

# Reunión Bibliográfica 2-4-2020

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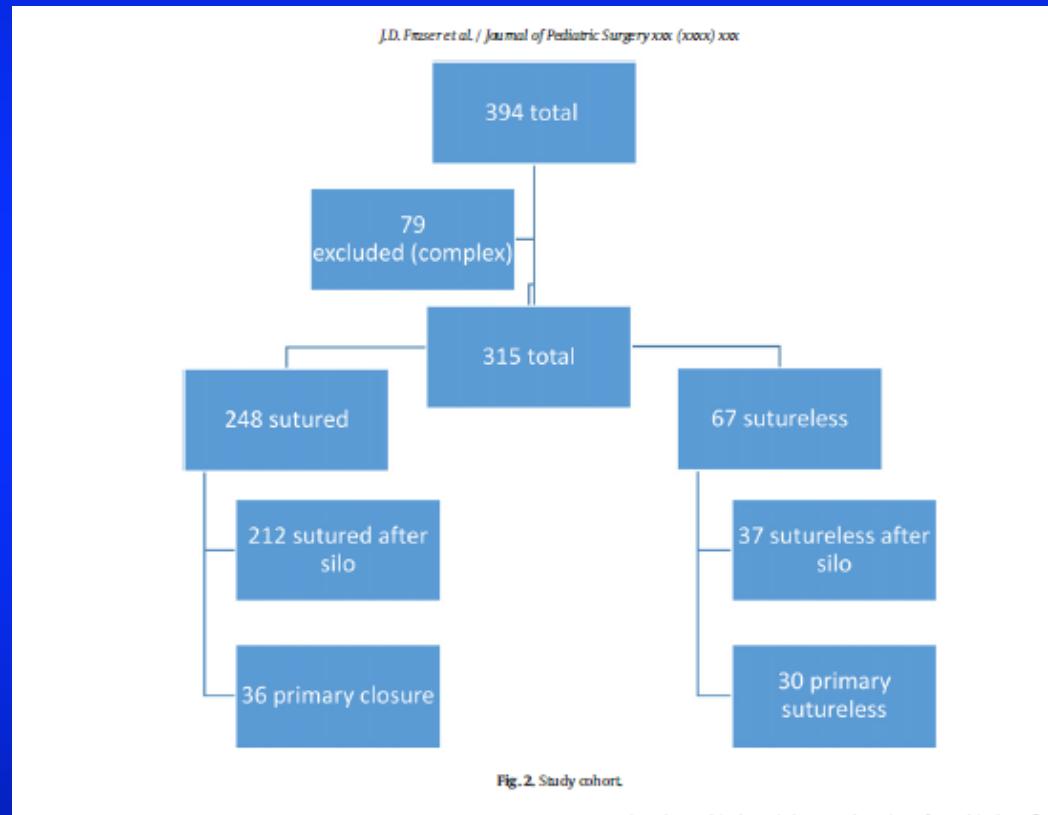
Sutureless vs sutured abdominal wall closure for gastroschisis:Operative characteristics and early outcomes from the Midwest Pediatric Surgery Consortium. J Ped Surg. Marzo 2020



Sutureless vs sutured abdominal wall closure for  
gastroschisis:Operative characteristics and early outcomes from the  
Midwest Pediatric Surgery Consortium. J Ped Surg. Marzo 2020

- Estudio retrospectivo. 11 centros de cirugía pediátricos USA
- Rn nacidos entre 2013- 2016
- Excluyeron gastrosquisis complejas: atresia, perforación, necrosis, muerte
- Objetivo :Se comparan rn manejados con sutura vs sin sutura

# Sutureless vs sutured abdominal wall closure for gastroschisis: Operative characteristics and early outcomes from the Midwest Pediatric Surgery Consortium. J Ped Surg. Marzo 2020



