WJPMR, 2026, 12(7), 359-362

Case Report

WORLD JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.wjpmr.com

Impact Factor: 7.533

ISSN (O): 2455-3301

ISSN (P): 3051-2557

Coden USA: WJPMBB

CONGENITAL HERNIA OF THE UMBILICAL CORD: A CASE REPORT OF PRENATAL ULTRASOUND DIAGNOSIS AND POSTNATAL CLINICAL CORRELATION

Doaa Riali[*1], Samia Dagdag[1], Hounaida Mahfoud[1], Rim Laaboudi[1], Zaki Elhanchi[1], Samir Bargach[1]

[1]Gynaecology-Obstetrics Department, Maternity Souissi, University Hospital Center IBN SINA, University Mohammed V, Rabat, Morocco.

[2]Department of General Surgery, Maternity Souissi, University Hospital Center IBN SINA, University Mohammed V, Rabat, Morocco.

***Corresponding Author: Doaa Riali**

Gynaecology-Obstetrics Department, Maternity Souissi, University Hospital Center IBN SINA, University Mohammed V, Rabat, Morocco. **DOI:** https://doi.org/10.5281/zenodo.21018479

How to cite this Article: Doaa Riali[*1], Samia Dagdag[1], Hounaida Mahfoud[1], Rim Laaboudi[1], Zaki Elhanchi[1], Samir Bargach[1] (2026). Congenital Hernia Of The Umbilical Cord: A Case Report Of Prenatal Ultrasound Diagnosis And Postnatal Clinical Correlation. World Journal of Pharmaceutical and Medical Research, 12(7), 359-362.

Article Received on 02/06/2026 **Article Revised on 22/06/2026** **Article Published on 01/07/2026**

ABSTRACT

Congenital hernia of the umbilical cord (CHUC) is an uncommon ventral abdominal wall defect often confused with a small omphalocele. This paper highlights the importance of recognizing the characteristic ultrasonographic appearance and the clinical criteria for definitive diagnosis. A 28-year-old woman undergoing routine 3rd trimester ultrasound at 34 weeks' gestation found a 6.69 cm × 7.72 cm lesion in the base of umbilical cord containing an intestinal loop, without any abnormal blood flow to adjacent cord vessels via color Doppler examination. The post-natal clinical image showed a similar umbilical lesion with presence of circular skin fold – "collar sign". surgical repair was uneventful. This case report shows the importance of prenatal ultrasonography in making the correct diagnosis of CHUC in order to prevent unnecessary injury to the bowel during delivery through appropriate cord clamping technique. The postnatal "collar sign" is a strong indicator, but confirmation is still needed intra-operatively.

KEYWORDS: Congenital hernia; Umbilical cord; Prenatal ultrasonography; Abdominal wall defect; Collar sign; Pediatric surgery.

1. INTRODUCTION

Congenital Hernia of Umbilical Cord (CHUC) is an uncommon type of anterior abdominal wall abnormality with an approximate occurrence rate of about 1 in 5,000 live births.[1] The condition arises due to the failure of the physiological return of the midgut from the umbilical coelom into the peritoneum during the period of 10th to 12th weeks of pregnancy.[2] In CHUC, there is herniation of a portion of bowel into the base of a normal insertion of umbilical cord encased in a thin layer of tissue and Wharton's jelly. CHUC is different from an omphalocele which occurs due to insertion of umbilical cord into the top of a sac that usually holds liver, and a simple umbilical cord cyst that lacks any gut component.[3]

The significance of early fetal diagnosis of the condition cannot be overstated because the CHUC, left undiagnosed, may result in accidental ligation or strangulation of the umbilical cord if the umbilical cord is ligated near the point of its connection with the abdomen.[4] We report on a patient whose prenatal ultrasound and a simple postnatal photograph gave us all necessary clues for diagnosis.

2. Embryological and Pathophysiological Basis of CHUC

Normally during human embryonic development, midgut herniation takes place into the umbilical coelom also known as physiological midgut herniation, occurring from the sixth to tenth week. The herniated bowel usually reduces and returns back into the peritoneal cavity around the twelfth week. Partial reduction leads to the persistence of bowel hernia in the umbilical coelom after the twelfth week. This condition is called CHUC, and it happens when there is partial reduction of the herniated midgut. An important difference between

CHUC and omphalocele is that the former results from failure of secondary herniation of the intestines. While in omphalocele there is complete herniation, CHUC arises from partial reduction. In CHUC, the umbilical ring is open but patent. There is no presence of a peritoneal layer and instead, the amnion and Wharton's jelly forms the cover of the herniated bowel.[5]

3. CASE REPORT

3.1. Prenatal Ultrasound Findings

A 28-year-old G2P1 patient underwent a routine third-trimester fetal anatomical survey at 34 weeks' gestation. The scan revealed a 6.69 cm × 7.72 cm, well-defined, heterogeneous mass at the base of the umbilical cord insertion (Fig. 1). Within the mass, a mobile echogenic component with a central anechoic lumen was visualized, consistent with a herniated small bowel loop. Intermittent peristalsis was observed at this gestational age. Color Doppler ultrasound (Fig. 2) demonstrated the two umbilical arteries and one vein running parallel to the hernia sac without penetrating or encircling it. The abdominal wall fascia was intact. No associated anomalies (cardiac, neural tube, or urinary tract) were detected.

