

Radiological Study of Hirschsprung's Disease

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Summary :

This study was undertaken to see the Radiological findings of Hirschsprung's disease in different ages of children. The study period was from December 1984 to December 1995. The number of studied patients were fourteen, who were clinically diagnosed and admitted in paediatric surgery Department of Chittagong Medical College Hospital. All of them had plain X-Ray of abdomen A/P view & ba-enema X-ray. In plain X-Ray of abdomen 10 patients (71.5%) showed a grossly distended pelvic colon with characteristic mottled appearance. Four patients (28.5%), all were neonates, showed mild distended colon with gases. Ba-enema of 10 patients showed characteristic findings of Hirschsprung's disease i.e. a narrow segment of bowel in distal colon above which occurred dilated colonic loop. Four patients (the neonates) showed mild to moderate colonic distension without any transitional zone. Our study showed that characteristic radiological features i.e. cone formations were absent in neonates. Hirschsprung disease can be diagnosed satisfactorily with Radiological Examinations.

Introduction :

Hirschsprung's disease is one of the classic problems in paediatric surgical practice. The incidence of this clinical entity is around in every 5000 live births². The disease is defined as the absence of ganglion cells in the enteric nervous system of distal bowel, beginning with and including internal anal sphincter. The aganglionosis extends over varying distances proximally⁵. The crux of management of Hirschsprung's disease is early diagnosis. The signs and symptoms of this disease are quite variable. Delayed passage of meconium beyond 48 hours after birth indicates additional investigations⁶. Radiological examination helps

in the diagnosis of Hirschsprung's disease in 80-83% cases⁵. This study was undertaken to see the radiological findings of Hirschsprung's disease in different ages of our children.

Patients and Methods :

Fourteen patients of Hirschsprung's disease, admitted in the department of Paediatric surgery, Chittagong Medical College hospital were included in our study. The study period was one year, extending from December 1994 to December 1995.

The diagnosis was made by history, clinical examination, radiological examination including plain x-ray of abdomen and barium enema with normal saline. Biopsy of the tissue from narrow segment was taken during operation and histopathological examination confirmed the diagnosis.

Results :

A total number of fourteen patients were diagnosed Hirschsprung's disease clinically and radiologically in our study. Out of 14 patients male were 11 and female 3 with a male, female ratio of 3.6 : 1. Among 14 patients, 4 were neonate and 10 children. Table-I shows age and sex distribution of the studied patients. Plain X-ray abdomen in neonates show gaseous colonic dilatation in all, absence of air in rectum in 2 patients and multiple air-fluid levels in 1 patient (Table-II). In children, plain abdominal radiograph showed moderate to grossly dilated pelvic colon in all patients. In addition, in 1 patient sigmoid colon was elongated, dilated and placed on the right side (Table-III). Barium enema findings of the patients were summarised in Table 4 & 5. In all neonates, there was mild to moderate dilatation of pelvic colon and no narrow segment. But all the children showed narrow distal segment followed by proximal colonic dilatation.

Table-I
Age & Sex distribution

Sex	No.	Age group		
		Neonate	Infant	Children
Male	11 (78.5%)	4 28.57%	4 28.57%	3 21.5%
Female	3 (21.5%)	0 (0%)	2 (14.28%)	1 (7.14%)

Table-II

Plain X-Ray (Abdomen) findings in neonate

Gaseous colonic dilatation	-4
Absence of air in rectum	-2
Multiple air fluid levels	-1

Table-III

Plain X-Ray (Abdomen) findings in children

Grossly dilated pelvic colon	-10
Elongated, dilated, Rt. Sided sigmoid colon	-1

Table-IV

Ba-Enema finding in neonate

Dilated pelvic colon	-4
no narrow segment	

Table-V

Ba-Enema findings in infant & children

Narrow distal segment followed by proximal dilatation of colon	-10
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Fig-1 : *Gaseous colonic dilatation. Absence of air in the rectum.*

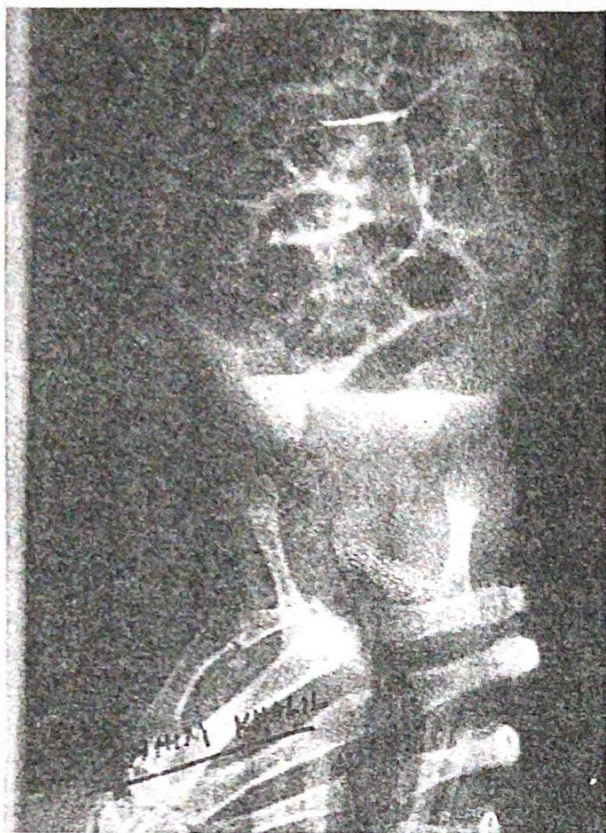


Fig-2 : Multiple air-fluid level. Absence of air in the rectum.

