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Case Report

Meconium Periorchitis in Infants: Role of Conservative Management in Various Clinical Presentations

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Keywords
Acute hydrocele
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Peri-orchitis
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Testicular swelling

Abbreviations
MP - Meconium peritonitis
MPO - Meconium periorchitis
USG - Ultrasonography

Abstract

Meconium periorchitis (MPO) is an uncommon disease secondary to meconium peritonitis. We report two infants with MPO one of whom presented with acute hydrocele while the other was asymptomatic (incidental diagnosis). Both of them did not have any other associated malformations. Abdomino-pelvic plain X-ray and ultrasound was useful in confirming the diagnosis. Both the patients were managed without surgery. There were no complications at 12-months and 2-months of follow-up respectively.

INTRODUCTION

Between the third month of gestation and birth, the processus vaginalis remains patent, thus establishing a communication between the peritoneal cavity and the tunica vaginalis testis.(1) Therefore, any cause of meconium peritonitis (MP) (e.g. intestinal atresia, intestinal volvulus, cystic fibrosis, or mesenteric infarction) will allow the spilled meconium to reach the tunica vaginalis on one or both sides, causing meconium periorchitis (MPO).(2) It is an uncommon condition, rarely reported in African children.(3)

The diagnosis of MPO is based on clinical suspicion. The circumstances of its discovery vary from accidental diagnosis to acute scrotum mimicking testicular torsion. It may be isolated or associated with other congenital malformations.(3) History, scrotal palpation and imaging studies lead to correct diagnosis. Management of MPO is usually conservative, unless it is associated with other surgically correctable anomalies. However, lack of awareness of this entity may lead to unnecessary surgery.(3) In this communication we share our experience with two cases of MPO that were conservatively managed in our department.

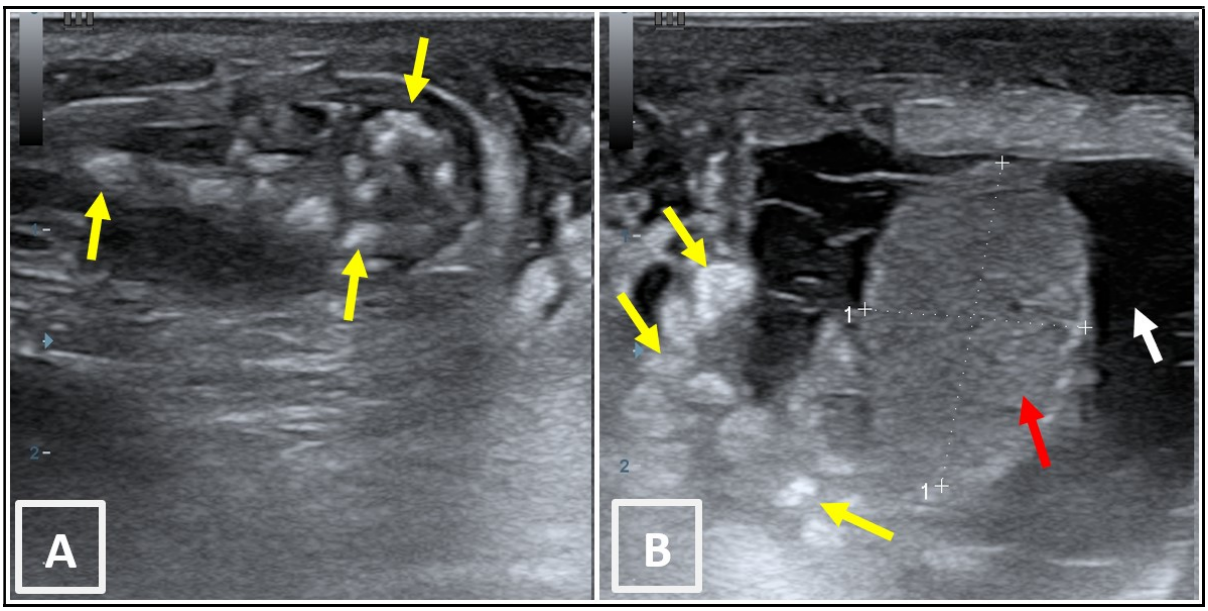

Fig 1. *Scrotal ultrasonographic findings in Patient 1. In the right inguinal region (A), multiple hyper-echoic foci (yellow arrows) were identified. In the left scrotum (B), similar multiple hyper-echoic foci (yellow arrows) were identified, surrounding a normal testis (red arrow) that is surrounded by anechoic hydrocele fluid (white arrow).*

