



Case report

Meconium peritonitis: A case report

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ABSTRACT

Meconium peritonitis is an inflammatory peritonitis due to the discharge of meconium into the peritoneal cavity secondary to perforation of the fetal intestine. It is accessible to antenatal diagnosis by obstetrical ultrasound. The clinical picture is not very specific. Simple abdominal radiography can help in the diagnosis. The prognosis depends on the causal etiology and is often poor. The diagnosis must be kept as the differential diagnosis of intra-abdominal calcification in neonates.

1. Introduction and importance

Meconium peritonitis (MP) is a rare pathology that was first described by G.B. Morgagni in 1761. Its incidence is estimated at 1/35000 births [1]. It is the result of meconium passing into the peritoneal cavity due to fetal intestinal perforation, leading to an exudative inflammatory reaction that results in sterile chemical peritonitis. If it persists after birth, a bacterial infection occurs, with a reserved prognosis. Meconium peritonitis may be secondary to meconium ileus, intestinal atresia or stenosis, anal imperforation, or intestinal necrosis resulting from intrauterine ischemia [2–4].

X-ray of the abdomen is a simple examination that can make the diagnosis. It should be performed as early as possible to reduce morbidity and neonatal mortality, which can be as high as 50–60 % of cases [5].

Imaging may show intra-abdominal calcifications, a mass containing calcifications in the context of a meconium pseudocyst, or even calcifications in the scrotum. It is a serious pathology whose prognosis depends on early management. We present the observation of a meconium peritonitis diagnosed at 20 weeks of amenorrhea. The work has been reported with respect to the SCARE 2020 criteria [6].

2. Case presentation

It is a premature male newborn, delivered at 32 weeks of amenorrhea, of non-consanguineous parents, with no particular pathological history. The mother was 30 years old and primiparous. During her

follow-up, the ultrasound scan done at 24 weeks of amenorrhea and 4 days, showed a circumscribed intra-abdominal mass related to a pseudo meconium cyst containing calcifications, with images of intestinal dilatation and early anamnios, without visualization of the urinary tract (Fig. 1). A fetal MRI was performed at 30 weeks of amenorrhea showing a digestive dilatation of the rectum and the descending colon with enterolithiasis. The left kidney was ectopic and reduced in size with compensatory hypertrophy of the right kidney (Fig. 2). After administration of corticosteroids, the delivery was made by cesarean section at 32 weeks of amenorrhea due to fetal distress. The cesarean section allowed the extraction of a male newborn, with an Apgar score of 06/10 at the first minute, increasing to 08/10 at the fifth minute, and a birth weight of 1850 g. The clinical evaluation had objectified a hypotonic baby with weak archaic reflexes, presenting a respiratory distress syndrome, with abdominal distension, a Potter syndrome, and an anal imperforation (Fig. 3). Initial management consisted of warming the baby, with G10% infusion, correcting fluid and electrolyte disorders, and administration of vit-K at a preventive dose. A surgical intervention was planned at 2 days of life after hemodynamic stabilization of the newborn. The evolution was marked by a death of the baby at the fourth hour of life because of his respiratory distress. The family refused to perform a fetopathological examination.

3. Clinical discussion

Meconium peritonitis (MP) is the consequence of an antenatal intestinal perforation. The morbi-mortality remains high [5,7]. Its

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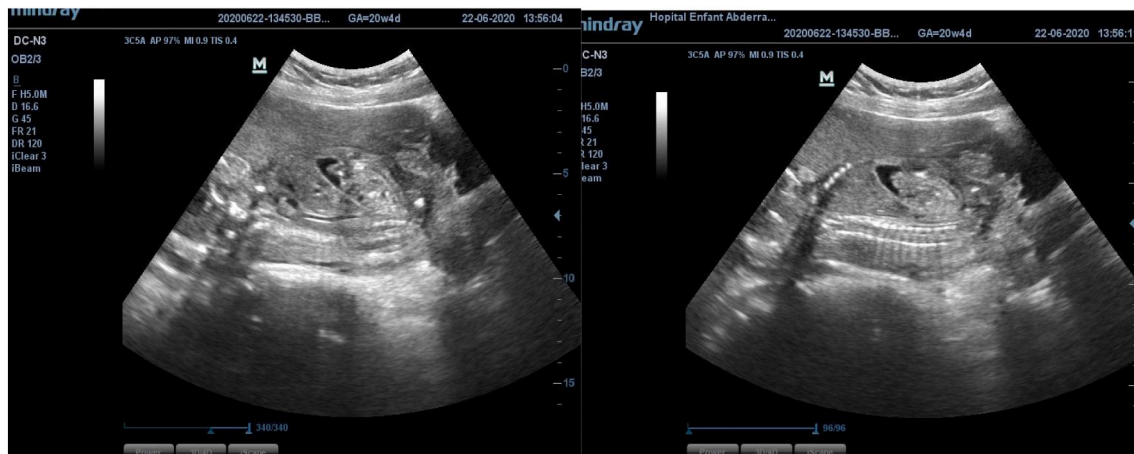


Fig. 1. Pseudo meconium cyst with calcifications, associated with images of intestinal dilatation with hyperechoic bowel.