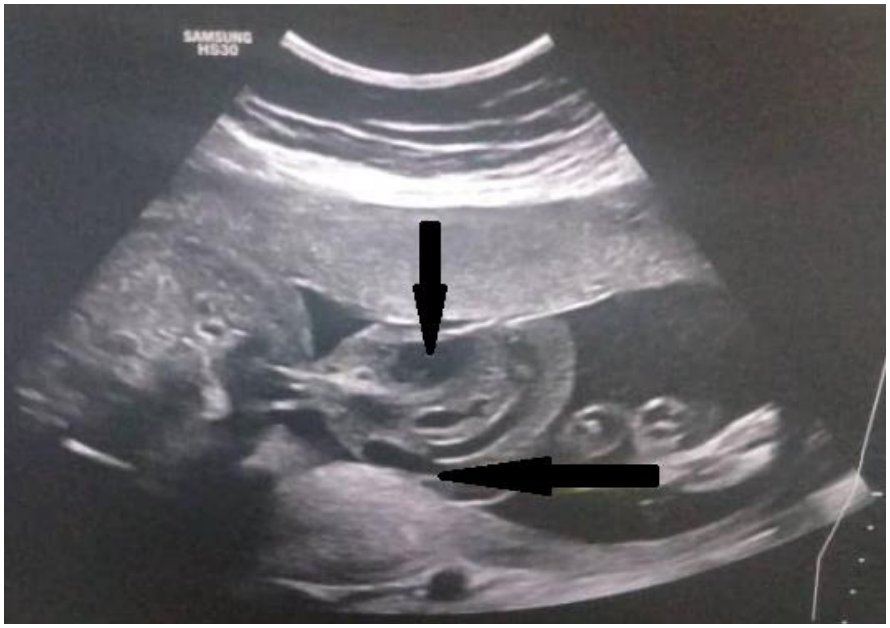

Figure 1: Prenatal ultrasound at 34 weeks. Transversal view of the umbilical cord insertion site shows a bowel loop (arrow) herniating into the base of the cord.

Figure 2: Color Doppler image shows normal tri-vessel cord flow (arrowheads) adjacent to the hernia sac.

3.2. Postnatal Clinical Findings

The child was born through vaginal delivery at 38 weeks of gestation with a birth weight of 3100 g. Based on the prenatal diagnosis, the umbilical cord was meticulously clamped at a distance of 4 cm away from the abdominal wall. An image was captured on day of life 1 (Fig. 3). The figure shows a soft swelling found at the umbilical cord's base, having measurements similar to that seen in prenatal ultrasonography. There is a circumferential skin fold at the base of the swelling, which is indicative of CHUC, or what is called the "collar sign" (Fig. 3).[5]

Figure 3: Postnatal clinical photograph on day of life 1. A well-defined hernia sac (asterisk) is present at the base of the umbilical cord.

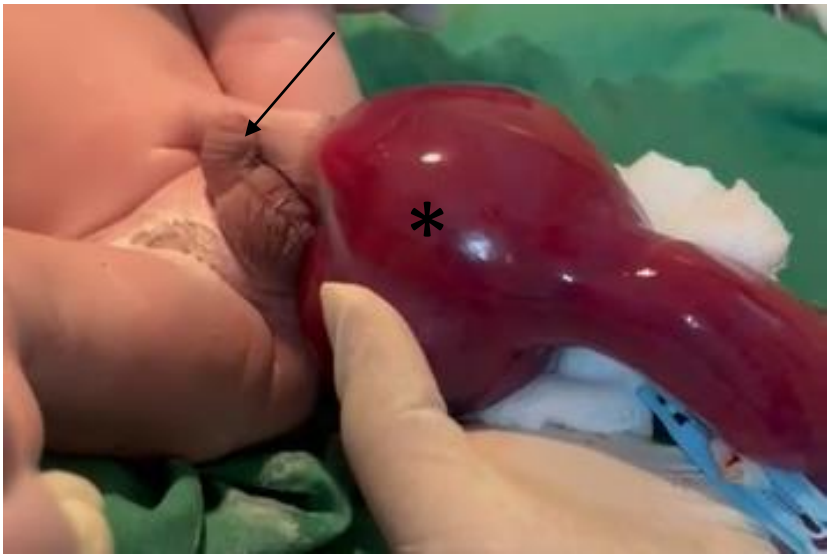

Figure 4: The circumferential skin fold (arrows) at the base – the "collar sign" characteristic of CHUC.

3.3. Surgical Management and Outcome

On second-day of life, surgery was done for elective repair of the lesion. General anesthesia was provided; the cyst was opened to show live distal ileum which could be easily reduced. The defect in the fascia was repaired by closing it primarily with absorbable sutures. The baby had normal feeds by postoperative day 3 and he was discharged home.

