

# Prenatal Diagnosis of Thoraco-Omphalopagus Conjoined Twins At 13+ Weeks of Pregnancy: A Case Report

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Conjoined twins result from division of the embryonic disk after day 13 from conception. Thoraco-omphalopagus twinning, a rare type of conjoined twins, is characterized by the anterior union of the thorax and abdomen. The prognosis for thoraco-omphalopagus twins who share a heart is extremely poor. Thus early prenatal diagnosis is important for the patients who want to undergo a therapeutic abortion. We present a case of thoraco-omphalopagus diagnosed with transabdominal ultrasound at 13+ weeks of gestation.

(*Gynecol Obstet Reprod Med*;13:2 122-123)

**Key Words:** Conjoined twins, Prenatal diagnosis, Ultrasonography, Thoraco - Omphalopagus

Conjoined twinning is extremely rare condition reported at a rate of 1 in 50 000 to 1 in 100 000 births.<sup>1,2</sup> It is generally accepted that conjoined twins result from the imperfect division of the embryo after the formation of two embryonic discs. The site and extent of attachment is highly variable; the most common form is thoracopagus which accounts for about 70 % of cases. The prognosis depends on the extent of the attachment and the nature of concomitant anomalies. Therefore the cardiovascular anatomy is very important in thoracoabdominally conjoined twins to facilitate prenatal counseling and perinatal management.<sup>3</sup>

Here we report a case of thoracoabdominal conjoined twins. The diagnosis was made at 13+ weeks of gestation by transabdominal sonography.

## Case Report

A gravida 2, para 1, 24-year-old patient became pregnant spontaneously in February 2003. Her past history was unremarkable. An ultrasonographic examination performed during her first prenatal visit at 13+ weeks of gestation using transabdominal probe (Aloka SSD 4000, 5 MHz, Aloka Co. Ltd., Tokyo, Japan) suggested thoraco-omphalopagus conjoined twins with only one cardiac pulsation within a single amniotic

cavity (Figure 1). Two heads (Figure 2) and four extremities were seen in ultrasound scan. After discussing the diagnosis, the patient elected to undergo a therapeutic abortion, which was induced with a prostoglandin derivative. Placental examination confirmed monochorionicity, two umbilical cord insertion. The fetuses, 12 cm in length, had a large conjoined thorax and abdomen (Figure 3). Macroscopic examination and microdissection of the abortus confirmed the prenatal diagnosis of the thoracoabdominally conjoined twins with a fuse heart. The upper and lower extremities were separate and normal and male external genitalia were seen in each fetus. No microscopic examination was performed. The fetal karyotype analysis which were performed from skin biopsies were normal in both fetuses (46, XY).



Figure 1: Transvers plane of the conjoined twins, revealing thoraco-omphalopagus with two spine and single heart

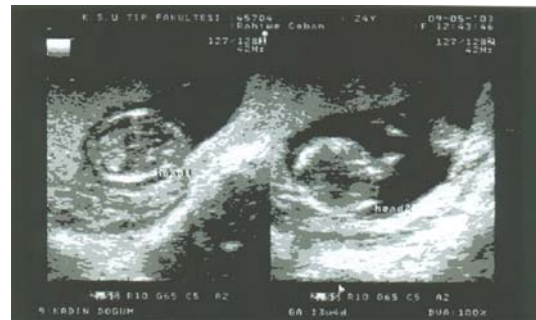


Figure 2: The ultrasound scan pictures which revealed two separate heads that are different in size

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Submitted for Publication: 25.06.2007

Accepted for Publication: 30.06.2007

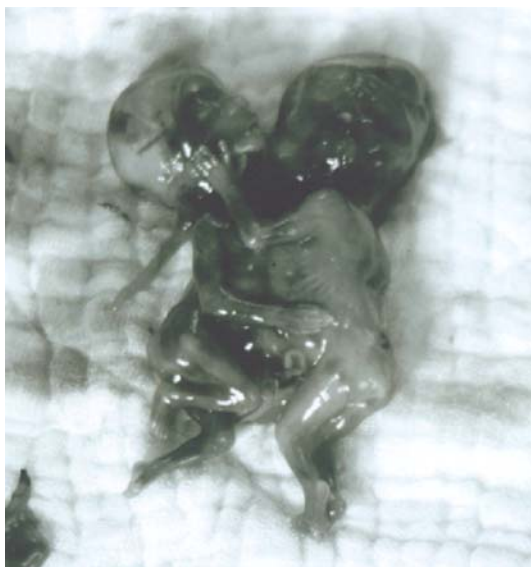


Figure 3: Macroscopic view of the thoraco-omphalopagus union of the conjoined twins

## Discussion

The earliest example of conjoined twins in history is a 17-cm marble statuette portraying parapagus twins, “the double goddess”, dating from the sixth millennium BC. The statue of sisters of Catalhoyuk is housed in the Anatolian Civilisation Museum in Ankara, Turkey. The first well-documented case is that of the Biddenden maids born in AD 1100 and joined at the hips and the shoulders. They lived together for 34 years.<sup>4</sup>

Conjoined twins result from division of the embryonic disk after day 13 from conception.<sup>1</sup> It occurs in one of every 200 monozygotic twin gestations.<sup>3</sup> The prognosis is related to the type and extent of union. Female infants predominate with a ratio of 3:1.<sup>4</sup>

Early diagnosis and precise delineation of the shared organs of conjoined twins are essential for optimal obstetric and postnatal management.<sup>5</sup> The prognosis for conjoined twins is poor, thus when the diagnosis is made before viability, the option of pregnancy termination by vaginal delivery can be offered; 75 % of such twins are stillborn or die within 24 h of delivery. Later in pregnancy, the decision regarding vaginal delivery vs. cesarean section is based on the size of the fetuses and likelihood of survival.<sup>6</sup> Prenatal ultrasound scan

can reveal the diagnosis as early as on the 12<sup>th</sup> week of gestation.<sup>4</sup> Maymon et al. have reported sonographic diagnosis of conjoined twins at 10 weeks using three - dimensional transvaginal sonography.<sup>7</sup> However ultrasound scan should be interpreted with caution for accurate diagnosis. Weiss and Devine have reported false positive diagnosis of conjoined twins in the first trimester. Diagnosis in the first trimester should be made with caution because the amniotic cavity has not reached its full volume, and fetuses that are in close proximity may create an illusion of conjoined twins.<sup>2</sup>

In this case, transabdominal ultrasound scan demonstrated the thoracic and abdominal features and single beating heart characteristics of thoraco-omphalopagus twins. The pregnancy was terminated because there was apparently no hope for surgical separation due to extensive fusion of thoracic and abdominal organs and they had single heart.

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