Syphilis in Fiji

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Introduction

Syphilis was rare in Fiji well into the twentieth century. In contrast yaws was common. In 1954 Manson-Bahr studied women attending the Anderson maternity unit at the CWM Hospital in Suva and demonstrated that a positive Khan test in 72% of ethnic Fijian women was due to yaws alone[1]. Yaws was eradicated from Fiji by the mid-1950s.

Although a high incidence of gonorrhea showed sexual transmission of microbial disease was common, syphilis was not recognised as a serious problem in Suva until the 1970s[2]. This coincided with the time when a growing number of people who had never been exposed to yaws were becoming sexually active, supporting Manson-Bahr's hypothesis that exposure to yaws produced a degree of immunity to syphilis.

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Today in Fiji, the incidence of syphilis may have reached a steady state but there is almost certainly under-reporting. Patients presenting during the incubation phase of primary infection (incubation period 10-21 days) will receive treatment for urethral discharge from other causes and this will prevent the development of a chancre or a positive serological test.

My observations are made from two surveys of patients delivered in the CWM Maternity ward (Table 1). 1978 was the first year that all antenatal patients routinely had serological tests for syphilis on booking and the first survey ran from 1978-80. The second survey covered 1992-1995 and focussed on perinatal morbidity and mortality.

In Fiji, anonymous testing for HIV in VDRL positive mothers, has been in place for several years; all were negative. Recently HIV testing has been offered to all mothers at booking, and 99% accept. Two of the 5000 tested so far have been positive and neither of these had syphilis. Our data about diagnosis and assessment of treatment response in syphilis depends on antibody reactions which may be modified in the presence of HIV infecton. Because of the fear which has grown around HIV testing, many syphilis cases are not tested for HIV, and there is a posibility that syphilis goes undetected in some HIV carriers.

Maternal syphilis during pregnancy

Clinical illness was either very uncommon or went unrecognised. It was detected by serology alone in 98% of affected pregnant women. A small but uncounted number of primary chancres were seen, from which exudate, positive for spirochaetes on dark ground microscopy, was obtained. The chancres were always multiple, and on the vulva and perinium. We did not find a vaginal or cervical chancre, although inspection using a speculum is routine at booking in Suva. A few cases of secondary syphilis were also seen. These usually presented as an acute febrile illness with tender lymph nodes in the neck and a rash on body including palms and soles. Condylomata on the vulva if present were either flat and insignificant or exfoliative. We did not see any mother with features of either tertiary or congenital syphilis.

If a history of ulcers or discharge from a patient's partner was obtained, we often learnt that he had used self medication with traditional herbs or local antiseptic. Women, particularly ethnic Fijians, often had attempted to clear a discharge by washing inside the vagina. As chancres are self limiting, both sexes had considered themselves cured by these methods. This example of traditional medicine being credited with the cure of a self limiting condition holds the seeds of tragedy as the next evidence of disease may be a stillborn fetus, or the onset of the dementia of general paresis.

Congenital syphilis in the fetus and neonate

Treponema pallidum can cross the placenta from the first trimester[3]. The organisms are distributed to all fetal organs including the placenta, where they multiply. From early in the

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second trimenster they stimulate an intense inflamatory reaction, vasculitis, and progressive obliteration of small vessels by proliferation of the endothelium. There is small round cell and plasma cell infiltration, and giant cell formation in many tissues, including the placenta, with progressive impairment of function.

The most common outcome for the fetus infected early is intrauterine death, which can happen as early as 18 weeks, but is most common between 28 and 30 weeks. Labour usually begins about the time of fetal death, when the placental function reaches a critical level, and/or the infection of the fetal bone marrow has produced severe anaemia, hydrops, and heart failure.

From about 28 weeks some babies are liveborn, but most of these die within few hours. Those survivinig need careful respiratory and nutritional support besides antibiotics. Interstitial pneumonitis with respiratory distress is the first problem. After this abates, impaired liver and pancreatic function, reduced gut motility and absorption will lead to slow weight gain, and failure to thrive. It is easy to kill all the spirochaetes wih penicilllin, and yet lose the baby to irreversible organ damage. In this series only 16 of 36 neonates with clinical syphilis survived.

Diagnostic tests

All pregnant women should be tested when they are first seen. Ideally, a repeat test should be done at about 24 weeks in those who book early and 32- 34 weeks in those booking after 20 weeks. The repeat test is to detect women who are in the incubation period at the time of the first test or who have since contracted the disease, without any clinical manisfestations. It would be ideal to repeat test all patients at about 24 -32 weeks but this is too much for the budget in most Pacific islands. In Suva, we retest patients who are in socially unstable situations, including single women, and those who although married, have husbands in occupations where casual sexual contacts are readily available. Unbooked patients should be tested on presentation at the hospital.

