



## Pregnancy Characteristics of Conjoined Twins Born at Dr. Soetomo Hospital Surabaya Period 2010-2019

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### ABSTRACT

**Background:** Conjoined twins are a rare complication of pregnancy. The prevalence of occurrence is 1 in 200,000 pregnancies. As many as 40% of babies in cases of conjoined pregnancies die at birth and 30% die in the first days of life.

**Objective :** To present the characteristics of a conjoined pregnancy born in Dr. Soetomo Hospital, Surabaya, 2010-2019 period which is a referral hospital in Eastern Indonesia.

**Methods :** This study is a retrospective descriptive study on the case of conjoined twins born in Dr. Soetomo Hospital, Surabaya, in the 2010-2019 period. The data is taken from the electronic medical record of Dr. Soetomo Hospital.

**Results :** In this study, there were 16 cases of conjoined twins who were born in Dr. Soetomo Hospital. Most cases were conjoined twins of Thoracoabdominopagus (12 patients), Parapagus (2 patients), Cephalopagus (1 patient), and Omphalopagus (1 patient). Methods of delivery of conjoined twins were performed with caesarean section (9 cases), and vaginal delivery (7 cases). There were 9 cases of babies who died immediately at birth, and 7 cases of babies who were still alive until a few hours and a few days after birth. The age at diagnosis of conjoined twins was found at gestational age <20 weeks (6 cases), and when gestational age > 20 weeks (10 cases).

**Conclusion :** This case of conjoined twins is a rare case and requires multidisciplinary discussion. Early diagnosis is necessary to terminate the pregnancy as early as possible, in order to reduce the Caesarean Section delivery rate. In Dr. Soetomo Hospital for the period 2010-2019, the most cases of conjoined twins were Thoracoabdominopagus.

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### Introduction

Conjoined twins are identical twins with the body fused in the womb. This condition is a rare complication and occurs in mono chorion monoamniotic pregnancies. The incidence of conjoined twins is 1 in 50,000 to 200,000 pregnancies.

To diagnose conjoined twins as early as possible, good antenatal care with ultrasound examination is needed to prevent conjoined twins diagnosed at term gestation, leading to high Cesarean Section Delivery rates. From other studies that have existed previously, it was found that the

prevalence of conjoined twins who died at birth was 40%. In comparison, 30% died in the first days after birth, and the remaining 30% survived longer (Kanaga *et al*, 2012). There are currently eight types of conjoined twins based on the classification, namely Cephalopagus, Thoracoabdominopagus, Omphalopagus, Ischiopagus, Parapagus Craniopagus, Pyopagus, and Rachipagus (Spitz *et al*, 2018).

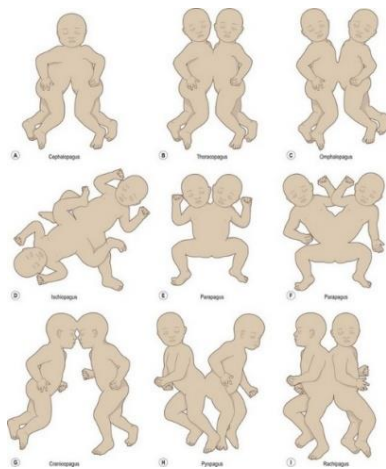


Figure 1. 8 classifications of conjoined twins

**Methods**

This research is a retrospective descriptive study using the electronic medical record of Dr. Soetomo Hospital. The inclusion criteria for this study were pregnant women with conjoined twins who gave birth at Dr. Soetomo Hospital. The data taken included maternal age, parity, gestational age, types of conjoined twins, maternal outcomes, infant outcomes at birth and length of survival after birth. The data was followed since the patient came to Dr. Soetomo Hospital until her pregnancy was

terminated, accompanied by the baby’s condition after birth.

**Result and Discussion**

During the period 2010 - 2019, there were 16 cases of conjoined pregnancy at Dr. Soetomo Hospital. From this study, it was found that the majority of mothers came from Surabaya (3 patients), with maternal ages range from 26-30 years (7 patients) (Table 1). The majority of gestational age at first diagnosed with conjoined twins was  $\geq$  20 weeks (10 patients) (Table 1). And from the parity data, it was found the same number between primigravida (8 patients) and multigravida (8 patients) (Table 1).