# Demographic characteristics and outcomes

## Midwest Pediatric Surgery Consortium. J Ped Surg. Marzo 2020

**Table 1**  
Demographic characteristics and outcomes.

	Cohort (n = 315)	Sutureless (n = 67)	Sutured (n = 248)	p
Median LOS (days)	33 (24–46)	32 (25–46)	33 (24–47)	0.50
Gestational age (weeks)	36 (35–37)	36 (35–37)	36 (35–37)	0.66
Gender (n)	157 (50%)	33 (48%)	(50%)	0.91
Birth Weight (kilograms)	2.43 (2.1–2.8)	2.45 (2.1–2.9)	2.4 (2.1–2.8)	0.9
Total days TPN	24 (17–35)	25 (18–36)	24 (17–34)	0.99
Time from closure to first PO (d)	11 (8–16)	12 (8–17)	11 (8–15.5)	0.35
Time from closure to goal feeds (d)	23 (17–33)	25 (18.25–33.5)	23 (17–33)	0.55
Surgical site/deep infections	N = 34 (11%)	N = 2 (3%)	N = 32 (13%)	0.02
Antibiotic days after closure	2 (1–7)	2 (1–5)	3 (1–7)	0.055
Antibiotics prior to closure	N = 297 (94%)	N = 60 (90)	N = 237 (96%)	0.27
Antibiotics used after closure	N = 251 (80%)	N = 45 (67%)	N = 206 (83%)	0.004
Any general anesthetic received (n)	1 (1–2)	0 (0–1)	1 (1–2)	<0.001
Number of general anesthetics given (n)	256 (81%)	18 (27%)	238 (97%)	<0.001
Ventilator use outside of OR (n)	226 (72%)	32 (48%)	194 (78%)	<0.001
Time on ventilator (d)	2 (0–6)	0 (0–3)	3 (1–6)	<0.001

# Outcomes of primary sutureless vs primary sutured abdominal wall closure

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Table 2

Outcomes of primary sutureless vs primary sutured abdominal wall closure.

	Primary Sutureless (n = 37)	Primary Sutured (n = 36)	p
Median LOS (d)	29 (23–41)	23 (18.75–33)	0.08
Gestational age (weeks)	36 (35–36.4)	36.5 (36–37)	0.18
Gender (male)	19 (51%)	17 (47%)	0.72
Birth Weight (median)	24 (IQR 1.95–2.85)	2.6 (IQR 2.3–2.9)	0.3
Total days TPN	24 (17–31)	18 (14–23)	0.02
General anesthetics (n)	0 (0–1)	1 (1–1)	<0.001
General anesthetic given (n)	10 (27%)	34 (94%)	0
Time from close to first PO (d)	11 (5–15)	10.5 (9–14.25)	0.22
Time from close to goal feed (d)	23.5 (18–29.75)	20.5 (16–26.75)	0.06
Ventilator use outside of OR (n)	17 (46%)	30 (83%)	0.001
Time on ventilator (d)	0 (0–2)	2 (1–3)	0.2
Birth to final closure (h)	4 (2.7–7)	3.9 (2.88–6)	0.93
Surgical site/deep infections (n)	1 (3%)	3 (8%)	0.29
Antibiotic days after closure	2 (1–4.25)	2 (1–3)	0.46
Antibiotics used after closure (n)	27 (73%)	27 (75%)	0.84

# Outcomes silo then sutureless vs silo then sutured close

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**Table 3**  
Outcomes of silo then sutureless closure vs silo then sutured closure.

	Silo then Sutureless (n = 30)	Silo then Sutured (n = 212)	p
Median LOS (d)	36 (28.25–45.75)	33.5 (25–49)	0.85
Gestational age (weeks)	36 (35–37)	36 (35–37)	0.56
Gender (male)	14 (47%)	107 (50%)	0.70
Birth Weight (median)	2.5 (2.2–2.9)	2.4 (2.1–2.8)	0.57
Total days TPN	27 (22.5–38)	25 (18–36)	0.73
General anaesthetics (n)	0 (0–1)	2 (1–2)	< 0.001
General anaesthetic given (n)	8 (27%)	205 (97%)	0
Time from close to first PO (d)	12.5 (7.5–17.75)	11 (7–16)	0.71
Time from close to goal feed (d)	26 (21.25–36.75)	23.5 (17–34.5)	0.59
Ventilator use outside of OR (n)	15 (50%)	164 (77%)	0.001
Time on ventilator (d)	0.5 (0–4.75)	4 (1–7)	0.007
Birth to final closure (h)	120 (93–144)	120 (85.5–168)	0.41
Surgical site/deep infections (n)	1 (3%)	29 (14%)	0.11
Antibiotic days after closure	2 (0–5)	4 (1–8)	0.15
Antibiotics used after closure (n)	18 (60%)	179 (84%)	0.001

# The burden of esophageal dilatations following repair of esophageal atresia

Campos J et al J Ped Surg. Marzo 2020

- Objetivo: Describir carga de dilataciones esofágicas post cirugía atresia esofágica
- Estudio retrospectivo, 1 centro australiano, años 1999-2015
- 9 cirujanos. Cada uno opera 3-4 RN por año

# The burden of esophageal dilatations following repair of esophageal atresia

Campos J et al J Ped Surg. Marzo 2020

Table 1  
Patient demographics.