4. DISCUSSION

CHUC is a distinct entity often mistaken for a small omphalocele or an umbilical cord cyst.[6] The differential diagnosis is critical because the associated prognosis and surgical approach differ substantially.

Table 1 summarizes the differentiating features.

Table 1: Differential Diagnosis of CHUC on Prenatal Ultrasound.

Feature	CHUC	Omphalocele (minor)
Embryology	Failure of midgut return (10–14 weeks)	Failure of body fold closure (3–5 weeks)
Covering	Membranous sac (amnion + Wharton's jelly)	Membranous sac (amnion + peritoneum
Defect location	At base of normal cord; umbilical ring intact	Cord inserts at apex of sac
Contents	Typically only small bowel	May contain liver, spleen, colon
Associated anomalies	Rare	High rate (chromosomal, cardiac)

"Collar sign," noted in the postnatal picture above, is quite helpful, although not completely pathognomonic; in a few uncommon scenarios, a large omphalocele and cord cyst rupture can simulate this presentation.[7] As such, while a prenatal ultrasound and exam make for very strong presumptions of CHUC, the condition is only confirmed during the surgical procedure. An important aspect about CHUC that must be addressed in undiagnosed patients is the potential for iatrogenic bowel injury with cord clamping. Several published case reports exist where babies have needed bowel resection or even died from having clamped an intestine in a hernia sac.[8] With prenatal ultrasound, which is seen in our case, this is avoided through the use of an elevated cord clamp.[9]

Management after the diagnosis of CHUC results in good prognoses. The problem can simply be reduced and closed with a primary fascia repair.[10]

5. CONCLUSION

Congenital hernia of the umbilical cord may be suspected when ultrasound reveals the presence of a loop of the intestine herniating through the base of the umbilical cord, surrounded by normally present umbilical vessels. In addition to confirming the presence of the "collar sign" after birth, a definite diagnosis can only be made during surgery. Prenatal diagnosis is critical for a safe delivery with high clamping of the cord and referral to surgery.

Funding

No funding from an external source supported the publication of this case report.

Provenance and peer review

This article was not commissioned and was peer reviewed.

Conflict of interest statement

The authors declare that they have no conflict of interest regarding the publication of this case report.

Ethical approval

This case report is anonymous and is therefore exempt from ethical approval.

Patient consent

Written informed consent was obtained from the patient's parents for the publication of this case report and accompanying images. The consent form is available upon request.

REFERENCES

1. Gopagondanahalli, K.R., Chang, A., Nataraja, R., Tan, K., Chandran, S., & Saiprasad, T.R. Congenital hernia of the umbilical cord masquerading as an umbilical cyst and omphalocele on antenatal scans. Medical Journal of DY Patil Vidyapeeth, 2020; 13: 285–287. https://journals.lww.com/mjdy/fulltext/2020/13030/congenital_hernia_of_umbilical_cord_masquerading.26.aspx
2. Haas, J., Achiron, R., Barzilay, E., et al. Umbilical cord hernias: prenatal diagnosis and natural history. Journal of Ultrasound in Medicine, 2011; 30: 1629–1632. https://doi.org/10.7863/jum.2011.30.12.1629
3. Raju, R., Satti, M., Lee, Q., & Vettraino, I. Congenital hernia of cord: an often misdiagnosed entity. BMJ Case Reports, 2015; 2015: bcr2015209642. https://doi.org/10.1136/bcr-2015-209642
4. Pal, K., Ashri, H., & Al Wabari, A. Congenital hernia of the cord. Indian Journal of Pediatrics, 2009; 76: 319–321. https://doi.org/10.1007/s12098-009-0061-x
5. İnce, E., Temiz, A., Ezer, S.S., Gezer, H.Ö., & Hiçsönmez, A. Poorly understood and often miscategorized congenital umbilical cord hernia: an alternative repair method. Hernia, 2017; 21: 449–454. https://doi.org/10.1007/s10029-016-1544-0
6. D.M. Sherer, P. Dar, Prenatal ultrasonographic diagnosis of congenital umbilical hernia and associated patent omphalomesenteric duct, Gynecol. Obstet. Invest, 2001; 51: 66-68. https://doi.org/10.1159/000052895
7. T. Bollettini, et al., Umbilical cord hernia and Meckel's diverticulum: beware of the umbilical clamping!, Eur. J. Pediatr. Surg. Rep, 2025; 13: e72-e75. https://doi.org/10.1055/a-2747-7295
8. M. Gajdhar, V.K. Kundal, P. Mathur, M. Gajdhar, Pitfalls in the umbilical pit: giant hernia of the umbilical cord, *BMJ Case Rep*, 2013; bcr2013009381. https://doi.org/10.1136/bcr-2013-009381
9. U.K. Gupta, et al., Congenital hernia of the umbilical cord: a retrospective case study, *Acta Med. Philipp*, 2024; 58: 94–98. https://doi.org/10.47895/amp.vi0.7723
10. M. Raicevic, I. Filipovic, S. Sindjic-Antunovic, Hernia of the umbilical cord associated with a patent omphalomesenteric duct, *J. Postgrad. Med*, 2017; 63: 58-59. https://doi.org/10.4103/0022-3859.198157