Table 1. Characteristics of Conjoined Twins Pregnancy Cases in Dr. Soetomo Hospital

Characteristics of Conjoined Twins	Number
<b>Referral From</b>	
-Gresik	1
-Mojokerto	1
-Banyuwangi	1
-Sorong	1
-Nganjuk	1
-Malang	1
-Solo	2
-Sidoarjo	2
-Madiun	2
-Surabaya	3
<b>Mothers Age</b>	
-15-20	0
-21-25	5
-26-30	7
-31-34	1
$\geq$ 35	3
<b>Parity</b>	

-Primigravida	8
-Multigravida	8
<b>Gestational Age at First Diagnosed Conjoined Twins</b>	
-≤20 weeks	6
-21-28 weeks	3
-29-32 weeks	6
-33-34 weeks	0
-35-37 weeks	1

The time of division after zygote fertilization determines the occurrence of multiple pregnancies. If the monoamniotic and monochorionic placentas divide during or after the 13th day after embryo fertilization, conjoined twins will occur. However, based on study by Lundin et al, the factors that play a role in determining the timing of embryo division are still unknown (Marcoz *et al*, 2011). Based on the classification, there are currently 8 types of conjoined twins, namely Cephalopagus, Thoracoabdominopagus, Omphalopagus, Ischiopagus, Parapagus, Craniopagus, Pyopagus, and Rachipagus (Knopman *et al*, 2014). In this study, the most cases of conjoined twins were type of Thoracoabdominopagus as many as 12 patients, with details of 7 cases of fused heart and liver, and 5 cases of fused heart.

In a study in Brazil that discussed the experience of handling conjoined twins for 20 years from 1992 to 2012, it was found that the number of conjoined twins was 21 cases. From 21 cases of conjoined twins, as many as 10 conjoined twins could not

undergo separation surgery because of the complexity of the fused organs, consisting of 1 case of ischiopagus conjoined twins, and 9 thoracoabdominopagus. The remaining 11 cases of conjoined twins successfully underwent separation surgery consisting of 7 ischiopagus, 3 omphalopagus, and 1 craniopagus (Tannuri *et al*, 2013).

Table 2. Distribution of Conjoined Twins at Dr. Soetomo Hospital

Type of Conjoined Twins	Number
-Thoracoabdominopagus	12
-Parapagus	2
-Cephalopagus	1
-Omphalopagus	1
<b>Thoracoabdominopagus</b>	
-Heart and Liver Fused	7
-Heart Fused	5

There is no literature that determines the exact time of delivery in conjoined pregnancies. However, several case reports recommend termination at 35 weeks of gestation after corticosteroid administration to avoid the risk of IUFD and prematurity (O'Brien *et al*, 2015). From several case reports, performed termination with Caesarean Section Delivery to avoid umbilical cord twisting (Van Mieghem *et al*, 2014; Lee, 2012). Vaginal deliveries in previously undiagnosed conjoined twins are at high risk for shoulder dystocia (Kucukbas *et al*, 2020), uterine rupture and IUFD (Chen *et al*, 2011). Vaginal delivery in

conjoined twins can be performed in the 2nd trimester of gestation where the baby is smaller than at term, and is performed in conjoined pregnancies with babies who have a small chance of survival after birth (Ferid *et al*, 2021). In 16 cases of conjoined pregnancy in Dr. Soetomo Hospital, the most method of delivery was by Caesarean Section Delivery (9 cases). As many as 7 cases can be diagnosed by fetomaternal ultrasound at  $\leq 20$  weeks of gestation, so that they can be delivered vaginally.

Before deciding on termination, the Fetomaternal team at Dr. Soetomo Hospital conducted multidisciplinary meetings with other departments. From 16 cases of conjoined pregnancy in Dr. Soetomo Hospital, 11 cases have gone through the case conference first.

Table 3. Distribution of Delivery Methods, Apgar Score, and Length of Survival of Babies in Conjoined Twins Cases at Dr. Soetomo Hospital

Mode Of Delivery	Number
-Spt Abortion	4
-Spt Vertex Vaginal	3
Delivery	
-Caesarean Section	9
Apgar Score	
-0	9
-1-3	3
-4-6	2
->6	2
Babies Survival Time	
-IUFD	9
-1 hour	2
-24 hours	3
- $\geq 24$ hours to 30 days	2

The results of the baby's output in the case of conjoined twins found 9 cases of babies who died immediately at birth, and found that 7 babies were still alive. But in the end, the conjoined twins died, the longest conjoined twins can survive is 30 days.

### Conclusion

Conjoined twins pregnancy is a rare occurrence. There are 16 cases of conjoined pregnancy in Dr. Soetomo Hospital during the 2010-2019 period. If the conjoined pregnancy can be diagnosed as early as possible, it will be possible to terminate it immediately and reduce the Caesarean Section delivery rate. Until now, there has not been a case of conjoined twins that can survive long after birth. In the case of conjoined twins pregnancy, multidisciplinary management is required that involves the Obgyn Team, Pediatric Surgery Team, Pediatrics Team and Anesthesia Team.

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