

## Risk Factors of Bowel Resection on Intussusception

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**Purpose:** Intussusception is one of the most common causes of childhood intestinal obstructions. Early diagnosis is essential to avoid treatment delays, which can increase morbidity and mortality. In this study, authors have tried to analyze the risk factors associated with intussusception in infants and children to establish an early diagnosis to prevent unwanted outcomes.

**Methods:** We reviewed 44 cases involving operations for childhood intussusception from 1997 to 2001. These were divided into two groups and compared retrospectively using medical records. Group I included 34 cases of manual reduction (77.3%), and group II consisted of 10 cases of bowel resection (22.7%).

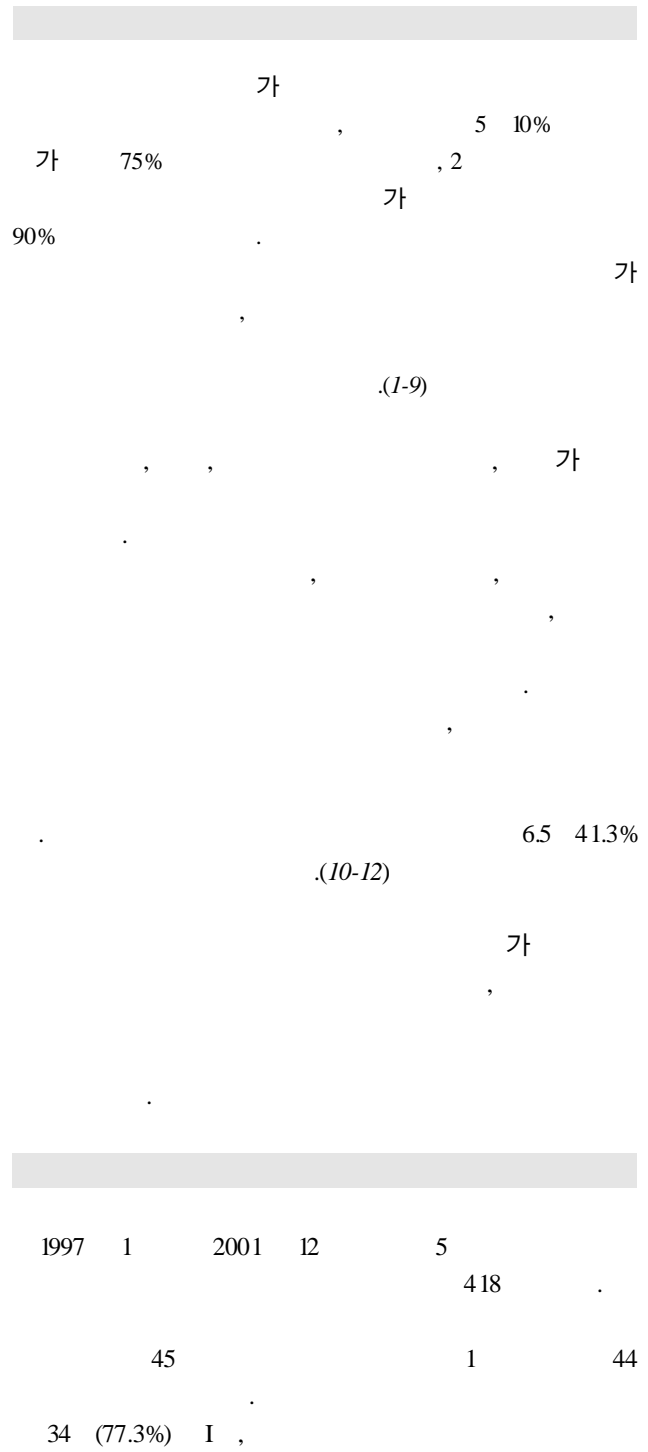
**Results:** There were no significant differences in age, sex, and clinical symptoms between the 2 groups. The anatomic location of the intussusceptum, and fever seemed to vary, but this was of no statistical significance. Factors significantly contributing to increase in the rate of bowel resection were the duration of the symptoms (more than 48 hours), and the leukocyte count (more than 15,000/mm<sup>3</sup>).

**Conclusion:** This study revealed that only the duration of symptom and the leukocyte count contributed to an increase in the rate of bowel resection. Further prospective studies would be needed to reveal more risk factors to accurately predict the prognosis of the disease. (*J Korean Surg Soc* 2002;63:63-68)

**Key Words:** Intussusception, Bowel resection, Risk factors

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10 (22.7%) II

chi-square

test

1)

44 가 30 (68.2%), 가 14 (31.8%)

2 : 1 가

1 가 가 I 31 (70.4%),

II 6 (13.6%) 84% 4

6 가 18 40.9%

가

2)

44 2

(4.6%) ,

(ileal duplication cyst) 1 II

7 (15.8%)

Table 1. Clinical symptoms and signs

	No. of cases (%)
Vomiting	37 (84.1)
Bloody stool	34 (77.3)
Abdominal pain	28 (63.6)
Fever	28 (63.6)
Palpable mass	12 (27.3)
Abdominal distension	9 (20.5)
Lethargy	7 (15.9)
Diarrhea	2 (4.5)

Table 2. Site of intussusceptum

Site	Group I	Group II	Total (%)
Transverse colon	22	6	28 (63.6)
Ascending colon	7	2	9 (20.5)
Descending colon	5	1	6 (13.6)
Rectum	0	1	1 (2.3)
Total	34	10	44 (100)

가 5 (11.4%)

3)

가 37

(84.1%) 가 , 34 (77.3%),

28(63.6%) , 12

(27.3%), 9 (20.5%), 7 (15.9%), 2

(4.5%) (Table 1).

