
NEWBORN WITH CONGENITAL SYPHILIS: CASE REPORT

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ABSTRACT

Introduction: Congenital syphilis is caused by the spirochete, *Treponema pallidum*, which can be transmitted from the infected mother to the fetus by pregnancy. The incidence of congenital syphilis is growing rapidly across the world, with 700 000 to 1.5 million cases reported between 2016 and 2023. Despite the penicillin treatment being available, there were 2152 cases reported in 2020 in USA. Differential diagnosis should always consider congenital syphilis as a possible diagnosis in case of clinically unclear conditions and penicillin is still the first-line treatment, irrespective of the stage of the disease.

Objective: To show the importance of screening and prevention for congenital syphilis in pregnancy.

Case presentation: We report a male newborn GD 37+5/7 born naturally to a mother who was syphilis positive in the second trimester and was treated with penicillin. After delivery, the newborn is admitted to the Clinical Department of Neonatology for lumbar puncture and extensive laboratory workup. Because of the possibility of other organ systems being affected, an extensive ultrasound scan is performed.

Conclusion: Although syphilis is not a major public health problem today, the most serious outcomes of this infection are associated with highly vulnerable groups, such as pregnant women and children. The screening of women for syphilis should become not only a health priority, but also a political priority for every country, and if there is a debate on the spread of this infection, the cure should be available to everyone.

Keywords: pregnancy, congenital syphilis, newborn, penicillin

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INTRODUCTION

Syphilis is an infectious disease caused by the spirochaete bacterium *Treponema pallidum* subspecies *pallidum*. Congenital syphilis occurs after the penetration of *Treponema pallidum* from an infected mother to the fetus, most often after the first trimester of pregnancy (1, 2). The disease can rarely be transmitted during childbirth and by contact with a lesion in the area of the genital tract (3), while it can be transmitted through breastfeeding only if the primary lesion is around the area of breast nipple (4). Thought to be eradicated, this organism has re-emerged as a global pathogen (5). Perinatal syphilis is the second leading cause of stillbirth, and is associated with significant morbidity and mortality among infants with congenital syphilis (6). While some countries such as Cuba and Thailand have successfully eliminated congenital syphilis, rates are increasing in many other countries (7, 8). Syphilis being left untreated in pregnancy can lead to miscarriage, stillbirth, intrauterine growth restriction, premature birth, and perinatal death (3). Congenital syphilis is divided into a early syphilis that is diagnosed during the first two years of life and late congenital syphilis that is diagnosed after the second year of life (9). Early congenital syphilis is characterized, among other things, by premature birth,

low birth weight, hepatosplenomegaly, anemia, jaundice, thrombocytopenia (1, 2, 10, 11). One of the earliest symptoms is a nasal discharge as a huge source of treponema. Vesiculobullous changes on the palms and soles, which are highly characteristic of congenital syphilis, may also occur (10). Late congenital syphilis corresponds to the symptoms of tertiary syphilis, and its manifestations can be divided into malformations or stigma and active pathological processes. Stigma are scars formed as a result of lesions in early congenital syphilis. It is believed that the central nervous system is affected in 60% of patients with congenital syphilis. It is diagnosed by a positive VDRL (Venereal Disease Research Laboratory) test, pleocytosis and elevated protein content in the cerebrospinal fluid (12, 13). The diagnosis is based on the clinical aspect of congenital syphilis in the child with positive treponemal and non-treponemal tests in the mother. In order to prevent congenital syphilis, it is recommended to test for syphilis in the first trimester of pregnancy and at birth (14). Prenatal testing and a single dose of benzathine penicillin G (BPG) successfully treat infection in both mother and fetus, and prevent unwanted pregnancy outcomes (15, 16). If the child's congenital infection is proven positive or there where there is a high probability, the drug of choice and the

method of administration is the solution of crystalline penicillin G, in a dose of 100,000 to 150,000 IU/kg/day, IV, for 10 days.

CASE REPORT

This case describes a newborn that has been admitted in the Clinical Department of Neonatology in the first hour of life, GD 37+5/7 weeks, born naturally. Newborn was G1P2, and mother previously had one abortion. In this pregnancy, during the second trimester, the mother tested positive for syphilis, and was treated with penicillin. Cervical smears in the mother was isolated with *Ureaplasma urealyticum* and she was treated with Azithromycin. Apart the above, the pregnancy went well. After birth, the newborn had normal vital signs, birth weight 4000 g, birth length 55 cm, and is transferred to our clinic for monitoring, treatment and treatment. Laboratory work-up performed on admission (blood count, glucose, bilirubin and minerals in serum) was within the reference interval. A lumbar puncture is being performed, and the results came back with increased number of proteins in the cerebrospinal fluid. A serological test for TPHA (*Treponema pallidum* haemagglutination assay) is performed, and the result was positive. A wider ultrasound examination was performed (brain, heart,

kidneys, abdomen). Specialists in dermatovenerology, infectology and ophthalmology were consulted. A neuropediatric USG of the brain showed a small resorption hematoma on the left caudothalamic sulcus. We consulted an infectious disease specialist from the The University Hospital for Infectious Diseases in Zagreb, and it is recommended to monitor the antibody levels. After the all workup, the antibiotic therapy of a crystalline penicillin G for 10 days intravenously was applied. After the treatment, the newborn is discharged with recommendations. This is the first recorded case of congenital syphilis in the last 20 years in the region of Western Herzegovina. Through telephone conversation with the parents, we found out that they have moved to the Republic of Croatia, and that further checks and treatment will continue in Croatia, after that we have lost the patients trace.

