


Lethal Complication in a Very Preterm Infant with Congenital Syphilis

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ABSTRACT

Introduction: Congenital syphilis is a multi-organ infection caused by *Treponema pallidum* and transmitted from mother to fetus through uteroplacental circulation. Congenital syphilis is one of the main contributors to neonatal deaths in the United States. **Case:** A male infant was born by cesarean delivery from a G1P0 mother at 28 weeks of gestational age because of premature rupture of the membrane and anhydramnion. The mother had an untreated latent syphilis infection. The birthweight was 1,400 grams, the head circumference was 25 cm, and the body length was 35 cm. His APGAR score was 3-3-5 with severe asphyxia and respiratory distress syndrome. Multiple abnormalities were found, and the VDRL titre was 1/128. Cardiac-pulmonary resuscitation started immediately with 0.15 mg epinephrine through an intraendotracheal tube and continued with 0.02 mg epinephrine through intravenous access every 3 minutes. The baby was declared dead after 30 minutes of resuscitation. **Conclusion:** Congenital syphilis can cause lethal complications due to untreated latent syphilis suffered by his mother. The mother should undergo antenatal screening to prevent congenital syphilis.

Keywords: Congenital syphilis, lethal complication, very preterm infant.

ABSTRAK

Pendahuluan: Sifilis kongenital merupakan infeksi multi-organ yang disebabkan oleh *Treponema pallidum* dan ditularkan dari ibu ke janin melalui sirkulasi uteroplasenta. Sifilis kongenital adalah salah satu kontributor utama kematian neonatus di Amerika Serikat. **Kasus:** Bayi laki-laki lahir secara *sectio caesarea* dari ibu G1P0 usia kehamilan 28 minggu dengan diagnosis ketuban pecah dini dan *anhydramnion*. Ibu pasien menderita sifilis laten yang tidak mendapat pengobatan. Berat badan bayi 1.400 gram, lingkar kepala 25 cm, dan panjang badan 35 cm. Nilai APGAR bayi 3-3-5 dengan asfiksia berat dan sindrom gawat napas. Ditemukan beberapa kelainan dan titer VDRL 1/128. Resusitasi jantung-paru segera dimulai dengan *epinephrine* 0,15 mg melalui pipa endotrakeal dilanjutkan dengan *epinephrine* 0,02 mg intravena setiap 3 menit. Bayi dinyatakan meninggal setelah 30 menit resusitasi. **Simpulan:** Sifilis kongenital dapat menyebabkan komplikasi yang mematikan karena sifilis laten ibu yang tidak diobati. Ibu harus menjalani skrining antenatal untuk mencegah penularan sifilis kongenital. **Ferry Suganda Gozali, Claudia Natasha Liman, Putu Siska Suryaningsih. Komplikasi Letal Sifilis Kongenital pada Bayi Sangat Prematur.**

Kata Kunci: Sifilis kongenital, komplikasi letal, bayi sangat prematur

INTRODUCTION

Congenital syphilis (CS) is a multi-organ infection caused by *Treponema pallidum*, transmitted from mother to fetus through uteroplacental circulation.[1] Approximately half of congenital syphilis cases are asymptomatic. The most common early clinical manifestations are respiratory distress, bleeding, abdominal distention, and hepatosplenomegaly. All of those symptoms could lead to neonatal death.[2,3] The time of infection in the pregnant woman could determine the severity of CS. Late, untreated CS can appear after two years.[4] Congenital syphilis prevalence in the United States has increased significantly from 2012 to 2019 by 477%, and it is one of the most common causes of neonatal deaths annually.[1,5] Congenital syphilis is reflected as a failure of antenatal care[6] as it is one of the most preventable and treatable congenital diseases; integrated screening and early treatment in all primary healthcare is necessary.

CASE

A baby boy was born by cesarean delivery from a G1P0 mother at 28 weeks gestational age; the mother was diagnosed with untreated latent syphilis infection + premature rupture of the membrane + anhydramnion. The amnion fluid contained meconium and was very viscous. His APGAR score was 3-3-5. His birthweight was 1,400 grams, head circumference was 25 cm, body length was 35 cm, and chest circumference was 29 cm.

