Risk Factors for Stoma-Related Complications in Pediatric Patients: A Retrospective Study

Can İhsan Öztorun [1], Elif Emel Erten [2], Vildan Selin Çayhan [2], Ahmet Ertürk [2], Süleyman Arif Bostancı [1], İrem Akbaş [2], Bilge Başaran [2], Enes Sağlık [3], Aslı Nur Abay [2], Sabri Demir [3], Müjdem Nur Azılı [1], Emrah Şenel [1]

[1] *Ankara Yıldırım Beyazıt Unıversıty Medical Faculty Department of Pediatric Surgery*
[2] *Ankara Bilkent City Hospital Department of Pediatric Surgery*
[3] *Ankara Bilkent City Hospital Department of Pediatric Surgery, Ankara*

AIM

To evaluate the incidence of stoma-related complications and to identify potential risk factors, including patient diagnosis, clinical characteristics, the urgency of stoma creation (emergency or elective), and the type of stoma.

METHODS

- 2019-2025
- 270 pediatric patients
- Patients diagnosed with **necrotizing enterocolitis, anal atresia, Hirschsprung disease, rectal disorders, meconium ileus, cystic fibrosis, volvulus, intestinal atresia, and intestinal perforation**
- **Ileostomy/colostomy**
- Demographic data, underlying diagnosis, comorbidities, stoma type and level, urgency of surgery (emergency vs. elective), and stoma-related complications (**anastomotic leak, prolapse, severe peristomal dermatitis, obstruction, perforation, wound infection**) were recorded.

RESULTS

- The most common indication for stoma creation was **necrotizing enterocolitis** (38.5%; n = 104).
- **Stoma-related complications** developed in 88 patients (32.6%).
- The most frequently observed complications were **peristomal dermatitis** (10%; n = 27), **stoma prolapse** (7.4%; n = 20), and **wound dehiscence** (6.3%; n = 17).
- Peristomal dermatitis was mainly associated with **emergency stoma creation, low birth weight, and loop-type configuration.**
- Stoma prolapse was more frequent in **loop and colostomy stomas**, whereas wound dehiscence and infection were predominantly seen after **emergency procedures** and in **patients with comorbidities**.
- Anastomotic leakage was linked **to low gestational age** and **birth weight**, while obstruction or stenosis occurred more commonly in **diverting (end) colostomies**.

Table 1. Univariate Analysis: Association Between Complication Development and Demographic/Clinical Factors

Variable	Complication (n=88)	No Complication (n=182)	p
Gender (M/F)	52 / 36	106 / 76	0.62 (≥0.05)
Gestational age (weeks, mean ± SD)	35.8 ± 3.2	36.1 ± 3.4	0.48 (≥0.05)
Birth weight (g, mean ± SD)	2,560 ± 480	2,610 ± 510	0.44 (≥0.05)
Presence of comorbidity (Yes/No)	19 / 69	45 / 137	0.55 (≥0.05)
Emergency stoma creation (n = 184)	71 (38.6%)	113 (61.4%)	**0.01 (≤0.05)**
Elective stoma creation (n = 86)	17 (19.8%)	69 (80.2%)	—
Level of stoma (colostomy/ileostomy)	45 / 43	78 / 104	0.09 (≥0.05)
Type of stoma (Loop/Diverting)	32 (39.5)/56 (29.6)	49 (60.5)/133 (70.4)	**0.048 (≤0.05)**

Table 2. Multivariate Logistic Regression Analysis: Risk Factors for Complication Development

Variable	OR (Odds Ratio)	95% CI (Confidence Interval)	p
Gender (M/F)	1.12	0.71 – 1.78	0.62 (≥0.05)
Gestational age (weeks)	0.98	0.92 – 1.05	0.48 (≥0.05)
Birth weight (kg)	0.99	0.95 – 1.03	0.44 (≥0.05)
Presence of comorbidity	1.18	0.68 – 2.04	0.55 (≥0.05)
Emergency stoma creation	**2.30**	**1.25 – 4.10**	**0.01 (≤0.05)**
Level of stoma (colostomy/ileostomy)	1.40	0.94 – 2.12	0.09 (≥0.05)
Type of stoma (Loop/Diverting)	1.51	0.97-2.86	0,067 (≥0.05)

Table 3. Frequency and Distribution of Key Risk Factors Associated with Different Types of Stoma-Related Complications

Complication Type	n (%)	Major Associated Factors
Peristomal dermatitis	27 (10.0)	Emergency stoma creation, Low birth weight, Loop type ostomy
Stoma prolapse	20 (7.4)	Loop ostomy, Colostomy level
Wound dehiscence / infection	17 (6.3)	Emergency stoma creation, Presence of comorbidity
Anastomotic leak / perforation	8 (3.0)	Low gestational age, Low birth weight
Obstruction / stenosis	6 (2.2)	Diverting (end) ostomy, Colostomy level

CONCLUSION

- The most common stoma-related complications observed in pediatric patients were peristomal dermatitis and wound dehiscence.
- **Stomas created under emergency conditions were found to carry a significantly higher risk for the development of overall complications.**
- **To reduce such complications, meticulous stoma care is critically important, particularly in patients who undergo emergency stoma creation.**