DISCUSSION

Congenital syphilis rates in the United States have been steadily increasing since 2012 (17, 18). In 2020, there were a total of 2152 reported cases of congenital syphilis in the United States, including 122 stillbirths caused by syphilis and 29 infant deaths (18, 19). The case rate in 2020 (57 cases per 100,000 live births) is the highest

reported rate since 1991 (20). The World Health Organization (WHO) advocates antenatal screening programs aimed at the global elimination of mother-to-child transmission of syphilis and the occurrence of congenital syphilis. Recently, an increase in the incidence and prevalence of early congenital syphilis has been observed in Korea, as well as in other Western countries, despite prenatal serological screening. Kim et al. from Korea reported a clinical case of congenital syphilis in a 3-month-old child who had a skin lesions over the entire body and no other specific symptoms, leading to a delay in diagnosis (21). If the diagnosis is missed, death can occur, despite the fact that syphilis is a very easy disease to treat (22). The skin findings of early congenital syphilis are classically a vesiculobullous or maculopapular rash on the palms and soles and may be associated with desquamation (23). Slutsker and colleagues conducted a study on the factors that contribute to the occurrence of congenital syphilis. The findings have shown that in 88% of the fetuses of pregnant women infected with syphilis in the period from 2010 to 2016 in New York, transplacental transmission of the infection was avoided, due to the screening of the mothers in the early period pregnancy and effectively implemented therapy (24). The Center for Disease Control (CDC) recommends the

identification of syphilis in the mother, so all pregnant women should be screened for syphilis at their first visit at the gynecologist, and be additionally tested between the 28th and 32nd weeks of gestation. In recent years, especially since 2004, the incidence of maternal syphilis during pregnancy has been increasing in Shanghai. A study by Zhu et al. (25) shows, that the migrant population is a socioeconomically disadvantaged group, especially in terms of maternal and perinatal health. However, another study by Temmerman M et al showed that congenital syphilis still occurs in 14% of cases of maternal syphilis after appropriate treatment, which coincides with our data (26). Maternal serum screening is the essence of diagnosis. Treating the mother will prevent most, but not all, cases of congenital syphilis. Since our patient was diagnosed in the first days of life, the manifestation of other clinical variations of congenital syphilis remained to be monitored during further controls and follow-ups by the multidisciplinary team involved in the care of such patients, because syphilis is a disease with a hundred faces.

CONCLUSION

Congenital syphilis is a preventable infection, although global data indicate an

increase in the number of cases. It is the result of a multitude of factors including substance abuse, low socioeconomic status, and inadequate public health infrastructure to reduce community transmission of perinatal syphilis. Screening pregnant women for syphilis should become not only a health, but also a political priority of every country, and since it is a curable infection, the medicine should be available to everyone. Therefore, it is necessary to improve the detection system, not only for *T. pallidum* infection, but also for other sexually transmitted infections that can be treated. With this case report, we want to draw attention to the importance of early recognition and diagnosis of congenital syphilis, and open the question of whose role it is to monitor the child after the newborn period (infectologist, pediatrician, dermatovenerologist).

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NOVOROĐENČE S KONGENITALNIM SIFILISOM: PRIKAZ SLUČAJA

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SAŽETAK

Uvod: Kongenitalni sifilis uzrokuje spiroheta, *Treponema pallidum*, koja se može prenijeti sa zaražene majke na fetus tijekom trudnoće. Na globalnoj razini, učestalost kongenitalnog sifilisa je u porastu, i to sa 700 000 prijavljenih slučajeva u 2016. godini na 1,5 milijuna u 2023. godini. Unatoč širokoj dostupnosti penicilina, 2020. godine u SAD-u je prijavljeno 2152 slučajeva. Sifilis je bolest koja se prezentira veoma različitim kliničkim slikama. Diferencijalno dijagnostički uvijek treba razmišljati o sifilisu kao o mogućoj dijagnozi kod klinički nejasnih stanja dok je lijek prvoga izbora i dalje penicilin, neovisno o stadiju bolesti.

Cilj: Ukazati na važnost ranog probira trudnica na sifilis radi prevencije kongenitalnog sifilisa.

Prikaz slučaja: Riječ je o muškom novorođenčetu GD 37+5/7 tjedana rođenim prirodnim putem od majke koja je sifilis pozitivna bila u drugom trimestru trudnoće, te je liječena Penicilinom. Po porođaju novorođenče je smješteno na Klinički odsjek za neonatologiju, te je urađena lumbalan punkcija i proširena laboratorijska obrada. Zbog mogućnosti poremećaja drugih organskih sustava urađena je šira ultrazvučna obrada.

Zaključak: Iako sifilis danas nije jedan od vodećih javnozdravstvenih problema, najveći izazovi ove infekcije vezani su za vrlo ranjive skupine kao što su trudnice i nerođena djeca. Probir trudnica na sifilis trebao bi postati ne samo zdravstveni, nego i politički prioritet svake države, a budući da se radi o izlječivoj infekciji, lijek bi trebao biti dostupan svima.

Ključne riječi: trudnoća, kongenitalni sifilis, novorođenče, penicilin

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