EA type	N (%)	Gestation (weeks)	Birth weight (g)	Primary repair (%)	VACTERL (%)
A	14 (5.4)	36 (34-38)	2383 (1780-2892)	-	1/14 (7.1%)
B	7 (2.7)	37 (31-38)	2600 (1436-3106)	-	-
C	220 (85.3)	38 (28-42)	2780 (765-4450)	210 (95.5%)	57/220 (25.9%)
D	6 (2.3)	38 (37-40)	3240 (2135-3605)	6 (100%)	-
E	11 (4.3)	37 (34-40)	2990 (2684-4512)	11 (100%)	2/11 (18.2%)
Total	258	38 (28-42)	2697 (765-4512)	227/258 (88%)	60/258 (23.3%)

EA = esophageal atresia.

VACTERL = vertebral defects, anal atresia, cardiac defects, tracheoesophageal fistula, renal anomalies, and limb abnormalities.

# Results: key endpoints

## J Ped Surg. Marzo 2020

**Table 2**  
Results: key endpoints.

EA type	N (%)	Anastomotic tension (%)	Anastomotic leak (%)	Fundoplication (%)	Dilatation frequency (%)	Median (IQR)
A	14 (5.4)	4/14 (28.6%)	7/14 (50%) †	5/14 (35.7%) *	12/14 (85.7%) †	165 (7.5-43)
B	7 (2.7)	3/7 (42.9%) *	4/7 (57.1%) **	2/7 (28.6%)	6/7 (85.7) **	12 (5-19)
C	220 (85.3)	34/220 (15.5%) *	35/220 (15.9%) † **	29/220 (13.2%) *	126/220 (57.3) † **	4 (2-6.5)
D	6 (2.3)	-	2/6 (33.3%)	1/6 (16.7%)	4/6 (66.7)	2 (1.2-2.5)
E	11 (4.3)	-	-	-	-	-
Total	258	41/258 (15.9%)	48/258 (18.6%)	37/258 (14.3%)	148/258 (57.4)	4 (2-8)

EA, esophageal atresia.

IQR, interquartile range.

\* p < 0.05.

† p < 0.01.

\*\* p < 0.001.

# Dilatation burden according to age at first dilatation

Campos J et al J Ped Surg. Marzo 2020

**Table 3**

Dilatation burden according to age at first dilatation.

Age at first dilatation	N	Median number of dilatations (range)	p-Value
<1 month old	2	5.5 (4-7)	0.006
1 month to 3 months old	53	4 (1-16)	0.003
3 months to 6 months	26	11 (1-97)	***
6 months to 1 year old	27	5 (1-40)	0.015
1 year to 2 years old	26	2 (1-18)	0.002
2 years to 5 years old	9	2 (1-4)	0.0005
5 years to 10 years old	6	1.5 (1-2)	0.0004

\*\*\* p-Value compared against 3-6 months group, which had the highest requirement for dilatation.

# Details of dilatation perforations

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**Table 4**  
Details of dilatation perforations.

Year of perforation	Age at perforation (months)	Number of previous dilatations	Number of subsequent dilatations	Type of EA
<i>(a) Balloon dilatation perforations</i>				
2001	2.3	2	4	C
2006	5.6	1	95	A
2007	10.5	11	31	C
2009	7.8	4	35	A
2009	28.3	13	19	A
2015	1.1	0	4	C
<i>(b) Bougie dilatation perforations</i>				
2007	12.5	2	3	C
2014	18.8	17	0	A
2015	Not available	3	0	C
2015	11.8	4	1	B
<i>(c) Guidewire perforation</i>				
2015	5.6	0	13	A

# Nationwide analysis of mortality and readmissions in esophageal atresia

H et al J Ped Surg Marzo 2020

- Estudio retrospectivo .
- Base de datos de readmisiones NRD (National Readmissions Database)
- Egresos 22 estados USA ( 49% de egresos) ,2010- 2014
- Readmisiones dentro de 30 días a 1 año postalta

