

Intussusception : What Leads in Children Beyond Infancy ?

H MANSOOR U YOUSAF*

Department of Paediatric Surgery, Services Hospital and department of Paediatrics, *Shaikh Zayed Hospital, Lahore.

Correspondence to: Dr. Haroon Mansoor, Senior Registrar

Nine Children beyond infancy, presenting with intussusception secondary to a pathological lesions were studied. The aim of study was to determine various pathological lesions acting as lead points of intussusception . The diagnosis of intussusception was made on clinical grounds. Out of 9 children 7 (78%) were male and 2 (22%) were female. Age ranged from 2 to 12 years. All patients underwent surgical exploration. Intussusception was ileo ileal in 5(56%), ileocolic in 3 (33%) and colocolic in 1 (11%) patient. Lead point for intussusception was Meckel's diverticulum in 4 (45%), polyp in 3 (33%), duplication cyst in 1(11%) and hyperplastic lymphoid nodule in 1(11%) case. Resection and anastomosis alongwith the lead point was performed in 5 patients where as excision of lead point through enterotomy was done in four cases. The authors recommend that the possibility of underlying pathology should always be considered in children with intussusception who present at the age beyond infancy. These lesions should always be removed in order to prevent recurrence.

Key Words :Lead point, Intussusception.

Intussusception is a frequent cause of bowel obstruction in children. It classically presents with abdominal pain, currant jelly stools and a sausage shaped abdominal mass. There is no specific etiology for the majority of intussusceptions which occur in infants. Rotavirus and adenovirus infections of distal ileum with hyperplasia of lymphoid tissue have been suggested as etiological factors^{1,2}. Approximately 5% of all childhood intussusceptions are caused by a specific recognizable lesion of the bowel wall which acts as the lead point³. These children are usually beyond the age of infancy. Children with atypical presentation of intussusception have 25% incidence of specific lead point⁴. Authors present their experience with intussusception due to lead points. Their management and review of literature is also discussed.

Patients and Methods

Nine children with intussusception due to a specific lead point were managed from May 1988 to June 1998 at Mayo Hospital and services Hospital, Lahore. All the patients were admitted through emergency department with typical presentation of acute intestinal obstruction. Diagnosis of intussusception was made on clinical grounds in all the patients. Routine blood, urine examination, serum electrolyte estimation and plain x-ray of the abdomen in upright position were done on all patients. After initial resuscitation all the patients underwent laparotomy, operative reduction of intussusception was attempted in all cases. Lead points were excised and enterotomies repaired in 4 patients. Both, enterotomies to excise lesions and resection anastomosis of the intestine were performed in the patient who had intussusceptions due to polyps of which 2 reduced manually where as one ileoileal intussusception was irreducible. Four patients underwent resection and anastomosis of the bowel due to either irreducibility (3patients) of the intussusception or the nature of the lesion (case of cystic duplication of Caecum in which limited right hemicolectomy was performed).

Results

Out of 9 children there were 7 males and 2 females. Age at the time of presentation has been shown in table I

Table I: :Age At Presentation

Age in Years	n=
2-6	4
7-10	3
11-12	2

Intussusception was ileoileal in 5 patients, ileocolic in 3 and colocolic in one patient. Successful operative reduction was possible in 5 cases whereas it was not reducible in 4 cases. Lesions acting as lead points and their locations are shown in table II and table III respectively.

Table II: Etiology

Etiology	n=	%age
Meckel's Diverticulum	4	44.5
Polyps :		
Peutz Jegher's Syndrome	2	22.2
Juvenile	1	11.1
Duplication Cyst	1	11.1
Hyperplastic lymph nodule	1	11.1

Table III : Location Of Lead Points

Location	Lead Point	n=
Jejunum and Ileum	Polyps	2
Ileum	Meckel's Diverticulum	4
	Hyperplastic lymph nodule	1
Cecum	Duplication Cyst	1
Transverse Colon	Polyp	1

All the patients were discharged with satisfactory outcome. However the patient with caecal duplication developed adhesive bowel disease 2 months after surgery. One of the patients of PJS presented with advanced abdominal

malignancy 6 years after surgery. He developed multiple metastatic lesions and died of them.

Discussion

Approximately 50-85% of the older children with intussusception have a specific lead point⁵. Meckel's diverticulum is the most common lead point. Others include polyps, intestinal duplication cysts, lymphoma, submucosal haemorrhage secondary to Henoch-Schonlein purpura, papillary lymphoid hyperplasia of ileum, ectopic gastric mucosa and thick inspissated faeces in terminal ileum of a child with cystic fibrosis^{6,7,8}. Majority of the intussusceptions secondary to lead points are of ileoileal type because the lead points are usually located in the small intestine. However it may be ileocolic or colocolic. As the small bowel is usually implicated, symptoms of intestinal obstruction develop relatively early. Barium enema is less likely to be of help in diagnosis and reduction of this type of intussusception⁹. Excision of lead point is required to avoid recurrence¹⁰.