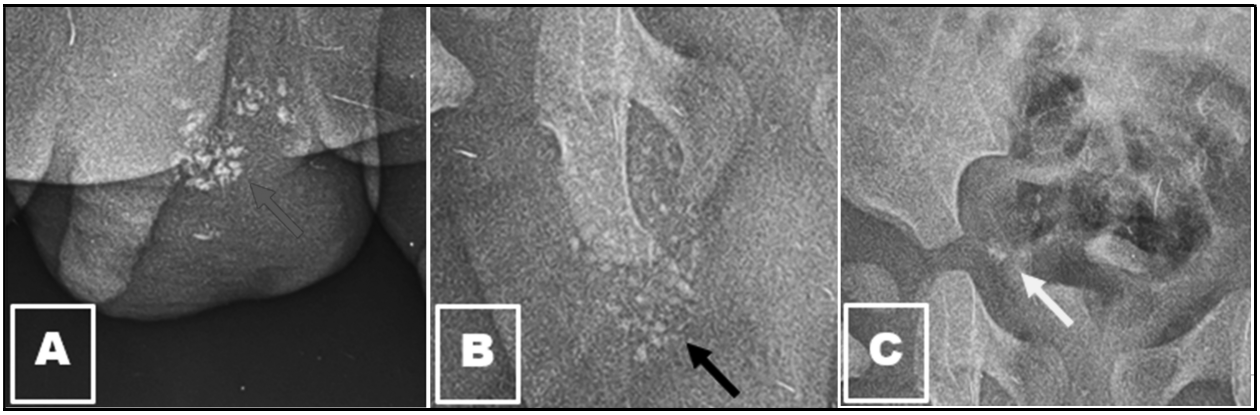

Fig 2. *Plain radiograph of patient 1. Magnified close-up views showing calcifications (arrows) in the left scrotum (A), the right groin (B) and the peritoneal cavity (C).*

CASE REPORT - 1

A 6-month-old infant was referred for acute scrotum. He did not have vomiting, dysuria, fever, or groin swelling. He was born at full-term to a 26-year-old mother. Two prenatal ultrasounds (first and third trimester) did not report any anomaly. At one month of age, parents noticed a left scrotal swelling, which was diagnosed as hydrocele, and the patient was given an appointment at six months for follow-up. There was no history of recurrent respiratory infection or constipation. Before the due date of appointment, he presented with an acute scrotum.

On physical examination, vital parameters were within normal limits. A stony-hard, irregular, and painful swelling of the left scrotum was noted. It was independent of the left testis and there was associated hydrocele. Angell's sign (horizontal lie -

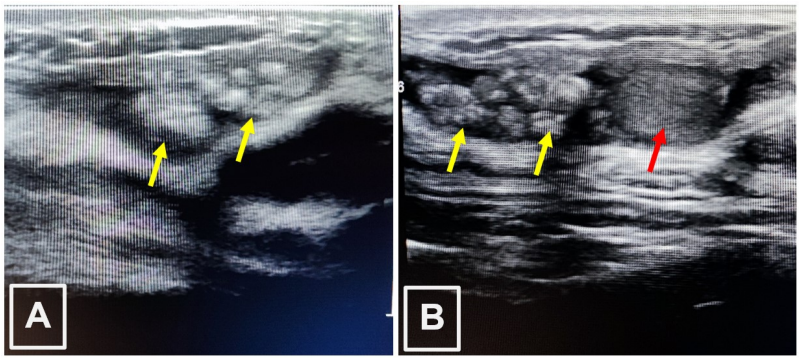

Fig 3. *Scrotal ultrasonography of the patient 2. In (A), hyper-echoic foci (yellow arrows) were identified within the left inguinal canal. However, the processus vaginalis was not patent. In (B), similar foci (yellow arrows) were identified medial to the healthy-looking testis (red arrow).*