# Nationwide analysis of mortality and readmissions in esophageal atresia

H et al J Ped Surg Marzo 2020

**Table 1**  
Neonates with esophageal atresia, demographic data.

Characteristic	n (%)
<b>Demographics</b>	
Gender	
Female	1449 (46)
Male	1708 (54)
Insurance Status	
Medicaid	1516 (48)
Private Insurance	1507 (48)
Self-Pay	129 (4)
Income (Quartile)	
Highest Quartile Income (\$67,000 +)	764 (24)
Second Quartile Income (\$51,000–\$66,999)	858 (27)
Third Quartile Income (\$41,000–\$50,999)	761 (24)
Lowest Quartile Income (<\$40,999)	743 (24)
Hospital Size <sup>a</sup>	
Large	2444 (77)
Medium	485 (15)
Small	228 (7)
Perinatal Conditions	
Birth Weight	
Extremely Low (< 1000 g)	79 (3)
Very Low (<1500 g)	230 (7)
Low (<2500 g)	707 (22)
Normal	2141 (68)
Birth Term	
Full	1973 (62)
Premature (<37 weeks gestation)	1184 (38)
Congenital Anomalies	
Esophageal	
Spitz II or III	1828 (58)
Isolated EA ± TEF	596 (19)
Long Gap	92 (3)
VACTERL (2+ anomalies) <sup>b</sup>	2181 (69)
VACTERL (3+ anomalies)	1113 (35)
Cardiac <sup>c</sup>	1679 (53)
Persistent Ductus Arteriosus	1284 (41)
Otolaryngologic	763 (24)
Genitourinary	728 (23)
Abdominal	
Anorectal Malformation	598 (19)
Small Bowel Atresia	316 (10)
Abdominal Wall Defects	136 (4)
Other Digestive	38 (1)
Brain/Central Nervous System	154 (5)
Chromosomal	268 (9)
Pulmonary	278 (9)
Congenital Diaphragmatic Hernia	104 (3)
	33 (1)

<sup>a</sup> Hospital size definition varies by United States geographic region and hospital type (rural, urban non-teaching, urban teaching) [30].

<sup>b</sup> VACTERL includes two or more features of the association of Vertebral, Anorectal, Cardiac, Tracheoesophageal fistula, Renal and/or Limb anomalies.

<sup>c</sup> Major cardiac structural anomaly (excludes persistent ductus arteriosus).

< 1500 G : 10%  
< 2500 : 22%

Tipo II-III : 58%  
FTE aislada: 19%  
Long Gap : 3%

Otra malformación: 81%  
VACTERL (2 ó más) : 69%  
VACTERL (3 o más) : 35%  
Malf Genitourinaria: 23%  
Malf anorectal : 10%  
Atresia intestinal : 4%  
Cromosomopatías: 9%

# Mortalidad

**Table 3**

Univariate predictors of mortality in neonates with esophageal atresia (NRD, 2010–2014).

Variable		Survived n (%)	Died n (%)	p =
<b>Demographics</b>				
<b>Gender</b>	Female	1286 (89)	163 (11)	0.83
	Male	1520 (89)	188 (11)	
<b>VLBW (&lt;1500 g)</b>	Yes	97 (42)	133 (58)	<0.01
	No	2709 (93)	218 (7)	
<b>LBW (&lt;2500 g)</b>	Yes	648 (92)	59 (8)	<0.01
	No	2158 (88)	292 (12)	
<b>Premature (&lt;37 weeks gestation)</b>	Yes	943 (80)	241 (20)	<0.01
	No	1883 (94)	110 (6)	
<b>Congenital Anomalies</b>				
<b>Any Associated Anomaly</b>	Yes	2235 (87)	326 (13)	<0.01
	Isolated EA ± TEF	571 (96)	25 (4)	
<b>Central Nervous System</b>	Yes	175 (65)	93 (35)	<0.01
	No	2631 (91)	259 (9)	
<b>Major Cardiac</b>	Yes	1466 (87)	213 (13)	<0.01
	No	1340 (91)	139 (9)	
<b>Small Bowel Atresia</b>	Yes	101 (74)	35 (26)	<0.01
	No	2705 (90)	317 (11)	
<b>Anorectal Malformation</b>	Yes	206 (65)	110 (35)	<0.01
	No	2600 (92)	241 (9)	
<b>Genitourinary</b>	Yes	441 (75)	151 (26)	<0.01
	No	2365 (92)	201 (8)	
<b>CDH</b>	Yes	12 (36)	21 (64)	<0.01
	No	2794 (89)	331 (11)	
<b>Chromosomal</b>	Yes	150 (54)	128 (46)	<0.01
	No	2656 (92)	223 (8)	
<b>VACTERL</b>	Yes	896 (81)	216 (19)	<0.01
	No	980 (92)	89 (8)	
<b>Spitz II/III</b>	Yes	1506 (82)	322 (18)	<0.01
	Spitz I	1300 (98)	30 (2)	

# Nationwide analysis of mortality and readmissions in esophageal atresia

H et al J Ped Surg Marzo 2020

		30-day readmission 212 (10)	1-year readmission 563 (26)
<b>Demographics</b>			
Gender	Female	125 (13)†	273 (20)
	Male	87 (7)	290 (24)
VLBW (<1500 g)	Yes	20 (2)†	41 (37)†
	No	182 (9)	521 (35)
LBW (<2500 g)	Yes	16 (8)†	117 (32)†
	No	115 (7)	386 (24)
Prematurity (<37 weeks gestation)	Yes	112 (5)†	251 (34)†
	No	99 (7)	312 (22)
<b>Congenital Anomalies</b>			
Any Additional Anomaly	Yes	89 (10) **	506 (38) **
	Isolated EA, TEF	22 (6)	56 (16)
Central Nervous System	Yes	- (3)	44 (38)†
	No	26 (10)	518 (25)
Major Cardiac	Yes	63 (13)†	396 (32)†
	No	50 (8)	167 (18)
Small Bowel Atresia	Yes	21 (2)†	29 (38) **
	No	189 (9)	533 (35)
Anorectal Malformation	Yes	20 (2)	84 (49)†
	No	81 (10)	479 (24)
Gastroesophageal	Yes	39 (8)	183 (38)†
	No	172 (10)	379 (24)
CHD	Yes	- (6)†	- (6) **
	No	205 (10)	556 (26)
Chromosomal	Yes	4 (4)†	60 (60)†
	No	189 (9)	502 (24)
VACTERL	Yes	73 (10)	275 (36)†
	No	110 (13) **	210 (35)
Spina Bifida	Yes	63 (13)†	399 (32)†
	Spizzi	6 (2)	164 (10)
<b>Complications &amp; Associated Diagnoses</b>			
Surgical Site Dehiscence	Yes	- (4)†	12 (6)†
	No	24 (9)	551 (36)
Respiratory Distress Syndrome	Yes	4 (2)	112 (31) **
	No	169 (9)	451 (25)
Mesenteric Occlusion	Yes	14 (4)†	14 (74)†
	No	87 (9)	549 (25)
Gastroesophageal Reflux Disease	Yes	18 (5)†	208 (35)†
	No	122 (8)	354 (22)
Intramucosal Hemorrhage	Yes	13 (3)†	23 (38) **
	No	87 (9)	546 (36)

VLBW, very low birth weight; LBW, low birth weight; CHD, congenital heart disease; SSI, spontaneous intestinal perforation; GERD, gastroesophageal reflux disease. \* †, significant data using per CCP test statistic.  
 \*\* p<0.05  
 \*\*\* p<0.01

Readmisión 30 días: 10%  
 Readmisión 1 año : 26%

# Nationwide analysis of mortality and readmissions in esophageal atresia

H et al J Ped Surg Marzo 2020

Table 5

Readmission procedures and diagnoses in infants with EA ± TEF after surgical repair.

	n	%
<b>Readmitted Within 1 Year</b>	563	27
<b>Elective Readmission<sup>a</sup></b>	83	15
<b>Unplanned Readmission<sup>b</sup></b>	480	85
<b>Procedure</b>		
<b>Major Operative Procedure</b>	264	47
EGD/Dilation	97	17
Nissen or Gastrostomy Tube	67	12
Bronchoscopy	49	9
Anorectal Malformation Repair	37	7
Cardiac Repair	20	4
CDH Repair	12	2
TEF/Esophageal Repair	--	<1
<b>Diagnoses on Admission</b>		
GERD	305	54
Infections	187	33
Disease of Respiratory System	172	31
GERD Complication <sup>c</sup>	102	18
Failure to Thrive	97	17
Tracheomalacia	78	14
Esophageal Stricture	55	10
Nausea, vomiting, diarrhea	50	9
Upper Respiratory Infection	46	8
Septicemia	39	7
Gastrostomy Complications	34	6
Apparent Life-Threatening Event (ALTE)	29	5
Pneumonia	28	5
Laryngeal (other)	27	5
Esophageal Perforation	14	3

EGD, esophagogastrroduodenoscopy; CDH, congenital diaphragmatic hernia; GERD, gastroesophageal reflux. “--” signifies data usage per HCUP standards.

<sup>a</sup> Readmission involving elective planned surgical procedures (correction of anorectal malformation, cardiac surgery, genitourinary procedures, etc.)

<sup>b</sup> Readmission for diagnoses or complications other than elective procedures.

<sup>c</sup> Includes aspiration pneumonia, airway complication attributed to GERD, fundoplication performed at readmission.

Readmisión Electiva: 15%  
Readmisión NO planificada : 85%

Dilatación : 17%