

# The “Great Imitator”-Congenital Syphilis

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## ABSTRACT

**Background:** Most antenatal centers have stopped routine screening for syphilis; it is assumed that the advent of penicillin had eradicated the disease. Cases of congenital syphilis seen in neonates and diagnosed by radiological features before serological confirmation were reviewed.

**Results:** Twenty neonates presented for peripheral limbs radiographs within the studied period. Ten of them had positive radiographic features with serological confirmation. None of the mothers had VDRL

screening in pregnancy. Periarticular swelling (of the knee) was the commonest presentation and Metaphysitis (ostechondritis) characterized by “saw tooth” distal metaphysis and periostitis were the commonest features.

**Conclusion:** High index of suspicion and awareness of congenital syphilis are required to avoid misdiagnosis by clinicians and radiologists. Routine prenatal screening should be instituted by all antenatal care providers to prevent congenital syphilis since some cases are not symptomatic until late stage.

**Key Words:** Congenital Syphilis Antenatal Screening Metaphysitis Periostitis

## INTRODUCTION

In the time past, syphilis was seen as a major threat to both adults and children especially infants with possible congenital infection. Serological screening was routinely done in antenatal clinics with appropriate treatment to prevent vertical transmission.

However, most clinicians assumed the battle had been won and VDRL (Venereal Disease Research Laboratory) test are no more done in our antenatal clinics. The author, a radiologist while on a short term appointment at the teaching hospital ‘encountered’ skeletal manifestation of congenital syphilis for the first time in his practice and in his first week at the centre. All the cases of congenital syphilis with skeletal malformation were therefore reviewed.

## PATIENTS AND METHODS

The study was conducted at Ekiti State University Teaching hospital, Ado Ekiti, Ekiti State which is located in the South Western region of Nigeria. Between June 2009 and May 2010, all the neonates radiographs that were reported as congenital syphilis were followed up with the clinical evaluation and appropriate laboratory investigations done for the mothers and the neonates after counseling and informed consent. Only the radiographs of the neonates with laboratory confirmation included in this study.

## RESULTS

A total number of fifty (50) neonatal radiographs were taken within the study period with neonatal respiratory distress as indication for 60% (30) of the neonates and therefore chest radiographs were requested for.

Forty percent (20 patients) were referred for peripheral limbs radiographs with varying indications including swollen limbs, swollen joints with or without fever and tenderness and the clinical diagnoses were suspected birth trauma with fractured limb in 10 neonates and septic arthritis with cellulitis in the remaining 10.



**[Table/Fig-1]:** Plain radiograph of both knee joints showing sharp projection from the distal metaphysis of right femur (ostechondritis). Solid periosteal reaction (periostitis) seen surrounding the distal metaphysis of left femur



**[Table/Fig-2]:** Lateral radiograph showing periosteal reactions around the distal femur

Ten neonates had radiographic features of congenital syphilis and they were all included in the study after counseling and informed consent from the mothers and confirmatory laboratory investigations for the mothers and neonates. Two neonates had fractured femoral bones, while in the remaining eight neonates the bones were normal.

All the neonates with positive radiographic features for congenital syphilis and their mothers had positive laboratory tests for syphilis and none of the mother was screened for syphilis during pregnancy. None of the neonates (and mothers) with no suspicious radiographic features of syphilis had positive laboratory tests.

Most of the neonates had combination of radiographic lesions but metaphysitis was the commonest seen in eight (80%) neonates, followed by periostitis in six (60%) neonates. None of them had diaphyseal osteomyelitis, dactylitis or skull lesions.

All of them presented with multiple often bilaterally symmetrical periarticular swellings with knee joint being the commonest affected.

## DISCUSSION

Syphilis is caused by *T. Palladium*, one of a small group of treponemas that is pathogenic to man. It is said to be a spiral organism 6-15µm in length and 0.15µm in width, visible by light microscopy only under conditions of dark-field illumination and cannot be grown on artificial media [1].

The advent of penicillin and routine antenatal screening (VDRL) had resulted in control of syphilis in pregnant women and also prevented fetal infection.

However, in most developed and developing countries, this practice had been stopped and recent studies have reported resurgence and or increased prevalence of the disease [2, 3, 4].

Congenital Syphilis presents as early congenital or late congenital. The early congenital form occurs in pregnant women with untreated early or latent syphilis. The risk of transmission is highest with primary and secondary syphilis during pregnancy, and diminishes as the duration of latent syphilis increases [1].

Infected infants can be asymptomatic or can show subtle and insidious findings or multiple organs involvement. Even asymptomatic newborns can develop early or late post natal manifestations [4].

Few cases are said to present with typical features of symptomatic congenital syphilis with cutaneous manifestations, bone lesion and prematurity [1, 5].

Our cases presented with bony lesions, no cutaneous manifestation was seen and they were all products of termed pregnancies. These explained why the clinicians were not suspecting syphilis.

Other clinical manifestations like hepatosplenomegaly, skin rash, anaemia and jaundice had been described in neonate [4] while in post neonatal period, snuffles, anaemia, pseudoparesis and hepatosplenomegaly were described [4]. Though, joint swelling was the predominant feature in our study of neonates unlike the previously reported predominance of joint swellings in the post neonatal period [4].

Metaphysitis, [Table/Fig-1] also referred to as osteochondritis characterized by serrations and irregularities of the metaphysis i.e. "saw tooth appearance" with or without Wimberger's (or cat bite) sign was the commonest bony abnormality seen in the study. Periostitis [Table/Fig-1 and 2] commonly located at the distal metaphysis especially of the femur was next in predominance. Femur was the most affected bone.

Other possible skeletal manifestations, apart from osteochondritis and periostitis are dactylitis, diaphyseal osteomyelitis and skull lesions [1]. Rasool and Govender [6] in a review of 197 cases of congenital syphilis found periostitis to be the commonest manifestation followed by metaphyseal changes. They also reported dactylitis, osteitis and pathological fractures in few cases. These were not seen in this study. Infact, they [6] reported a steady increase over the span of few years which their study was conducted.

There is a need to have a high index of suspicion because even the symptomatic ones could be missed or misdiagnosed due to lack of experience by the clinicians and or to the nature of the disease as the "great imitator" often presenting with non specific clinical signs and symptoms. The radiographic features of the disease may mimic many other conditions such as multifocal osteitis, rickets, scurvy, neuroblastoma and battered baby syndrome[6].

Other imaging modalities like magnetic resonance imaging and ultrasound which are safer in children may be useful though not confirmatory.

Qualitative and quantitative rapid plasma reagin (RPR) test, *Treponema pallidum* haemagglutination antibody (TPHA) test can be done to confirm the diagnosis.

Routine VDRL test in pregnancy and treatment as appropriate is the only way to prevent congenital syphilis since most of them may not be symptomatic until later

in life and others may even result in stillbirths and prematurity.

## CONCLUSION

Congenital syphilis is preventable with quality and timely antenatal care. Routine VDRL screening in pregnancy should be a must in all antenatal centers to detect and treat before transmission to the fetus.

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