The test should include:

1. A rapid, nonspecific test such as the VDRL, although the RPR may have advantages at smaller laboratories.
2. A specific treponemal tests, for which the TPHA is the most suitable for use in the non-specialist laboratory.

If the VDRL is positive and the TPHA negative, it is due to either: an early infection in which case the TPHA will become positive within 2-3 weeks or: a biological false positive (BFP) which can happen during normal pregnancy, in acute febrile illnesses or in connective tissue disorders such as systemic lupus erythematosis.

To test the baby, fetal blood should be taken at delivery from the placenta in all cases where the mother is seropositive, whether treated or not, and in every case where the mother's VDRL status is unknown.

Perinatal mortality in Suva

Between 1978-1980 at the CWM hospital, 460 of 597 VDRL positive pregnancies were considered to have syphilis. The remainder were thought to have residual antibodies from yaws, syphilis treated previously, or a biological false positive VDRL test.

Between 1992-1995, as the TPHA was routinely done on all VDRL positive sera, the BFP cases were readily identified. There were now no longer women of child bearing age who had been exposed to childhood yaws, so the 1488 (5.9%) women with VDRL and TPHA positive sera had either active syphilis or residual antibodies from a previous infection.

There were 65 perinatal deaths due to congenital syphilis and a further 11 identified as from other causes in seropositive women, during the 1978-80 period. Fifty three of the 65 cases were untreated. This was because the:

i) Lack of antenatal care resulted in the woman presenting either in labour or after fetal movements had ceased.

ii) Very late booking with fetal death soon after.

iii) Waiting for a rising VDRL titre to confirm active infection.

iv) Seroconversion discovered after stillbirth - this risk was greater in those who had booked early.

A total of 74 VDRL seropositive women were untreated before delivery. Of these 42 pregnancies resulted in stillbirth. Of the 32 liveborn, 16 were healthy , five were treated for congenital syhylis and 11 died in the early neonatal period. The perinatal mortality rate of untreated cases was 776/1000 which is higher than the 454/1000 reported by McCord from Atlanta, USA[4]. There was no case of BPF (proven by persistently negative TPHA) when the VDRL was positive by four or more dilutions.

Between 1992-1995 there were 73 perinatal deaths from 1488 cases, a rate of 45/1000. Fifty three of these cases were untreated, and these included

Table 1. Syphilis in CWM maternity patients

	1978-80	1992-1995
Total patients	16544	25233
VDRL positive	597 (3.6%)	1,488 (5.9%)
VDRL positive perinatal deaths	65 (10.8%)	73 (4.9%)
Congenital syphilis	16	20
Neonatal deaths	11 (69%)	14 (70%)
Maternal clinical illness (all cases)	8/597	-
Maternal clinical illness (PND cases)	-	7/73

three cases which were VDRL/THPA negative and four cases with weakly positive VDRL and negative TPHA at the time of their bookings but becoming strongly TPHA positive in the postnatal period. Of the 73 perinatal deaths 20 had received some treatment. In 11 the treatment was incomplete at the time of fetal death or onset of labour. In two, the antibiotics which had been prescibed for another infection did not prove effective for syphilis (erythromycin for infected scabies, amoxycillin for a respiratory infection). In seven a full course of treatment had been given. In six of these there was severe growth retardation and small fibrotic placentae and in two of these there was post mortem radiological evidence of healing osteolytic lesions with new growth beyond (Figure 1). The seventh was normal on ultrasonic scan at the time of diagnosis but became hydropic, dying in utero two days after completion of three weeks penicillin.

