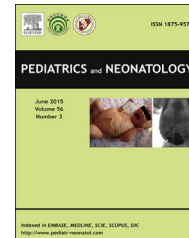




Available online at www.sciencedirect.com

ScienceDirect

journal homepage: <http://www.pediatr-neonol.com>



ORIGINAL ARTICLE

Conservative Surgery for Right Colon Perforation Leads to Better Long-Term Outcomes in Children: A 21-year Experience



Chau-Jing Chen^a, Jen-Pin Chuang^{b,c,*}

^a Section of Pediatric Surgery, Department of Surgery, National Cheng-Kung University Hospital, Tainan, Taiwan

^b Surgery Department, Sin-Hua Branch, Tainan Hospital, Ministry of Health and Welfare, Tainan, Taiwan

^c Institute of Clinical Medicine, National Cheng Kung University College of Medicine, Tainan, Taiwan

Received Apr 1, 2014; received in revised form Aug 14, 2014; accepted Sep 7, 2014
Available online 31 October 2014

Key Words

Right colon perforation;
Primary repair;
Segmental resection;
Right hemicolectomy;
Body weight growth;
Body weight percentile curve chart

Objective: There is no consensus on standard treatment for right colon perforation in pediatric patients. We reviewed our cases over the past 21 years, comparing the effects of different operations to the long-term growth of patients.

Methods: From February 1990 to October 2011, 29 patients of right colon perforation were enrolled in our analysis after excluding tumors, diverticulum, volvulus, and tuberculosis. Clinical information was collected from medical records, and analysis was done over 26 cases younger than 10 years at the time of the treatment. Surgical options included primary repair (D group, 12 cases), segmental resection (S group, 5 cases) and right hemicolectomy (H group, 9 cases). The length of postoperative stay, complications, and body weight growth in body weight percentile curve chart at last follow-up visit in each group were compared by analysis of variance.

Results: Of the 26 patients who underwent the right colon perforation treatment, cecum perforation was found in 16 (62%), ascending colon perforation in six (23%), transverse colon perforation in three (12%), and combined ascending and transverse colon in one (4%). No mortality or anastomotic leakage occurred. The mean length of postoperative stay was shorter in the D group than in the S and H groups but without statistical significance (mean 10.9 days vs. 11.6 days and 17.9 days, respectively). Long-term body weight growth was significantly better in the D group ($+26.3 \pm 22.2$ percentile) than the H group (-4.8 ± 8.0 percentile; $p = 0.02$).

* Corresponding author. Sin-Hua Branch, Tainan Hospital, Ministry of Health and Welfare, Number 72, Muchang, Xinhua District, Tainan City 712, Taiwan.

E-mail address: chuangjp@gmail.com (J.-P. Chuang).

Conclusion: For right colon perforation in children, simple closure following debridement has long-term benefits over more extensive resections.

Copyright © 2014, Taiwan Pediatric Association. Published by Elsevier Taiwan LLC. All rights reserved.

1. Introduction

Colon perforation is a life-threatening infection in the pediatric population, which requires early surgical management. Among the etiologies of nontraumatic colon perforation in pediatric patients, necrotizing enterocolitis contributes to most perforations in neonates, especially in premature newborns.^{1–3} However, other entities of spontaneous colon perforation in the childhood such as Ehlers–Danlos syndrome, lymphoma, and infections have also been reported.^{4–7} On average, the ascending colon and transverse colon are the most frequent sites of perforation.^{8,9}

For colon perforation, management depends largely on factors such as the cause of the perforation, the integrity of the surrounding intestinal tissue and the time elapsed prior to the commencement of treatment. However, there is as yet no consensus on how best to treat right colon perforation in pediatric patients. We reviewed our cases over the past 21 years, comparing the effects of different operations to the long-term growth of patients.

2. Materials and methods

We retrospectively reviewed pediatric patients treated for right colon perforation in the National Cheng Kung University Hospital, Tainan, Taiwan from February 1990 to October 2011. Our aim was to evaluate management approaches based on their effects on growth outcomes of patients. We excluded cases involving tumors, diverticuli, obstruction, volvuli, inflammatory bowel diseases, necrotizing enterocolitis, and tuberculosis. Patients with a history of prematurity, small for gestational age, and genetic diseases affecting body weight (BW) growth (BWG) are also excluded. Ninety percent of the total 29 patients of right colon perforation were enrolled by these criteria, or 26 cases involving patients younger than 10 years at the time of the treatment. We also excluded patients older than 10 years because their bodies had completed most of their BWG, yielding a total of 26 patients in this study. Medical records including sex and age of patients, perforation sites, aerobic and anaerobic cultures, and operative procedures and complications are reviewed. The disease severity in our study group is not universal and can be divided into three levels: mild (simple and only 1 or 2 colonic perforations); moderate (colonic perforation associated with colonic necrosis picture); and severe (multiple perforations or necrosis over the long segment of the right colon). The patients were further grouped by the type of surgeries they underwent, including 12 cases of debridement and primary repair (D group), five cases of segmental resection (S

group), and nine cases of right hemicolectomy (H group). For segmental right colon resection, the right colon is first mobilized from its retroperitoneal attachments by incising the white line of Toldt. The extent of resection is based on the perforation size and tissue circulation condition. For all three groups, key statistics including the length of post-operative stay, complications, baseline (preoperative) BW percentile, and BWG (in BW percentile curve chart) at the last follow-up visit were compared by independent *t* test analysis.

3. Results

Of the 26 patients enrolled in our analysis, 14 were male. The mean age of all patients was 55.4 ± 42 months, and our mean following time was 66 ± 55.3 months. Among these 26 patients, the perforation was found in the cecum in 16, the ascending colon was found in six, the transverse colon was found in three, and combined ascending and transverse colon was found in one (Table 1). Further analysis revealed simple and only one or two colonic perforations in 13 patients, of which colonic perforation associated with colonic necrosis picture was found in 10 patients and multiple perforations or necrosis over the long segment of right colon was found in three patients (Table 2). Of the 16 cases of cecal perforation, 11 were treated with debridement and primary repair (D group), one with segmental resection (S group), and four with right hemicolectomy (H group). Of the six cases with ascending colon perforation, five were treated with right hemicolectomy and one with segmental bowel resection. Of the three cases with transverse colon perforation, two were treated with segmental resection and one with debridement. The case of combined ascending and colon perforations was treated with partial colectomy (Table 1). No mortality or anastomotic leakage occurred.

The most frequent bacteria found in aerobic and anaerobic cultures of contaminated peritoneum were

Table 1 Perforation sites and operative procedures.

	Debridement	Segmental resection	Hemicolectomy	Total
Cecum	11	1	4	16
Ascending colon		1	5	6
Transverse colon	1	2		3
Combined		1		1
Total	12	5	9	26

Download English Version:

<https://daneshyari.com/en/article/4174977>

Download Persian Version:

<https://daneshyari.com/article/4174977>

[Daneshyari.com](https://daneshyari.com)