

# Case Report of Different Syphilis in Pregnancy at Calmette Hospital and Management

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Received: 📅 2025 Nov 11

Accepted: 📅 2025 Dec 05

Published: 📅 2025 Dec 17

## Abstract

Syphilis is the sexual transmission disease caused by *treponema pallidum* type spirochetes. Syphilis rate is increasing since 2022 in Cambodia especially syphilis in pregnancy. It is the concern of obstetrician and neonatologist due of vertical transmission to baby. That's why our team (obstetrician and neonatologist) at Calmette hospital have created standard guideline by reviewing the national protocol guideline for treating for all stages of syphilis and created protocol to follow up both mom and baby after successfully treated the patient by this guideline. We aimed to share our experiences about treating and also share about our new standard protocol guideline to all obstetrician with similar case.

**Keywords:** RPR, TPHA, FTA ABS, MHA TP, TRUST, TP EIA, VDRL and CIA

## 1. Introduction

Syphilis is the kind of sexual transmission disease due of *treponema pallidum* type spirochetes that can cause many complications. Recently, syphilis is increasing rate in Cambodia since 2022 and especially vertical transmission during pregnancy that is the problem of public health. The ministry of health in Cambodia has been concerning and prevent syphilis in pregnancy or vertical transmission in order to stop spreading from mom to baby. This is the problem that need to be taken care by obstetrician and neonatologist. At Calmette hospital, obstetrician and neonatologist face many cases related to syphilis in pregnancy that's why team are discussing and make clinical protocol guideline for treating and prevent vertical transmission from mom to infant by revising the national protocol guideline of managing syphilis in pregnancy since 2022. We selected 4 kinds of syphilis in pregnancy and how it's managed to present in our case report in order to share some experiences about management of syphilis in pregnancy and prevent vertical transmission at Calmette hospital and also present our management guideline standard that our team has successfully treated with good result.

## 2. Case presentation

Syphilis in pregnancy leads to severe complication such as miscarriage, preterm delivery, stillbirth, neonatal death, and congenital syphilis for mom and infected baby can be cerebral palsy, hydrocephalus, sensorineural hearing

loss, and musculoskeletal deformity. The world health organization have been reported that syphilis in pregnancy is up to 1,5 million cases each year [1].

### 2.1. Case 1

on 11/03/2024, a female 21 years old from Kampot province, diagnosed with intra uterine fetal demise (IUFD) in pregnancy of 36 weeks. History: 1 normal delivery, 1 IUFD, and no antenatal consultation. The paraclinical examination showed syphilis test: RPR 1/4, TPHA 1/1280, CBC normal (Hb 90g/dl, WBC 10,94giga/L), and other biology test are normal. The ultrasound finding is IUFD with no other abnormalities. The management was induction of labor and maternal treatment by PNG (she gave birth to baby weight 2600g).

### 2.2. Case 2

on 25/04/2024, a 34 years old pregnancy from Prey Veng province, diagnosed with pregnancy of 39 weeks in labor with history of 2 normal delivery, 2 abortions, syphilis test positive in ANC of 19 weeks and treated with 3 doses of PNG (before treatment RPR 1/16, TPHA 1/5120 on 30/11/2024 and after treatment on 10/04/2024, RPR 1/2, TPHA 1/2560). The paraclinical examination showed CBC normal and other tests are normal with ultrasound result is no abnormalities. Our management was normal delivery with baby weight 2850g and transferred to neonatal department. The baby had vertical transmission (syphilis test positive) and got

treated by PNG for 10 days and the follow up showed no complication.

2.3. Case 3

on 13/05/2024, a female 27 years old, pregnancy of 31 weeks from Kandal province diagnosed with multiple fetal abnormalities by ultrasound. Her history: 2 normal deliveries, no ANC. The paraclinical examination showed syphilis test: RPR 1/32, TPHA 1/5120, CBC normal and other biological test were normal. The ultrasound of baby showed fatal anarsaca and anhydramaios. Our management was maternal treatment by PNG and induction of labor and she gave premature birth to a female fetus and she demised shortly weight 1200g.

