CASE REPORT

Omphalopagus Conjoined Twins : Case Report

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ABSTRACT

Conjoined twins are a rare congenital anomaly caused by incomplete division of a monozygotic embryo. Omphalopagus twins, joined at the anterior abdominal wall, represent 10–18% of cases and are relatively compatible with postnatal survival. We report two serial cases of female omphalopagus twins diagnosed after birth. The first case involved full-term twins with partial hepatic fusion and shared upper abdominal viscera. The second case involved preterm twins with minimal soft tissue fusion and largely separate organ systems, except for a small secundum atrial septal defect in one twin. Antenatal ultrasonography in both cases failed to establish a definitive diagnosis. Postnatal evaluation using contrast-enhanced computed tomography, barium studies, and echocardiography provided detailed delineation of organ sharing. These findings guided neonatal intensive care and surgical planning. The cases emphasize the importance of thorough postnatal imaging and multidisciplinary management to assess operability and optimize outcomes, particularly in settings with limited antenatal diagnostic resources.
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INTRODUCTION

Conjoined twins are rare monozygotic twins who remain physically connected due to incomplete embryonic division. The condition is thought to result from either a process of fission or fusion, which occurs when a monozygotic (identical) twin pregnancy divides more than 13 days after fertilization. Conjoined twins share a single placenta (monochorionic) and a single amniotic sac (monoamniotic). They occur in approximately 1 in 50,000 pregnancies, but because up to 60% of these twins succumb in utero the true incidence is 1:250,000 live births with a female-to-male ratio of 3:1(1). Given the rarity and complexity of this condition, successful management requires coordinated multidisciplinary planning. Reporting such cases is essential to expand clinical understanding and improve management strategies for future occurrences.

CASE REPORT

Case 1

The case involved full-term, three-day-old female omphalopagus twins, each weighing 2,650 g, delivered by cesarean section due to twin pregnancy in a primigravida, with an unremarkable antenatal history. However, no definitive prenatal diagnosis was established. No maternal symptoms were reported during pregnancy. Physical examination revealed fusion of the anterior abdominal wall and partial liver fusion. Both infants were hemodynamically stable, with no respiratory distress, cyanosis, fever, or seizures. Meconium passage and urination were normal in both infants. Contrast-enhanced abdominal CT and barium follow-through demonstrated predominant gastric tissue in the first twin, intestinal loops herniating from the second twin, and partial liver fusion (Figure 1). No cardiac anomalies were identified. The twins were admitted to the NICU for supportive management, including continuous cardiorespiratory monitoring, thermoregulation, parenteral and enteral nutritional support, fluid and electrolyte management, and infection surveillance. Both infants remained clinically stable and are planned for elective surgical separation after adequate growth and optimization.

Case 2

This case involved preterm, three-day-old female omphalopagus twins, each weighing 1,325 g. Antenatal care was initiated late in the second trimester and consisted primarily of routine obstetric follow-up. Antenatal ultrasonography did not include targeted fetal anomaly screening, and the conjoined status was not identified prenatally. Delivery was performed by cesarean section due to preterm labor with non-reassuring fetal

Figure 1: Clinical photos of infants showed the fusion in the ventral region.

status. Physical examination showed anterior abdominal wall fusion, with both infants hemodynamically stable. Imaging revealed soft tissue fusion from vertebral levels T7 to L4 measuring approximately 5.86 cm, with intestines, stomachs, and hearts remaining separate (Figure 2). Echocardiography identified a small secundum atrial septal defect in the first twin. NICU management focused on care related to prematurity, including thermoregulation, cardiorespiratory support and monitoring, nutritional optimization, careful fluid management, and infection prevention. Both infants showed stable and favorable clinical progress. Elective surgical separation is planned after adequate weight gain and achievement of physiological stability.

Both sets of twins are planned for elective surgical separation between 4 and 12 months of age, depending on their clinical stability and growth. Multidisciplinary teams, including pediatric surgery, anesthesiology, and neonatology, are actively involved in ongoing care and preoperative preparation.