Treatment regimes at the CWM hospital

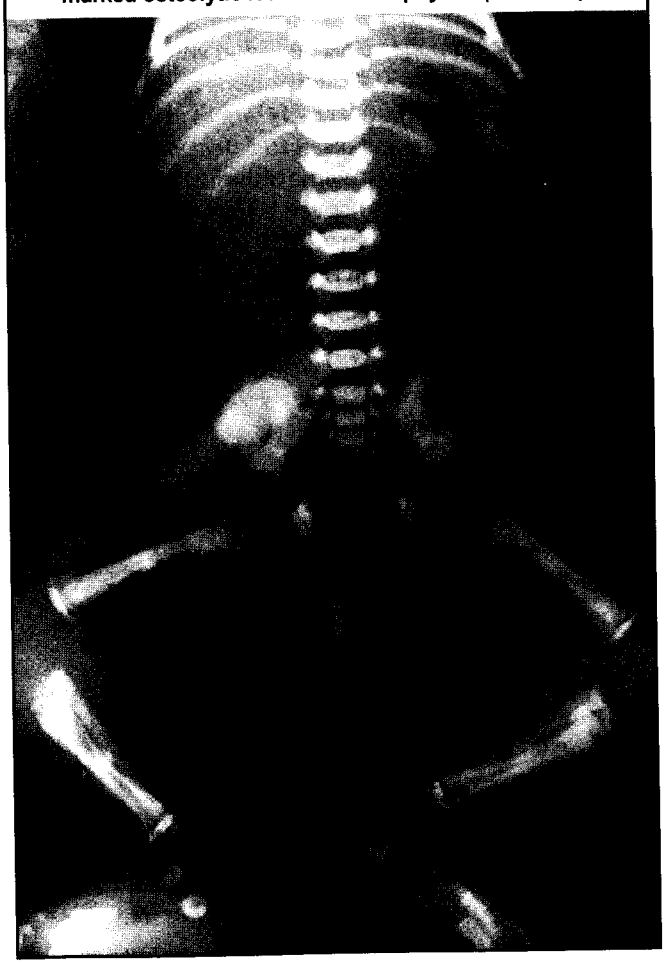
- All patients who are VDRL and TPHA positive are treated with benzathene penicillin, 2.4 mega units weekly for three injections.
- Patients with high titre VDRL (1/32 or more), diagnosed after 20 weeks receive in addition to the above an induction course of intrvenous crystaline penicillin, two mega units six hourly for 72 hours .

The rationale for this is twofold. First, the probability that transfer of the penicillin will be impaired by syphilitic placentitis. Secondly, the rapidly increasing death rate in untreated cases from 22-24 weeks suggests fetal death may be imminent.

We did not encounter the Jarisch-Herxhemier reaction in any of our cases. This is most common at the beginning of treatment for secondary syphylis[5]. True allergy to penicillin was rare in our experience with no more than 10 of the 2000 cases studied eventualy needing an alternative antibiotic.

Figure 1. X-ray of stillborn fetus. Gestation about 26 weeks. Note osleolytic lesions at metaphyses of long bones.

Figure 2. Early neonatal death. Gestation about 30 weeks. Note marked pereostitis (which is uncommon in fetuses), and marked osteolytic lesions of metaphyses (common).



Many more women thought they were allergic to penicillin, but careful questioning showed this was unlikely, and skin testing was negative. Our drug of choice in truly allergic cases is chloramphenicol 500 gm six hourly for ten days. We choose this drug because it: crosses the placenta and reaches therapeutic concentrations in fetal tissues (unlike erythromycin); is not harmful to the fetus in normal doses (unlike tetracyclines) and; is not prohibitively expensive (like cephalosporins)

The treatment of the neonate with penicillin is indicated if there is clinical disease, if the mother's treatment has been incomplete, or if the VDRL titre is equal or higher than that of the mother (unless both are very low). The sick baby with clinical disease and /or positive CSF receives 50,000 units of crystalline penicillin/Kg twice daily for 10-14 days. The well baby with positive VDRL receives benzathene penicilin 50,000 units/Kg in a single dose. Surveillance for the development of signs of syphilis is maintained for at least 3 months

We also endeavoured to test the partners of all seropositive cases and treat if positive. If a partner came only after many requests for testing, we usually gave him his first dose of benzathene penicillin straight away, and two more if the tests were positive. If the partner was positive, and the patients treatment was already completed before he presented, we treated her again, to cover the risk of reinfection.

Monitoring treatment response

There is no direct method for monitoring the eradication of spirochaetes from the mother or fetus. The indirect indications are the continuing growth of a healthy fetus, a falling titre of maternal VDRL, and a cord blood titre that is low, or at least 4 dilutions below the maternal titre. A low titre at diagnosis remaining low after treatment (or even rising from say 1:2 to 1:4) should not cause alarm as there may be variation in the reagent or observer reading. Furthermore, in pregnancy the titre is often slow to fall and retesting less than 6 weeks after treatment is a waste of effort. A fourfold change on the other hand is highly significant; a fall from 1:64 to 1:4 as evidence of cure, a rise as evidence of reinfection.

A maternal titre that is static at 1:8 or more throughout pregnancy should be followed with lumbar puncture and if the CSF is VDRL positive she should be treated for neurosyphilis even in the absence of clinical disease. This involves at least 10 days treatment with high doses of intravenous penicillin, as benzathene penicillin does not cross the blood-brain barrier.

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Conclusion

Syphilis is on the increase throughout the world and it continues to be a serious cause of stilbirth and neonatal morbidity unless it is detected and treated early in pregnancy. It is therefore mandatory for all pregnant women to have serological testing and until tests become available to distinguish active infection from residual antibodies, all seropositive mothers must be treated alike.

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" Our destiny is shaped by our continuity of consciousness which has its roots in our memories of thousands of years of existence in Te Moana-nui-a-Kiwa (Pacific Ocean) ... "

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