2.4. Case 4

A pregnancy woman, 19 years old from Kompong Speu province, diagnosed with threatening preterm labor in 34 weeks of pregnancy with fetal ascites by ultrasound. Her history: she got ANC at 14 weeks pregnancy on 26/12/2023 with syphilis test positive but didn't manage. The paraclinical examination showed syphilis test: RPR 1/32, TPHA 1/5120, CBC normal (Hb 88g/dl, WBC 11,32 giga/L) on 12/06/2024, other biological tests were normal. The ultrasound showed fetal ascites and her management was maternal treatment by PNG then she gave a premature birth to a male fetus and he demised shortly, weight 2300g. After meeting many complications of syphilis in pregnancy, our team have discussed about creating clinical protocol guideline

standard both pregnancy and non-pregnancy by using PNG individuals. Penicillin (Penicillin G benzathine) 2,4 million units intramuscularly for 3 doses without diagnosing staging of syphilis. That is the difference between new updated protocol at Calmette and national protocol guideline. For the national protocol guideline, we use PNG because we found that PNG can cross the placental barrier according to world health organization. For primary and secondary or early latent disease and post exposure prophylaxis, we just need a single dose of intra muscular of PNG. For late latent and tertiary disease, we use 3 doses of intra muscular of PNG in weekly intervaes. For the partner, the management is also the same. It is the same for the follow up between national protocol and new updated protocol at Calmette.

For follow up: we observe the clinical and paraclinical examination.

- Frequency of nontreponemal titers:
- Treatment failure: a fourfold increase in the nontreponemal titer after treatment
- Acceptable response to syphilis therapy: a fourfold decline in the titer.

- \*Note:
- In pregnancy patient, no decline fourfold in 6 months, we need to be retreated.
- For neonate, we should be evaluated for congenital syphilis after delivery although a decline in maternal non treponemal serology titers in neonatal department.

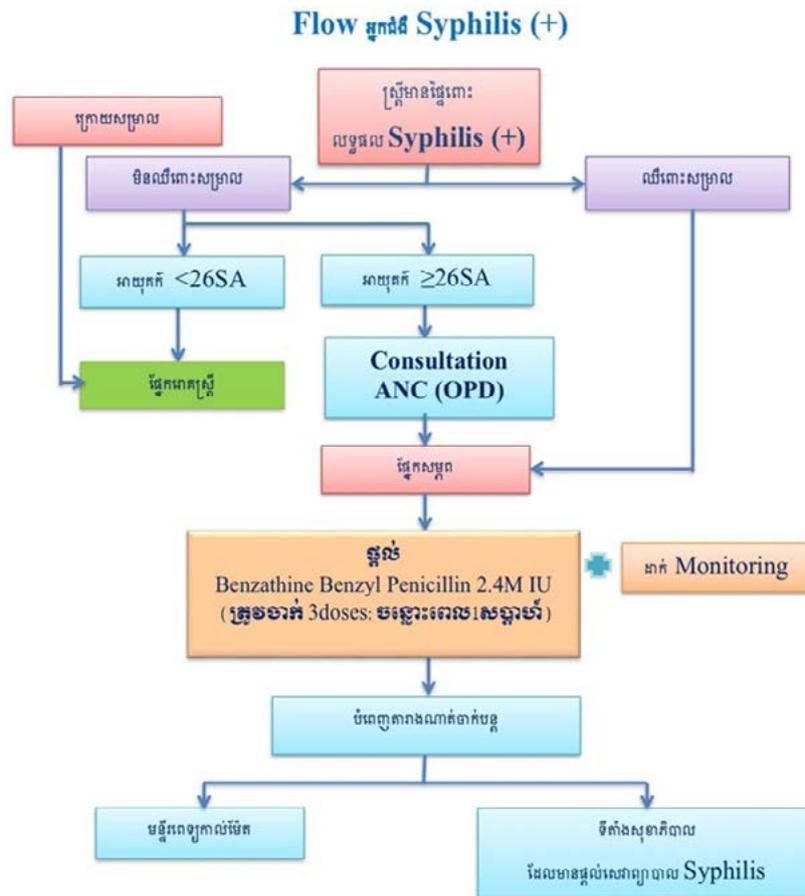
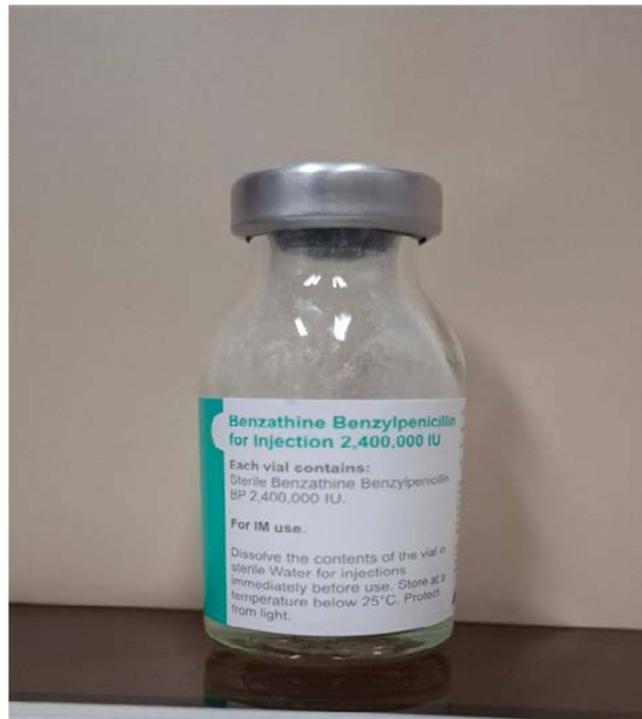