of the testis in standing position) was absent. The contralateral scrotum and testis were normal. We suspected acute epididymo-orchitis or MPO. However, testicular torsion and testicular tumor could not be clinically ruled-out. We performed abdomino-pelvic and scrotal ultrasonography (USG) and a plain X-ray. Imaging noted left hydrocele and hyper-echoic (radio-opaque) foci in the left scrotum and in the right inguinal region. (Fig.1) No abnormalities of the epididymis, testes, or spermatic cord were identified.

The plain X-ray identified multiple microcalcifications in the left scrotum, the right inguinal region and the abdomen.(Fig.2) Urine examination did not show any infection. The patient was successfully managed with analgesics upon which pain regressed completely within 3 days. After 12 months of follow-up, he remained asymptomatic; although the left scrotum calcification could still be palpable without any reactive hydrocele.

CASE REPORT - 2

A 5-month-old infant was brought for a small-sized penis. He was born at full-term to a 28-year-old mother. Prenatal ultrasonography had not been done. The mother reported left-side scrotal swelling in neonatal period, which spontaneously regressed a few months later. History of recurrent respiratory infection or constipation was absent.

On physical examination, vital parameters were normal. Penile measurements were within normal range for age according to Park et al.[4] Palpation of the left scrotum revealed multiple, hard, stone-like nodules that were independent of the ipsi-lateral testis. We suspected MPO and performed abdomino-pelvic plain X-ray (Fig.3) and ultra-sonography.(Fig.4) Imaging showed radio-opaque (hyper-echoic) foci within the left scrotum, thus confirming the diagnosis of MPO. No treatment was contemplated for MPO. At two-month follow-up, he remained asymptomatic. He was scheduled for periodic follow-up until adolescence.

DISCUSSION

MPO is a consequence of MP.[5] Due to the patency of the processus vaginalis, natural history of MPO starts with the spilled meconium in the peritoneal cavity that spills into the tunica vaginalis inducing inflammation. Pathogenesis of inflammation in MPO is similar to that of MP.[6] The clinical manifestation of the exudative phase may be neonatal hydrocele. After birth, the natural history of MPO is progressive hardening of the scrotal tissue due to calcification of meconium.[7] As in our patient-1, acute scrotum may be reported during this phase

due to the inflammation resulting from host reaction to the calcifying foreign body.[6] With advancing age, intra-scrotal calcifications tend to regress spontaneously.[7]

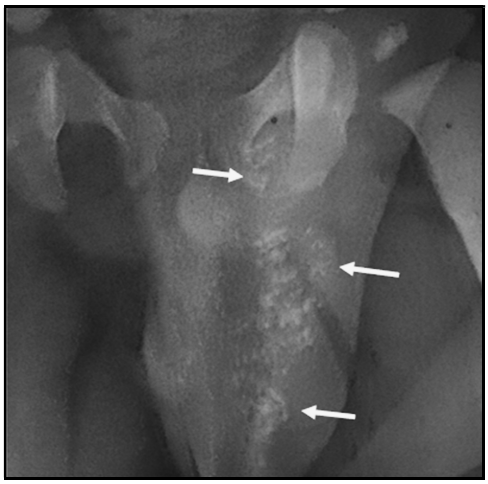

Fig 4. *Abdomino-pelvic X-ray of the Patient 2. Multiple calcifications (arrows) are seen in the scrotum extending into the left inguinal region.*