4)

(1) : 10,000/mm<sup>3</sup> 가 10

22.7%, 10,000 15,000/mm<sup>3</sup> 21 47.7%, 15,000

20,000/mm<sup>3</sup> 8 18.2% 20,000/mm<sup>3</sup> 5

11.4%

(2) :

28 (63.6%) 가

, 9 (20.5%), 6 (13.6%)

, 1 (2.3%)

(Table 2).

5)

I II 17 , 4 21

(47.7%) 가

7 (15.9%) 6 (13.6

%) 3 (6.8%) I (Table 3).

6)

(1) :

12

I 5 , 12 24

I 13 , II 1 14 , 24

48 I 14 , II 3

17 . 48 72 4

I 2 , II 2 , 72

Table 3. Types of intussusception

Type	Group I	Group II	Total (%)
Ileoileocolic	17	4	21 (47.7)
Ileoileocecal	2	5	7 (15.9)
Ileoileal	6	1	7 (15.9)
Ileocolic	6	0	6 (13.6)
Ileocecal	3	0	3 (6.8)
Total	34	10	44 (100)

4 II (Table 4).  
 48 48 36  
 4 (11.1%)  
 48 8 6 (75%)  
 (Odd ratio=24,  
 P=0.0004).  
 (2) : ,  
 36.5 37°C I 15 (93.8%), II 1 (6.2%)  
 16 37.1 37.5°C I 9 (60%), II  
 6 (40%) 15 . 37.6 38°C 7  
 I 6 (85.7%), II 1 (14.3%)  
 6 I 4 (66.7%), II 2 (33.3%)  
 (Table 5). II I 가

**Table 4.** Duration of symptoms

Duration (hour)	Group I (%)	Group II (%)	Total (%)
12	5	0	5
12 24	13	1	14
24 48	14	3	17
	32 (72.7)	4 (9.1)	36 (81.8)
48 72	2	2	4
72 h		4	4
	2 (4.6)	6 (13.6)	8 (18.2)
Total (%)	34 (77.3)	10 (22.7)	44 (100)

P = 0.0004  
 Odd ratio = 24

**Table 5.** Preoperative body temperature

Body temperature (°C)	Group I (%)	Group II (%)	Total (%)
36.5 37.0	15	1	16
37.1 37.5	9	6	15
	24 (54.6)	7 (15.9)	31 (70.5)
37.6 38.0	6	1	7
38.1°C	4	2	6
	10 (22.7)	3 (6.8)	13 (29.5)
Total (%)	34 (77.3)	10 (22.7)	44 (100)

P = 0.9760  
 Odd ratio = 1.03

37.5°C 31 (70.4%) 7 (22.6%)  
 37.5°C 13 (29.5%) 3 (23.1%)  
 (Odd ratio=1.03, P=0.9760).  
 (3) : , I 가 10,000/mm<sup>3</sup> 가 10  
 9 (90%), 10,000 15,000/mm<sup>3</sup> 21 18 (85.7%),  
 15,000 20,000/mm<sup>3</sup> 8 4 (50%), 20,000/mm<sup>3</sup>  
 5 3 (60%) , II 가 10,000/mm<sup>3</sup>  
 가 10 1 (10%), 10,000 15,000/mm<sup>3</sup> 21  
 3 (14.3%), 15,000 20,000/mm<sup>3</sup> 8 4 (50%),  
 20,000/mm<sup>3</sup> 5 2 (40%) (Table 6).  
 가 가

(4) : 10  
 가 2 ,  
 가 4 ,  
 (leading point)가 2

**Table 6.** Numbers of WBC in peripheral blood

No./mm <sup>3</sup>	Group I (%)	Group II (%)	Total (%)
10,000	9	1	10
10,000 15,000	18	3	21
	27 (61.4)	4 (9.1)	31 (70.5)
15,000 20,000	4	4	8
20,000	3	2	5
	7 (15.9)	6 (13.6)	13 (29.5)
Total (%)	34 (77.3)	10 (22.7)	44 (100)

P = 0.0438  
 Odd ratio = 5.79

**Table 7.** Indications and incidences of intestinal resection

	No. of cases (%)
Failed manual reduction	2 (4.5)
Intestinal gangrene	4 (9.1)
Lead points	2 (4.5)
Preoperative intestinal perforation	1 (2.3)
Intraoperative intestinal perforation	1 (2.3)
Total	10 (22.7)





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