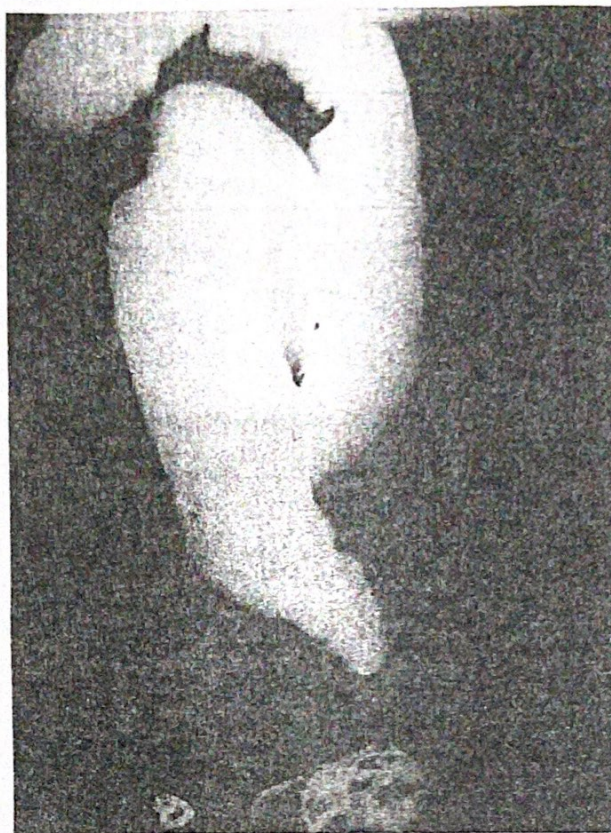


Fig-4 : Narrow distal segment followed by proximal dilated colon.



Fig-3 : Grossly dilated pelvic colon.

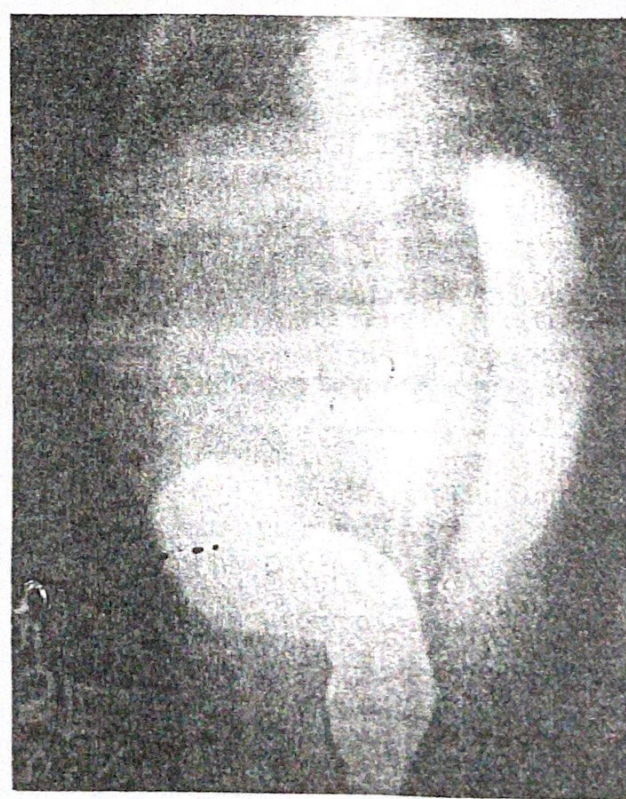


Fig-5 : Elongated dilated Rt. sided sigmoid colon.

Discussion :

Hirschsprung's disease is the fourth commonest cause of intestinal obstruction in our children⁷. History of delayed passage of meconium and subsequent constipation indicate appropriate radiological examinations. In the first few days of life, colonic distension with absence of air in the rectum on a plain abdominal radiograph is suggestive of Hirschsprung's disease specially when confirmed in lateral view. All neonates in our study showed gaseous colonic dilatation in plain X-ray of abdomen. In two cases, air was absent in rectum and in one newborn, in addition multiple air-fluid levels were seen in small intestines. Plain X-ray of abdomen of the children in our study also showed positive findings. All ten children had grossly dilated pelvic colon. In one child, sigmoid colon was found to be elongated, dilated and right sided. According to Sieber⁵ this findings strongly suggests Hirschsprung's disease. Barium enema in Hirschsprung's disease is usually confirmative and assess the length of aganglionic segment⁶. Barium enema demonstrates narrow distal segment with area of transition to dilated proximal bowel in the short segment Hirschsprung's disease, the most common type¹. Retention of barium in colon for 2 to 3 days is another consistent finding in Hirschsprung's disease⁴. The Ba-enema study in our neonates did not reveal any transitional zone, only dilated pelvic colon. But the typical narrow distal segment followed by proximal colonic dilatation was found in the Ba-enema of all the children in our study.

Conclusion :

Hirschsprung's disease is not an uncommon disease in our country. Early diagnosis should be done for treatment, so that the patient can lead normal life. With simple radiological examination such as plain x-ray abdomen and Ba-enema examination we can diagnose this disease quite satisfactorily.

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