Figure 1: Protocol Guideline Standard



**Figure 2: Pencillin G Benzathine**

### 3. Discussion

Syphilis is a systemic infection caused by *treponema pallidum* type spirochetes. We ordinary concern in pregnancy due of transplacental transmission to fetus. The appropriated management can prevent adverse maternal and offspring outcomes. In Cambodia, at Calmette hospital, we screen universal antepartum by serology non *treponema* and *treponema* (syphilis test) in the first prenatal visit and repeat screening again for high-risk pregnancy around 28 weeks to 32 weeks of gestation or delivery time, and also for stillbirth or threatening labor around 20 weeks of gestation.

If we didn't screen syphilis test in antenatal period, it may worsen the complication both maternal and fetus complication [2].

In Malaysia, antenatal screening test is recommended for syphilis by non-treponemal serology test during the first visit and subsequently at 28 weeks of gestation like our Calmette hospital. Syphilis has several stages such as primary, secondary and tertiary stage with or without clinical presentation and sometimes happen in pregnancy time or don't the lesion of primary syphilis occur about 3 weeks after sexual contact and sometimes asymptomatic [4,5].

We can stage the syphilis by the following sign:

- Primary syphilis: maybe genital or extra genital with

incubation period around 3 weeks.

- Secondary syphilis: 25% of untreated patient begin 6 weeks to 6 months or the infection

- period last from many months to 2 years.
- Latent syphilis: asymptomatic in many years.
- Tertiary or late syphilis: clinical manifestation gumma formation, cardiovascular disease

usually develops 5 to 20 years after the disease become latent.

- Neurosyphilis.

The diagnosis of syphilis is syphilis serology and divided in 2 main categories [6].

- Specific treponemal test: FTA-ABS, MHA-TP, TPHA, TP-EIA, CIA.
- Non treponemal test: RPR, VDRL, TRUST.

FTA-ABS: Fluorescent treponemal antibody absorption.

MHA-TP: Micro hemagglutination test for antibody to *treponema pallidum*.

TPHA: *Treponema pallidum* hemagglutination assay.

TP-EIA: *Treponema pallidum* enzyme immune assay.

CIA: Chemiluminescence immuno assay.

RPR: Rapid plasma reagin

VDRL: Venereal disease research laboratory

TRUST: Tolidine red unheated serum test.

**Table 1 Interpretation of serologic tests in syphilis**

Treponemal test	Nontreponemal test	Possible interpretations
<b>Nonreactive</b>	Nonreactive <sup>a</sup>	1. Absence of syphilis 2. Very early syphilis before seroconversion
<b>Reactive<sup>b</sup></b>	Nonreactive	1. Prior treated syphilis 2. Untreated syphilis 3. False-positive treponemal test <sup>c</sup>
<b>Reactive</b>	Reactive with or without a measurable titer	1. Active syphilis 2. Recently treated syphilis with nontreponemal titers that have not yet become nonreactive 3. Treated syphilis with persistent titers <sup>d</sup>
<b>Nonreactive</b>	Reactive <sup>a</sup>	1. False-positive nontreponemal test

<sup>a</sup> Usually not performed if the initial treponemal test is negative.  
<sup>b</sup> By 2 different methods if the nontreponemal test is nonreactive.  
<sup>c</sup> Commonly seen among African immigrants with previous exposure to endemic treponematoses.  
<sup>d</sup> Successful treatment is usually considered with a fourfold decline in titers (e.g., from 1:32 to 1:8).

**Figure 3: Interpretation of Serology Test in Syphilis**

We observe that high titers in RPR during pregnancy can increase transplacental transmission and in contrast, persistently negative in non-treponemal test wont transmits vertically [7,8].

**4. Conclusion**

After reflection of 4 cases of syphilis in pregnancy above, we can find recommendation such as doctors should seek the ANC session regularly, syphilis test should be universal in all pregnancy women by counselling the benefit of testing syphilis test and tell all the complication of syphilis without treatment. Anyways, all discovery of fetal abnormalities by ultrasound should conduct syphilis test for the first thing to do. The last thing is treating partner is obligator in order to prevent further complications.

**Funding**

The authors received no financial support for the research, authorship, and /or publication of this article.

**Ethical Consideration**

Our institute does not require ethical approval for reporting individual cases or case series.

**Consent to Participate**

Written informed consent was obtained from patient’s husband and is available for review upon request.

**Declaration of Conflicts of Interest**

The authors declared no conflict of interest with respect to the research, authorship, and /or publication of this article.

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