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(CASE REPORT)

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Abdominal wall defects

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Abstract

Congenital parietal malformations are currently diagnosed through prenatal ultrasound, and as such, their management begins before birth. Anterior abdominal wall defects encompass a wide spectrum of congenital anomalies characterized by a failure of the anterior abdominal wall to close properly; these defects can be life-threatening and expose the newborn to multiple complications.

Advances in our knowledge and resources over the past three decades have significantly transformed the medical and surgical approach to patients with laparoschisis and omphalocele. Survival rates for these two conditions have improved, and a more comprehensive, long-term management approach has led to a better understanding of their progression and has improved the quality of life for these children.

We report a retrospective study of four cases of abdominal wall defects, collected between January 1 2025, and December 31 2025. These included one case of omphalocele and three cases of laparoschisis.

The objective of this study is to gain a better understanding of anterior abdominal wall malformations and their management, as well as to share the experience acquired at the National Reference Center for Neonatology and Neonatal Intensive Care in Rabat in the management of this condition, while emphasizing the importance of multidisciplinary medical and surgical care for these patients, and the understanding of complications and their treatment.

Keywords : Congenital parietal malformations; Laparoschisis; Omphalocele; Surgical treatment

1. Introduction

Anterior abdominal wall defects (AAWD) constitute a broad spectrum of congenital anomalies affecting 6,3 per 10000 pregnancies and characterized by a failure of the anterior abdominal wall to close properly. Anterior abdominal wall defects include omphalocele and laparoschisis.

Omphalocele is frequently associated with chromosomal abnormalities (trisomies 18, 21, and 13) and is often accompanied by other morphological anomalies. These morphological anomalies may be part of syndromic associations. In contrast, laparoschisis is often isolated and not associated with chromosomal abnormalities, and appears to be linked to young maternal age and teratogenic factors.

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2. Materials and Methods

We report a retrospective study of four cases of abdominal wall defects, collected between January 1 2025, and December 31 2025. These included one case of omphalocele and three cases of laparoschisis.

3. Results and Discussion

3.1. Omphalocele:(figure 1)

Omphalocele is a hernia of the internal organs covered by an amniotic membrane that protrudes from the abdomen due to a failure of the anterior abdominal wall to close during embryogenesis. Prenatal ultrasound is the basis for early diagnosis: in our case of omphalocele, a prenatal ultrasound was performed, revealing an abdominal mass in the fetus.[1]

In our patient, the mother was 36 years old. There was no evidence of macrosomia or gestational diabetes in the mother. The screening for birth defects was negative. The management of a newborn with an omphalocele depends on whether the malformation is isolated or associated with other conditions, as well as its size. Surgical repair of small omphaloceles is straightforward; full-term newborns do not requireintensive care. Enteral feeding is initiated shortly after surgery and usually poses no tolerance issues.

For giant omphaloceles, this group includes omphaloceles with a diameter greater than 5 cm and/or containing predominantly liver tissue. Management is conducted in close collaboration with the surgical team and begins before closure of the abdominal wall[1]. A phase of gradual repositioning of the omphalocele contents usually precedes

closure of the abdominal wall, during which the newborn is managed in the neonatal intensive care unit.There is no consensus on medical management[1]. Our study reports a single case of omphalocele that presented with hemodynamic abnormalities without secondary infection.

3.2. laparoschisis :(figure 2)

Laparoschisis is a congenital evisceration. It is classified as a moderate coelomatosis. It is characterized by a paraumbilical parietal defect through which the abdominal viscera protrude without amniotic covering, while the umbilical cord is normally attached to the anterior abdominal wall. Laparoschisis has long been confused with ruptured omphalocele. Laparoschisis is a fetal malformation, and knowledge of it is essential to better understand its mechanism[2,4].

The average age of our patients at admission ranged from 1 hour to 12 hours. This result is comparable to that reported by Ameh (Nigeria), whose patients had an average age ranging from 24 hours to 3 days[3]. Males were the most common in our series, with a sex ratio of 0.66. This result is consistent with that of Tiabondon F, who reported a sex ratio of 1, but differs from that of Coulibaly A A, who reported a sex ratio of 1.5[3]. The majority of our patients resided in urban areas, accounting for 100% of cases. The mean age of the mothers was 22 years. Other authors have reported a maternal age of 25.3 years, as in the case of Abdur-Rahman in Nigeria[3], Schmidt in Brazil (19.53 years)[4], and Capelle in France (22 years)[2], which is consistent with the results of our study.

In our study, we identified all cases of preterm birth. According to several authors, laparoschisis does not appear to affect the gestational age at delivery. Primiparity was the most common in our series, with a total of 3 cases, or 100 percent. In contrast, Tiabondou F from Burkina Faso found 8 cases out of a total of 18 cases, or 44.44 percent. This shows that parity is not a risk factor.[2,3]

The treatment of laparoschisis consists of two essential components: the first is prenatal care, and prenatal ultrasound, which was performed in 1 out of 3 of our patients, revealed laparoschisis and a megaureter. Surgical management is an emergency. Parenteral and enteral nutrition are also part of the management. The ectopic development of intestinal loops in the amniotic fluid leads to impaired digestive function, which significantly influences neonatal medical management and the onset of several complications[2]. Postoperative care is generally based on restoring digestive motility, with the cornerstone being the continuation of prolonged parenteral nutrition based on protein and caloric intake; this is what was done at our referral center, where all patients underwent a temporary cessation of feeding followed by via RDB with amino acids and abdominal decompression, as well as compensation for gastric residual volume. Regarding patient outcomes, for two patients, feeding was initiated after an initial bowel movement, indicating

resolution of the ileus; however, for the third patient, feeding was impossible due to the intestinal necrosis observed during surgery, leading to death on day 34 of life in a state of refractory septic shock.

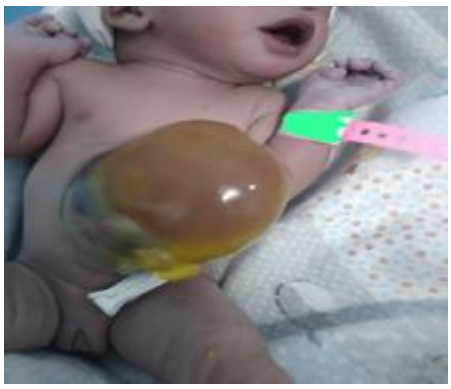

Figure 1 Omphalocele

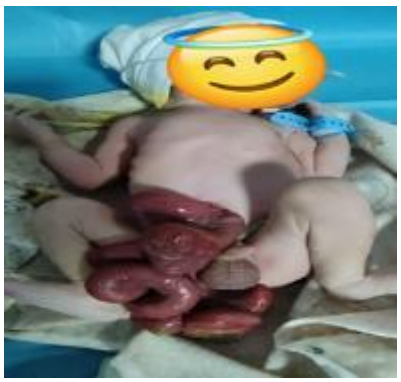

Figure 2 laparoschisis

4. Conclusion

MPAA are congenital malformations of the anterior abdominal wall. Ideally, they are diagnosed prenatally during a morphological ultrasound. Otherwise, diagnosis is straightforward at birth. In this context, we emphasize the importance of prenatal ultrasound for diagnosis, screening for complications, monitoring fetal well-being, and planning for delivery and neonatal care in a specialized facility by a multidisciplinary team.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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