In the present study Meckel's diverticulum, polyp, enteric duplication cyst and hyperplastic lymphoid nodule were the lead points causing intussusception. In case of intussusception due to Meckel's diverticulum, reduction should be followed by diverticulectomy. If reduction is not possible, segmental resection and anastomosis is advised. Intestinal polyps usually occur in older children¹¹. Children of Peutz Jeghers's syndrome (PJS) and familial polyposis may present with intussusception. Occasionally juvenile polyps can also be the cause of intussusception. Peutz Jegher's Syndrome can easily be diagnosed by characteristic mucocutaneous melanin pigmentation on buccal mucosa, lips, nose and around mouth¹². Polyps of PJS can occur in any part of gastrointestinal tract. Small gut is involved in 93% of cases and 33% of cases, large bowel is the site of involvement whereas stomach and duodenum is less frequently involved¹³. Since polyps of PJS are multiple, every effort is made to remove polyps through enterotomies. As the polyps occur in crops, it is not possible to avoid recurrence. Van-Cocovordem¹⁴ et al proposed combined endoscopic and surgical treatment. In this approach, abdominal surgeon and gastroenterologist work simultaneously and polyps are removed endoscopically, through enterotomies, or both. Per operative enteroscopy should decrease relaparotomy¹⁵ rate because it significantly improves polyp detection.

Duplication cyst of small or large bowel may remain asymptomatic until they act as lead points of intussusception. Duplication cysts of terminal ileum and caecum usually present as mass in the right iliac fossa¹⁶. Ectopic gastric mucosa may line the duplication cyst¹⁷. Treatment includes resection of cyst alongwith affected segment of intestine. In the present series the authors did not come across any intussusception caused by lesions like submucosal haemorrhage of Henoch-Schonlein purpura, lymphoma or cystic fibrosis. Patients of Henoch-Schonlein purpura usually experience repeated attacks of abdominal pain even in the absence of intussusception. There may therefore be considerable delay in the diagnosis and

surgical referral^{18,19}. Patients of intestinal lymphoma with intussusception usually have a long history of antecedent illness. It usually occurs in older children and may present as chronic non strangulating intussusception²⁰.

The authors conclude that children beyond infancy presenting with intussusception have a high probability of having a lead point. Barium enema is of no help for diagnosis and reduction of these types of intussusceptions. Operative treatment should always be adopted as there is likelihood of recurrence in the presence of a lead point.

References

- Ross JG, Potter CW, Zachary RB: Adenovirus infection in association with intussusception in infancy. *Lancet* 2: 221-223, 1962.
- Konno T, Suzuki H, Kutsuzawa T et al. Human rotavirus and intussusception *N Eng J Med* 297: 945, 1997.
- Sherman JO, Consentino CM. Intussusception. In Ashcraft, KW, Holder TM (eds) *Pediatric Surgery* (2nd edn) Philadelphia, WB Saunders, 416-420, 1993.
- Jannik JS Non Ischemic intussusception *J Pediatr Surg* 12: 567, 1977.
- Ein SH Leading points in Childhood intussusception *J Pediatr Surg* 11: 209, 211 1976.
- Doberneck RC, Deane WM, Antoine JE, Al baquerque NM Ectopic gastric mucosa in the ileum: A case of intussusception *J Pediatr Surg* 11: 99, 1976.
- Schenken JR, Kruger RL, Schultz L, Papillary lymphoid hyperplasia of the ileum: An unusual cause of intussusception and gastro intestinal bleeding in childhood *J Pediatr Surg* 10: 259, 1975.
- Shwachman H Gastrointestinal manifestation of cystic fibrosis *Pediatr Clin North Am* 22: 787, 1975.
- Miraj MZU, Brereton RJ Intussusception in children presenting beyond the infancy *JCPSP* 7: 118-121, 1997.
- Ein SH Recurrent intussusception in children. *J Pediatr Surg* 10: 751, 1975.
- Ong NT, Beasley SW The lead point in intussusception *J Pediatr Surg* 25: 640-643, 1990.
- Schullinger JN, Santulli TV. Polypoid disease of the gastrointestinal tract. In Welch KJ Randolph JG, Ravitch MM, O'Neil JA, Rowe MI (eds) *Pediatric Surgery* (4th edn) Year Book Publishers Inc. Chicago, London P 935-938, 1986.
- Griffith CDM, Bissett WH, Peutz-Jegher's syndrome *Arch of Disease in childhood* 55:866-869, 1989.
- Van Cocvorden F, Mathus - viliegen EMH, Brummelkamp WH. Combined endoscopic and surgical treatment in Peutz-Jegher's Syndrome *Surg Gynace Obst* 162: 426-428, 1986.
- Spigelman AD, Thomson JPS, Phillips RKS Towards decreasing the relaparotomy rate in Peutz-Jegher's syndrome: The role of per operative small bowel enteroscopy *Br J Surg* 77: 301-302, 1990.
- Lister J Duplications of the alimentary tract. In Lister J, Irving IM (eds) *Neonatal Surgery*(3rd edn) London, Butter worths, 474-484, 1990.
- Kum CR, Prabhakaran K, Lee YS et al: Cystic duplication of the cecum mimicking intussusception *J Sing Pediatr Soc* 33: 37-39, 1991.
- Cull DL, Rosario V, Lally KP et al. Surgical implications of Henoch-Schonlein purpura. *J Pediatr Surg* 25: 741-743, 1990.
- Zia ul Miraj, Brereton RJ Surgical manifestations of Henoch-Schonlein Purpura in Children *JCPSP* 5:270-271, 1995.
- Wayne Er Campbell JB, Kosloske A et al Intussusception in the older children - suspect lymphosarcoma. *J Pediatr Surg*. 11: 789-794, 1976.