder.