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Why do pediatric intestinal anastomoses fail?

A Single-Center Retrospective Cohort Study

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Introduction

The failure of an intestinal anastomosis is a significant event associated with high morbidity

Few **pediatric studies** have focused on evaluating the potential risk factors for this outcome

AIM To assess various preoperative, intraoperative, and postoperative variables possibly related to an **increased risk of intestinal anastomotic leakage in children**

Methods

Retrospective cohort study (Ethics committee approval **Act No. 84 623-23R**)

Children who underwent at least one intestinal anastomosis between **January 2017 and July 2023** at **HOMI** in Bogotá, Colombia

Description of demographic and perioperative **variables**:
#4 Demographic, #8 Preoperative, #12 Intraoperative, #6 Postoperative, #7 Outcomes
Indications for Open Abdomen: ***1)*** *Questionable viability of tissue,* ***2)*** *Early ischemia signs,* ***3)*** *PO risk of compartment syndrome*
Risk factors analysis: backwards stepwise logistic regression (inclusion threshold **p<0.1**, significance definition **p<0.05**), selection of model with best goodness-of-fit

Results

n=449 anastomoses (404 patients)

- Mean age **4.95 y**
- Male **55%**
- Inflammatory pathology **47%**
- Congenital pathology **40%**
- Nutritional risk **>40%**
- ASA >III **41.8%**
- PostOP ICU **44.7%**

Anastomotic failure n=59, **13.14%**
Median time at diagnosis 4.0 days (IQR 3)

AIC 129.02 Variable	Univariate OR (CI95%)	Multivariate OR (CI95%)
Newborn	2.16 (0.96-4.81)	0.29 (0.07-1.15)
Pneumopathy	3.77 (1.93-7.38)	2.37 (0.01-3.47)
PreOP Albumin	0.32 (0.18-0.55)	0.63 (0.32-1.23)
Emergent case	3.99 (2.23-7.12)	1.90 (0.58-6.21)
Dirty wound	4.23 (2.28-7.84)	0.61 (0.20-1.87)
Open abdomen	**14.14 (7.54-26.51)**	**7.86 (2.09-29.42)**
IntraOP inotropy	2.07 (1.08 a 3.98)	2.35 (0.69-7.96)
IntraOP transfusion	2.61 (1.47 a 4.64)	1.66 (0.62-4.47)
Operative time	0.99 (0.99 a 1)	0.99 (0.98-1.00)

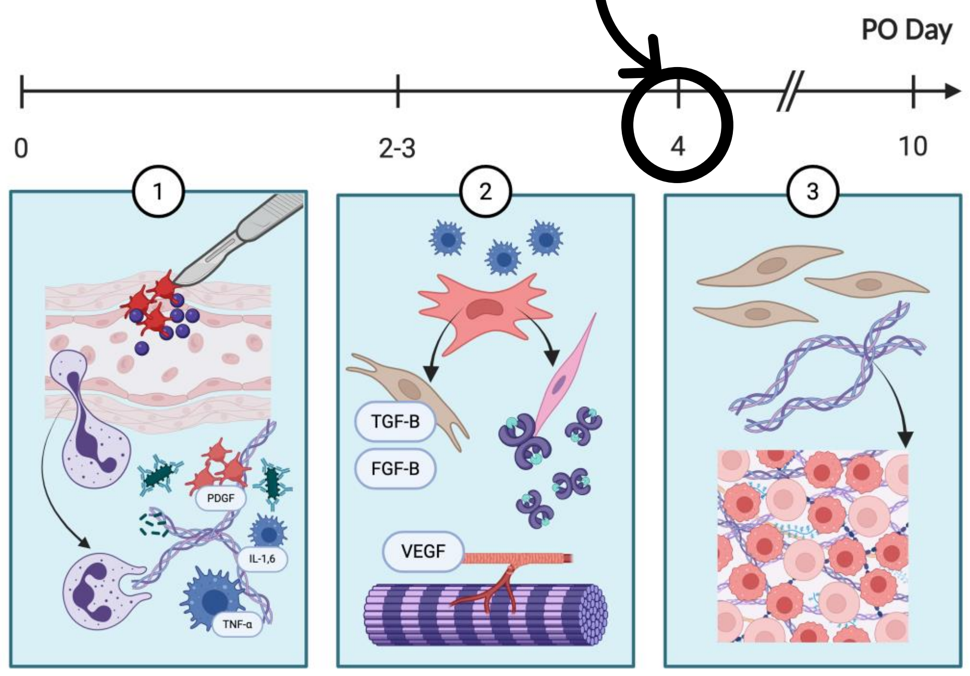

Fig 1 Phases of Intestinal Healing. https://BioRender.com/gwdfrik

Conclusions

- The only factor increasing the risk of anastomotic leakage in this cohort was the presence of an **open abdomen**
- Median time at diagnosis expected due to pathophysiology of intestinal healing **(Fig 1)**
- Leak rate slightly higher than previous literature, possibly due to high incidence of critical pathology, **extrapolate with caution**

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