From 28 weeks of gestation onwards, prenatal diagnosis of MPO was reported in more than 50% of cases using fetal USG or magnetic resonance imaging.[3] However, in resource-poor countries, most pregnancies are unattended or the benefit of regular fetal screening with USG is often absent.[3] Postnatally, the diagnosis of MPO is usually suspected by thoughtful physician as the clinical presentation varies considerably. (Fig.5) It may be an incidental diagnosis either during physical examination or at inguino-scrotal operations for unrelated conditions.[8] When MPO presents as acute scrotum (e.g. acute hydrocele or mimicking testicular torsion), a clinical diagnosis is often difficult. A history of neonatal hydrocele should raise the clinical suspicion of MPO.[3] A history of recurrent respiratory infections may help as it may be linked to the pulmonary manifestation of cystic fibrosis, a common etiology of MP.[6] On physical examination signs of MP should be look for.[6] Scrotal palpation is the cornerstone of diagnosis in isolated MPO with calcification. In our second patient, it guided the diagnostic work-up.

High index of suspicion will guide complementary investigations, which include abdomino-pelvic and scrotal USG or plain X-ray.[9] USG is the imaging of choice due to its specificity and non-invasiveness. The classical diagnostic triad of USG includes hyper-echoic scrotal foci or mass, absence of blood flow through the hyper-echoic mass, and presence of reactive hydrocele. USG also confirms the normal texture of testes.[5,9] However, USG is operator dependant, and in the hands of inexperienced it may be misleading.[3]

In such situations a plain X-ray is useful although radiation exposure of the testis is generally undesirable. Plain radiographs allow easy identification of scrotal and abdominal calcifications. However, visibility of calcified foci depends on the lesion size and the degree of calcification of the lesion.[10] Moreover, USG and X-rays provide insight into the etiology of MP or MPO, especially in neonates.[3]

Management of MPO depends on its nature of presentation. Surgical exploration may be considered when it is associated with other congenital abnormalities (e.g. inguinal hernia, hydrocele, spermatic cord cyst, undescended testis, and scrotoschisis) that warrant an operation on their own merits.[3] Surgical exploration is not indicated in isolated MPO unless a urologic emergency such as testicular torsion cannot be entirely excluded.[3] In a recent review of 18 neonatal cases, we reported conservative management in one-third of patients.[3] However, on retrospective analysis of the indications of surgical exploration in them, we believe that two-third of them should have been conservatively treated.

CONCLUSION

MPO is uncommon; but awareness about it is essential for avoidance of unnecessary scrotal exploration. Its outcome with conservative management is usually good.

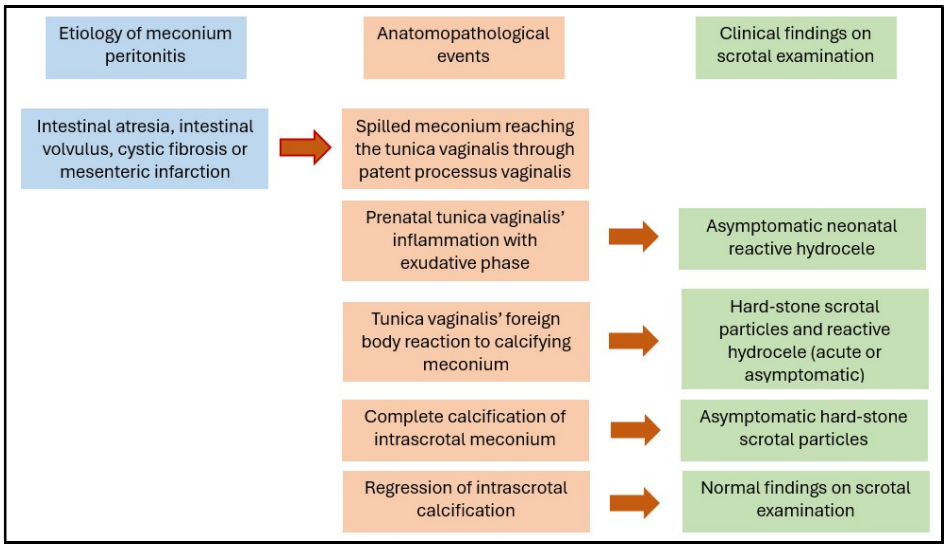

Fig 5. *Natural history of Meconium Periorchitis with varying clinical manifestations*

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