DISCUSSION

Conjoined twins are a rare congenital anomaly resulting from incomplete division of a monozygotic

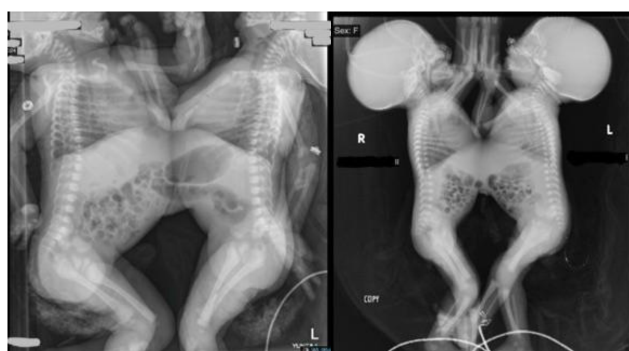

Figure 2: (a) Plain abdomen radiograph showed the infants share same stomach which predominantly in infant 1 and intestinal loop in intraperitoneal cavity which predominantly in infant 2. (b) Plain abdomen radiograph showed small part of intestinal loops overlap in the medial part

embryo (2, 3). The estimated incidence ranges from 1 in 50,000 to 250,000 live births, with a stillbirth rate of approximately 60% (3, 4). This anomaly arises from abnormal embryonic development involving partial fission or duplication of the axial structure during early gestation (2). Conjoined twins are classified according to the anatomical site of fusion (Table 1) (1). Among the various types, omphalopagus twins represent about 10–18% of all cases and are among the configurations most compatible with postnatal survival (1, 2).

Table I Characteristic Features of Different Conjoined Twins

Type of Fusion	Incidence	Extent of Union	Shared Structures
Ventral (87%)			
Cephalopagus	11%	Top of head to umbilicus	Thorax, Upper abdomen, Conjoined hearts 85%
			Liver 100%, Pericardium 90%, Cardiac defects 75%, Upper intestine 60%, Biliary tree 17%
Thoracopagus	19%	Thorax, Upper abdomen, Conjoined hearts 85%	Liver 100%, Pericardium 90%, Cardiac defects 75%, Upper intestine 60%, Biliary tree 17%
Omphalopagus	18%	Upper abdomen, Separate hearts	Liver 90%, Upper foregut 16%, Cardiac 25%
Ischiopagus	11%	Cloacal membrane	Pelvic bones 100%, Lower gastrointestinal tract 70%, Genitourinary 50%
Parapagus	28%	Cloacal membrane	Cardiac 75%, Intestine 100%, Liver 100%, Genitourinary 100%
Dorsal (13%)			
Craniopagus	5%	Cranial neuropore	Skull, venous sinus, and meninges 100%, Cerebral cortex 37%
Rachipagus	2%	Neural tube	Vertebral column
Pygopagus	6%	Caudal neuropore	Sacrum and coccyx 100%, Lower gastrointestinal tract 25%, Genitourinary tract 15%

Early antenatal diagnosis plays a crucial role in optimizing outcomes by enabling appropriate counseling, delivery planning at tertiary centers, and early multidisciplinary involvement (1,2). Although modern ultrasonography and fetal MRI can detect conjoined twins as early as the first trimester, both cases in this report were not definitively diagnosed antenatally. This reflects a recurring challenge in resource-limited or non-specialized settings, where imaging quality, expertise, and access to advanced modalities may be insufficient (2,5).

In the absence of antenatal diagnosis, postnatal imaging becomes crucial. In our cases, contrast-enhanced CT, barium studies, and echocardiography provided essential information regarding organ sharing, vascular anatomy, and associated anomalies. Similar to previous reports, partial hepatic fusion without complex vascular sharing and separate cardiac structures favored delayed elective separation rather than emergency surgery (1,5). NICU management is a critical component of care for conjoined twins, particularly in the neonatal period. Supportive measures aimed at maintaining physiological

stability, preventing infection, ensuring adequate nutrition, and monitoring for organ dysfunction are essential to optimize surgical outcomes (1,5). In both cases, NICU care allowed stabilization and growth prior to the planned separation.

Ethical considerations are integral to the management of conjoined twins, especially when surgical separation carries unequal risks or potential mortality. Multidisciplinary discussions and thorough parental counseling were central to decision-making in these cases, consistent with recommendations in the literature (3,4).

Compared with previously reported cases, our series contributes additional evidence that delayed elective separation is feasible and appropriate in omphalopagus twins with favorable anatomy, even when antenatal diagnosis is missed. These cases underscore the importance of systematic postnatal evaluation and coordinated multidisciplinary planning in similar clinical contexts.

CONCLUSION

This serial case report demonstrates that omphalopagus conjoined twins with limited organ sharing can be successfully stabilized and prepared for elective separation through structured postnatal assessment and multidisciplinary care. When antenatal diagnosis is inconclusive or unavailable, comprehensive postnatal imaging is indispensable for defining anatomy, guiding NICU management, and determining surgical feasibility. These cases add practical insights into the management of rare congenital anomalies in resource-limited settings and reinforce the value of coordinated neonatal and surgical planning.

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