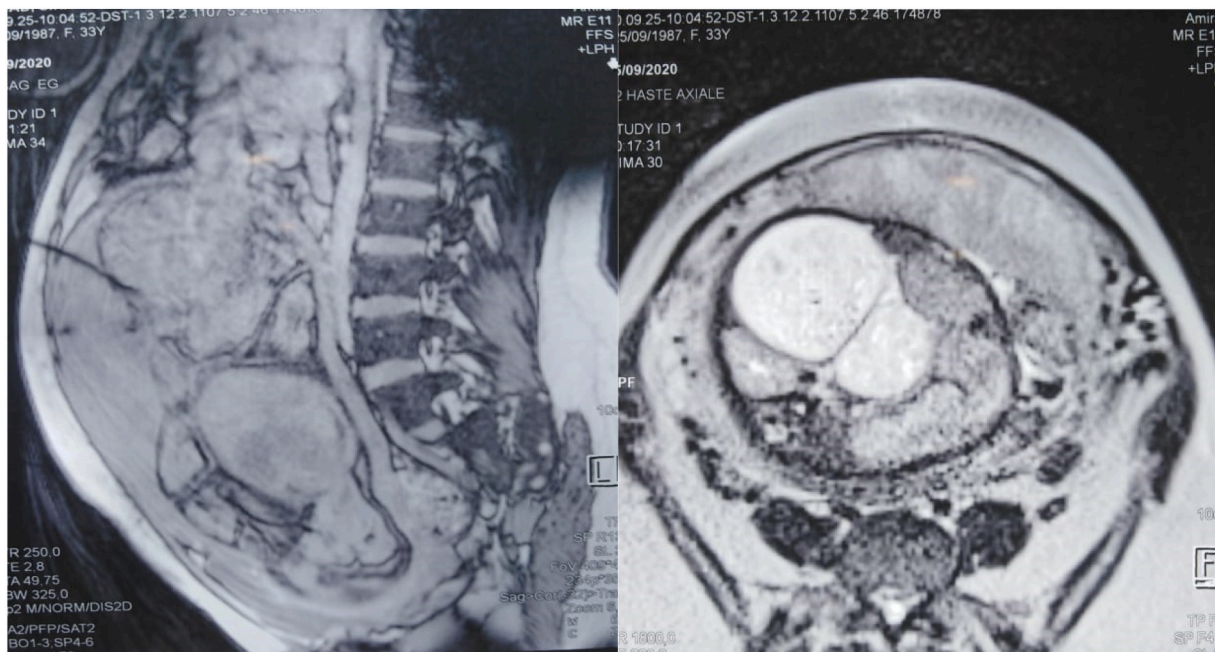


Fig. 2. Digestive dilatation of the rectum and descending colon with enterolithiasis.

incidence is 1 in 35,000 births, making it a rare condition, with a slight male predominance and a survival rate of 50 % [3,4].

The diagnosis can be made during the antenatal period by obstetric ultrasound, in front of images of calcifications or ascites. The presence of hydramnios or a pseudocyst image is pathognomonic [9,10].

The clinical manifestations of MP are variable and non-specific, with abdominal pain, altered general condition, and changes in stool pattern. In rare cases, PM may be asymptomatic. The physical examination is non-specific. Abdominal distension and an abdominal mass, most often in the right lower quadrant, are usually noted in association with a ruptured ileum, which is the most common pathology. The imaging aspects depend on the shape and cause of the MP [1,7]. Abdominal X-ray may show segmental, irregular or curvilinear peritoneal calcifications, which can also be localized at the scrotal level. Pneumoperitoneum or signs of digestive obstruction could also be found. Other signs that may point to the diagnosis include absence of gas in the rectal ampulla, abdominal cysts, and dilated loops [10,11].

Several mechanisms can be at the origin of this pathology. The most common mechanism is intestinal obstruction. Atresias are the main

cause [12]. Perforation occurs in a diastatic mode or by volvulus. Digestive duplications can also be responsible for MP as can strangulated inguinal hernias. It can also be caused by viral infections such as cytomegalovirus and parvovirus B19 [7,12].

Cystic fibrosis must be sought in this context. It is associated in 8 to 40 % of cases [7]. A thickened or even stony meconium can be responsible for meconium ileus, which can lead to jejunoileal obstruction.

The unfavorable prognosis stems from some common complications: Rupture of huge abdominal cystic formations, formation of ascites that can cause fetal heart failure, and progression to rapidly evolving sepsis due to frequent bacterial colonization after 72 h of birth [13].

Treatment should be initiated within the first 24 h of life, with antibiotic therapy alone or combined with abdominal draining. Surgical intervention may be necessary in case of active peritonitis, intestinal obstruction or pneumoperitoneum. Intrauterine drainage is not often performed, as it may lead to a worse prognosis. In case of complications, intrauterine drainage may be required [3,10].

The differential diagnosis is mainly with meconium pseudocysts,



Fig. 3. Anal imperforation.

hepatic or adrenal calcifications, and hepatic granulomas [4].

Finally, this pathology remains rare. It is associated with numerous complications and a low survival rate. It requires specific management for each etiology. Therefore, meconium peritonitis should always be suspected in newborns in the presence of the radiological and ultrasound signs described above. In addition, babies should be screened for cystic fibrosis, as the association with this condition is frequent [2].

4. Conclusion

Meconium peritonitis is a very rare condition due to an inflammatory reaction caused by the accumulation of meconium in the peritoneum. The manifestations are not very specific or similar to an infection by a specific pathogen. It is therefore imperative to maintain clinical suspicion and to be aware of the most expressive radiological signs, in order to establish an early diagnosis and to initiate management aimed at reducing the morbidity and mortality of this pathology. Informed information to parents should be given when the diagnosis is suspected.

Ethical approval

I declare on my honor that the ethical approval has been exempted by my establishment.

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Consent

Written informed consent for publication of their clinical details

and/or clinical images was obtained from the patient.

Author contribution

All authors have read and approved the final version of the manuscript.

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Declaration of competing interest

The authors declare having no conflicts of interest for this article.

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