The baby had 65% preductal oxygen saturation, icterus, abdominal distention, hematoma on the abdomen, chin, chest, upper and lower extremities, hepatosplenomegaly, and desquamation of the feet. A complete blood count result showed anemia 9.6 g/dL, leucocytosis 32.83 x $10^3/\mu L$, neutrophilia 81.1%, thrombocytopenia 79 x 10^3, high IT (immature/total neutrophil) ratio 0.28, syphilis serologic VDRL titre 1/128, positive TPHA, and

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indirect bilirubin level 14.7 mg/dL.

A bone x-ray is necessary to do in order to find bone abnormalities in congenital syphilis patients due to the fact that congenital syphilis is a multi-organ infection. But this patient was not examined due to the unstable condition of the baby; he had severe asphyxia and respiratory distress, and his heart rate was below 60 x/min. Neonatal resuscitation was carried out immediately. Intubation was performed, and 0.15 mg of epinephrine was given through an intraendotracheal tube. intra-endotracheal tube. After an umbilical catheter had been inserted, 0.02mg epinephrine was given through intravenous access every 3 minutes. The baby was declared dead because of congenital syphilis after 30 minutes of resuscitation.

The mother came to primary healthcare regularly for a routine pregnancy check. Two months before birth, the patient's mother was confirmed for latent syphilis infection through positive TPHA without symptoms, but the mother refused to take any syphilis medication due to an unspecified reason. Patient's mother never came to primary care again after she was confirmed with syphilis infection, until she experienced vaginal watery discharge for 12 hours before the delivery. The VDRL titre of the mother was 1/16.

DISCUSSION

Treponema pallidum can pass through placenta and enter to multiple organs, including the kidney, liver, spleen, heart, and bones, through hematogenous spread. Infiltration into the bloodstream results in multi-organ inflammation, leading to various clinical manifestations.[1]

Approximately 67% of congenital syphilis patients are asymptomatic.[7] Congenital syphilis is divided into early CS and late CS. Common features of early congenital syphilis presented in this case were hepatosplenomegaly, abdominal distention, jaundice, respiratory distress, desquamation of the feet, and he was born premature with a low weight. Paixao ES, *et al,* found that preterm birth and low birth weight are more likely to occur in congenital syphilis and may cause neonatal death.[6,8] This case showed similar clinical manifestation, except for rhinitis and abnormalities of the eyes. X-rays had not been done due to the unstable condition.

Untreated neonates can develop late congenital syphilis by 2 years of age. The common clinical findings of late congenital syphilis are saddle nose, fissures of the perioral (rhagades), Hutchinson's triad, mulberry molars, *perforation of the hard palate*, sternoclavicular joint thickening (Higoumenakis sign), and knee's effusion (Clutton joints).[7,9,10]

In this case, the baby was born to a mother with confirmed latent syphilis for two months, but the mother did not take any medication because of no apparent symptoms. This could lead to multiorgan damage that causes the death of the newborn. Baptista, *et al,* reported a preterm birth with severe asphyxia, respiratory distress syndrome, jaundice, and hepatosplenomegaly from an untreated latent syphilis mother.[11]

Untreated syphilis in pregnant women has an approximately 100% transmission rate and could cause severe fetal neurological, developmental, and musculoskeletal disorders, as well as 40% fetal death.[8,10] Neonatal mortality related to syphilis infection could be higher, because some countries were underreported; showed in Brazil that 71% of congenital syphilis related infant deaths were neonatal deaths, while the remainder were post-neonatal deaths.[12] Improper integration of the reporting system causes underreporting.[12] Qin J, *et al,* reported that the complications of untreated syphilis infection in pregnancy were preterm birth (23.2%), low birth weight (23.4%), abortion (14.9%), and death of the newborn (16.2%).[13]

Syphilis in pregnancy may have no symptoms but may appear in their babies. Early diagnosis and treatment for syphilis in pregnancy are needed to decrease neonatal morbidity and mortality risk. Management of congenital syphilis requires a comprehensive approach, including reinforcement of public health programs, improvement of data gathering and surveillance, adequate antenatal screening, and prompt treatment.

CONCLUSION

Appropriate antenatal care is necessary to screen and treat syphilis earlier, so neonatal deaths related to congenital syphilis could be prevented.

CONFLICT OF INTEREST

There is no competing interest regarding the manuscript

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