Calcified Intraluminal Meconium in the Newborn

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A case of calcified intraluminal meconium associated with imperforate anus, rectobulbar fistula, hemivertebrae, rib deformities and polydactyly of right hand and foot in the newborn was presented. It occured in a one day old child. The preoperative abdominal nodular calcifications diagnosed as evidences suggesting meconium peritonitis were found to be calcified intraluminal meconium. The urine-meconium mixing and stasis of intestinal contents are some of the important etiologic factors.

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Calcified intraluminal meconium in the newborn is rarely reported in the literature. The incidence of calcified intraluminal meconium was first reported by Camp and Roberts in 1949.[1] All cases reported in the literature were classified into two groups[1], infants with small bowel stenoses or atresias[1-3] and newborn with imperforate anus and rectourinary fistula.[4-6]

In general, the roentgenological picture of intraluminal calcifications in a newborn raises the suspicion of the presence of antenatal gut perforation. The patient who has developed a sterile inflammatory response associated with matted loops of intestine can present with both problems of surgical and medical management.

CASE REPORT

A 3300 gm, normally delivered male infant, was transfered to the surgical department of the Children's Hospital with clinical presentation of abscence of the anal orifice. He was also seen to have limb deformities.

Physical examination revealed no respiratory distress. Abdominal contour was normal. There was no anal opening. Also noted were polydactyly of the right hand and foot. Abdominal roentgenography showed numerous nodular calcifications (Figure 1). The chest film revealed no gross pulmonary pathology. Hemivertebrae at thoracic spines (1st - 4th) with fusion of the right 1st - 5th ribs were noted. When performing a cystogram, a catheter was passed into the urethra but was noted to have entered the rectum. When contrast material was injected, it filled the distal rectal pouch, which was below the P-C line and above the ischial spine. It was concluded that this child had the intermediate type of imperforate anus with rectobulbar fistula. Intravenous pyelography showed the left kidney in the pelvic cavity. The right kidney was normal.

Abdominal laparotomy was performed. No intraperitoneal calcified meconium was detected. Sigmoid colostomy was established for the treatment of the intermediate type of imperforate anus. Postoperative care included the administration of antibiotics. The postoperative course was uneventful and the intraluminal calcification was no longer noted after bowel cleasing and enemas (Figure 2). On discharge, the colostomy was functioning well.

DISCUSSION

Our case of calcified intraluminal meconium had an imperforate anus with rectobulbar fistula without meconium peritonitis. A fistula was found between the rectum and urinary tract. This raises the possibility that the calcification represented an interaction between the urine and meconium. Meconium is a mixture of swallowed amniotic fluid, squamous cells, intestinal debries, bile salts and succus entericus of the fetus. It is rich in protein, mucopolysaccharides, calcium and phosphorus. There is no definite explanation of how or why fetal urine should cause precipitation of calcium salts into concretions in the intes-

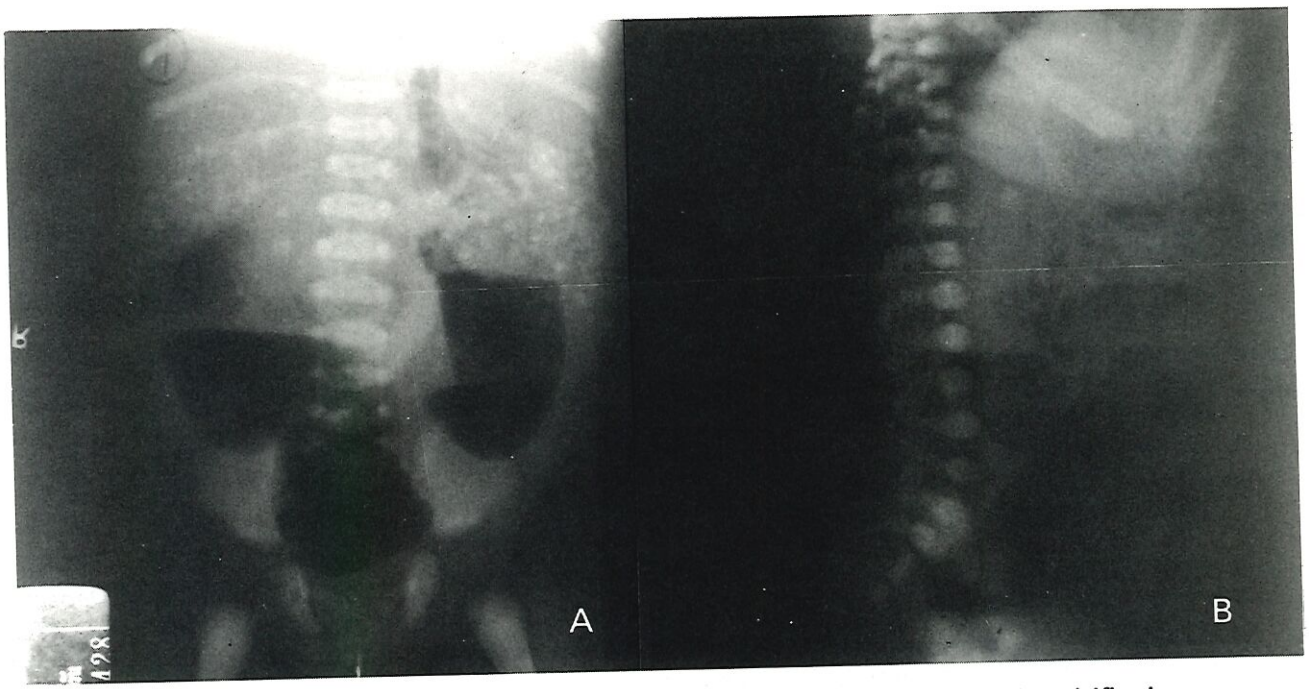

Fig. 1 Inverted position of abdominal roentgenography showing numerous nodular calcifications.
A. Anteroposterior view
B. Lateral view

Fig. 2 Subsequent abdominal roentgenography no longer showing nodular calcification.

tine. It should be mentioned that all fetuses have urine in their gastro-intestinal tract from voiding their urine in the last trimester of pregnancy. Stasis of intestinal contents has been suggested as an etiologic factor of intraluminal calcification in the cases of small and large bowl stenosis or atresia. An example of intestinal stasis can be seen in the appendix in the form of fecalith.

Meconium peritonitis is usually diagnosed when abdominal calcifications are detected in roentgenography of newborns. The characteristic calcifications in meconium peritonitis are plaquelike, and usually present in the form of linear areas opaque shadows as oppose to the nodular calcification seen in our patient.

CONCLUSION

In conclusion, the etiology of the calcified intraluminal meconium in the newborn is unknown. Urine-meconium mixing and stasis of intestinal contents are important factors and all of enterolithiasis will disappear following colostomy and cleansing enemas.

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