Neonatal intussusception in the premature

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Intussusception is the invagination of a part of intestine into the lumen of a contiguous intestine. Intussusception presents typically between 4 and 12 months of age with vomiting, intermittent colicky abdominal pain, a palpable mass, and excretion of mucous bloody stool (red currant jelly stool). Abdominal distention is rare (3.6%).[1] In contrast, neonatal intussusception presents frequently with abdominal distention. Intermittent colicky abdominal pain is often absent, a mass infrequently palpated and bleeding per rectum commonly appears late.[2] This unusual constellation of symptoms may adjourn the diagnosis, and increase morbidity and mortality rate.

A 32 gestational weeks old Saudi baby girl, one of triplets was referred to this hospital, due to progressive abdominal distension and absolute constipation, discerned at the age of 24 hours. At birth, the baby had a mild respiratory distress with Apgar score of 6 at one minute and 8 at 5 minutes. She was electively intubated and ventilated. Next day she was noticed to develop progressive abdominal distension without vomiting and did not pass meconium. A glycerin suppository inserted rectally resulted in expulsion of small quantity of normal meconium. On arrival at this hospital, she was 32 hours old, active, alert, not in any distress and of 1.7 kg body weight. The endotracheal tube was removed before transfer, as she had been stable, but kept under Oxyhood with 30% oxygen. Her vital signs were stable. The blood gases, liver and renal function tests and blood counts were within normal. Chest examination revealed an ejection systolic murmur grade I-II/IV, heard at the left parasternal border. Abdomen was grossly distended, but not tender and moving with respiration. There was no organomegaly, nor could any masses be palpated. Normal bowel sound could be heard. A clinical diagnosis of colonic obstruction, perhaps due to aganglionosis was made.

A plain abdominal radiograph revealed gaseous distension of the small intestine, and no gas was seen in the colon (**Figure 1**). A gastrografin enema demonstrated smooth flow of the contrast up to the mid transverse colon, where the progress of contrast was halted by an intussusceptum (**Figure 2**). The intussusception was easily reduced, and the terminal ileum identified. The baby subsequently evacuated meconium and was started on oral feeds. An ultrasound examination next day ruled out an incomplete reduction, a recurrence or a causative lead point. The baby was transferred back to the referring hospital.

Neonatal intussusception is a rare clinical entity accounting for 0.3% of all cases of intussusception.[3]

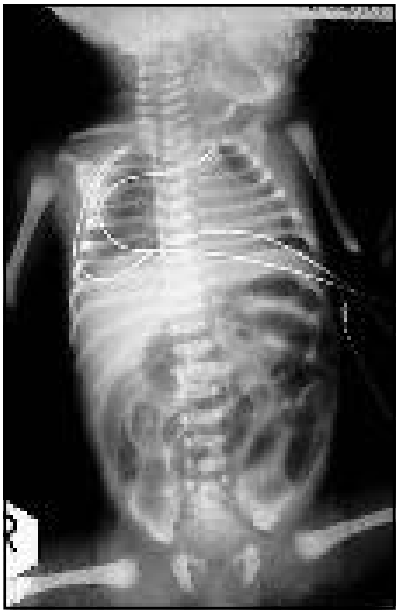

Figure 1 - Plain abdominal radiograph depicting gaseous distention of small intestine. Note absence of gas in the colon and rectum.

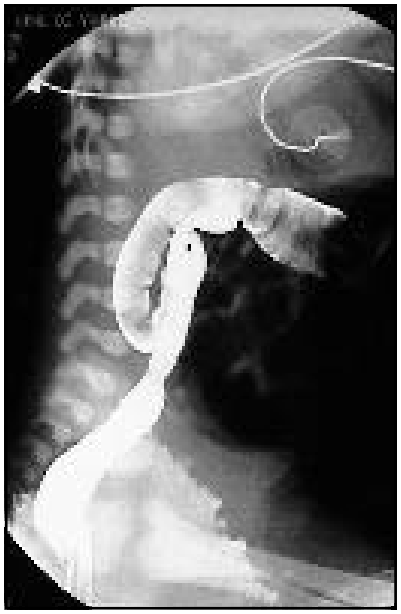

Figure 2 - Gastrografin enema showing halt of contrast in the mid-transverse colon with coiled spring phenomenon indicative of intussusception.

A higher incidence of 1.3% has recently been reported from China.[2] However, neonatal intussusception is exceedingly less common in premature babies. Only 36 patients have so far been reported, including our patient.[4] The etiology of intussusception remains usually unknown. A lead point such as a duplication cyst, hamartoma, Meckel' s diverticulum, meconium plug, polypoid mass or mesenchymoma is documented in only 5% of intussusception seen in infants 6-18 months old. A definite causative lesion is normally absent in neonatal intussusception arising in premature babies.[3,4] The diagnosis of intussusception in premature neonates is usually difficult. The classic symptoms observed in full term neonates and infants cannot be found in the typical constellation. Bouts of screaming, indicative of alternating colicky abdominal pain are frequently absent, abdominal mass is less commonly palpated and the rectal bleeding often occurs late.[2] Presenting symptoms such as abdominal distention, vomiting, intolerance of feeding and gastrointestinal bleeding are common to necrotizing enterocolitis (NEC) as well.[5] The latter is a common condition in premature babies in intensive care units. In addition, intussusception, NEC and meconium plugs syndrome may coexist, to further confuse the clinical picture. Absence of radiologic signs, pathognomonic to NEC such as pneumatosis intestinalis and portal venous gas in more than half of the patients with NEC, more obfuscates the differential diagnosis. However, disparity between presenting symptoms of a presumptive NEC and relatively more a stable general condition, as seen in our patient, necessitates the revision of the diagnosis, and should lower the threshold to surgical exploration, if a contrast enema and/or ultrasonography do not lead to a definite diagnosis. Nevertheless, this recognized disparity disappears in the late sequence of intussusception, when complications of perforation supervene.[2] This indicates once again the need for a high index of suspicion, and early operative intervention. Our patient presented features peculiar to aganglionosis versus colonic obstruction and the contrast enema clarified the diagnosis.

Abdominal radiography provides no pathognomonic signs of intussusception, but the absence of gas in the colon and rectum in our patient fostered the clinical suspicion on colonic obstruction and encouraged the use of contrast enema. Nonetheless, contrast enema yields little in enteroenteric intussusception that constitutes the majority of intussusceptions in premature neonates.[4] For neonatal enteroenteric intussusception, ultrasonography is apt to become the diagnostic tool of choice as it was found helpful in older infants.[2] The diagnostic limitation of contrast enema and its therapeutic restriction for reduction, due to an increased risk of perforation may further promote the use of ultrasonography. Surgical taxis is considered the therapeutic modality of choice for intussusception in the premature newborn, as hydrostatic reduction frequently results in perforation.[4] However, we think that hydrostatic reduction may be useful for the few cases of intussusception with colonic component. Nonetheless, one performs the procedure under sedation, in consultation with a surgeon, and without a rectal balloon catheter. Resuscitation has to continue during the process in a thermally adjusted environment. The hydrostatic pressure should not exceed 90 cm, and the radiologist should avoid manipulation to the patient or to the device, as that may precipitate perforation. Careful fluoroscopic or preferably ultrasonographic monitoring of the flow of contrast is mandatory. Our suggestion is based on our limited experience, and supported by the fact that a lead point, which requires surgical excision, has not definitely been identified in premature newborns with intussusception.

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