

# Early Congenital Syphilis – A Continuing Problem in Malaysia

C T Lim, MRCP\*

M T Koh, MRCP\*

V Sivanesaratnam, FRCOG\*\*

\* Department of Paediatrics,

\*\* Department of Obstetrics and Gynaecology,  
University Hospital, 59100 Kuala Lumpur

## Summary

Between February 1990 and May 1993, 13 cases of early congenital syphilis (ECS) were managed in the Paediatrics Unit, University Hospital, Kuala Lumpur. Twelve mothers were unbooked with 10 inborn babies. Only one mother had antenatal booking at this hospital but she defaulted antenatal follow-up. Several risk factors associated with ECS were identified: inadequate or no prenatal care (5/13), failure to repeat a serological test for syphilis in the third trimester when it was tested negative at first booking (5/13), sexual promiscuity, substance abuse and a past history of contracting sexually transmitted disease. All 10 mothers who had their serological test repeated at delivery were found to have a positive VDRL and TPHA. Adequate antenatal care, early referral of infected, expectant mothers for treatment, and a repeat serological test for syphilis could have prevented these cases of ECS.

**Key Words:** Early congenital syphilis, Sexually transmitted diseases

## Introduction

Early congenital syphilis (ECS) is a serious and potentially preventable condition affecting infants less than 2 years of age. An alarming increase in the incidence of ECS in several countries was observed in recent years<sup>1,2,3</sup>. A similar trend was noticed in our unit since the publication of our experience of 13 cases of ECS in 1990<sup>4</sup>. Of particular concern to us was the complacency among some medical practitioners that congenital syphilis is no longer a problem and that prenatal serological screening for syphilis is no longer necessary. We therefore set out to try to identify and highlight the factors that were associated with ECS and suggest preventive measures.

## Materials and Methods

Between February 1990 to May 1993, 13 babies

admitted to the Paediatrics Unit, University Hospital, Kuala Lumpur were diagnosed to have E.C.S. The diagnostic criteria used were similar to those recommended by the Center for Disease Control, CDC, Atlanta<sup>1</sup>:

1. A positive standard serological test for syphilis (STS) using either the Venereal Research Laboratory test (VDRL) or the Rapid Plasma Reagin test (RPR) on the patient's serum and confirmed by a treponemal antibody test using *Treponema pallidum* haemagglutination inhibition test (TPHA).
2. Radiological changes in the long bones, which included periostitis, metaphysitis, osteochondritis, occurring either alone or in combination.

The presence of both of the above together with

clinical features compatible with congenital syphilis were considered diagnostic of the disease.

The data collected included the maternal, social and obstetric histories, and the infant's clinical, laboratory and radiological findings.

## Results

Three of the 13 babies were outborn. There were 20,863 livebirths over the period studied; giving an incidence of 48/100,000 livebirths among inborn

babies, or 4-5 cases of ECS per year. Table I shows the demographic data of the mothers and infants.

### Mothers

The maternal age ranged from 19-37 years with a mean of 27.8 years. Eight (54%) of them were 25 years or younger, four of whom were primigravida. There were no single mothers. About 75% of them were from the lower socio-economic group. Among the 13 mothers three were tested VDRL positive while five were tested VDRL negative at the time of

**Table I**  
**Biodata of mothers and infants**

<b>Mothers</b>		
Age in years (mean):		27.8 years (range 19-37 years)
Ethnic distribution:	Malays	6
	Chinese	3
	Indians	2
	Indonesians	2
<b>Infants</b>		
Mean age at presentation (days):		20 (range birth-3 months)
Mean birth weight (g):		2080 (range 1110-2500)
Mean gestational age at birth (weeks):		34.4 (range 29-40)
Low birth weight (<2500 g):		12/12 (100%; 1 unknown)
Preterm (< 37 weeks gestation):		9/13 (69%)
Term:		4/13 (31%)
Small for gestational age:		4/11 (36%; 1 hydrops, 1 birth weight unknown)
Type of delivery:		SVD: 8 Breech: 2 LSCS: 3 (fetal distress)
Apgar score:	< 5 at 1 min.:	7 (70%; 3 unknown)
	< 5 at 5 min.:	3 (30%; 3 unknown)

Key: SVD = Spontaneous vaginal delivery  
LSCS = Lower segment Caesarean section

booking. The serological status was unknown in four and it was not determined in another. One of the mothers who was tested positive defaulted follow-up and was thus untreated and subsequently delivered the baby at home. Three of the mothers who were initially tested negative had prenatal care in the private clinics while the other two were followed up in the government clinics. In addition two mothers who were seen in the government clinics were detected to have a positive VDRL and referred for treatment. Unfortunately both these mothers were admitted in labour (at 33 weeks and 38 weeks of gestation respectively) before treatment for syphilis could be started.

Three mothers had inadequate antenatal care, i.e. either one visit only or inconsistent follow-up with the same doctor. One mother did not receive any prenatal care, while in another the prenatal care status was unknown as the baby was adopted from another town.

All the mothers were housewives with the exception of one who was a clerk. One mother admitted to substance abuse and she together with another mother also admitted having multiple sexual partners. Another mother was married to a husband who had three other wives. One mother had previously been treated for gonorrhoea vaginitis with oral medication.

### Infants

There were 8 boys and 5 girls. Their mean age at presentation was 20 days (range birth to 3 months). Eight were diagnosed soon after birth. Of the remaining, diagnosis was delayed between 17 days to 3 months. The mean gestational age at birth was 34.4 weeks (range 29-40 weeks). Nine (69%) were born preterm. All except one infant (birthweight unknown) had low birth weight. The mean birthweight was 2080 g (range 1110-2500 g). Two inborn babies were missed because they were discharged before their VDRL results were available and they did not exhibit clinical signs of ECS.

Hepatosplenomegaly was the most frequently seen clinical sign (Table II). Dermatological changes which include peeling of the skin over the palms and soles, blister formation and a macular rash (Fig. 1) were seen in 5 (38%) babies.

**Table II**  
Clinical features of 13 infants with early congenital syphilis

Clinical features	Number (%)
Hepatomegaly	12 (92)
Splenomegaly	11 (85)
Skin lesions (peeling, blisters, rashes)	5 (38)
Jaundice (obstructive)	3 (23)
Respiratory distress	5 (38)
Intrauterine growth retardation	4 (33)*
Swollen limb	1 (8)
Hydrops	1 (8)

\* Birth weight of one infant unknown

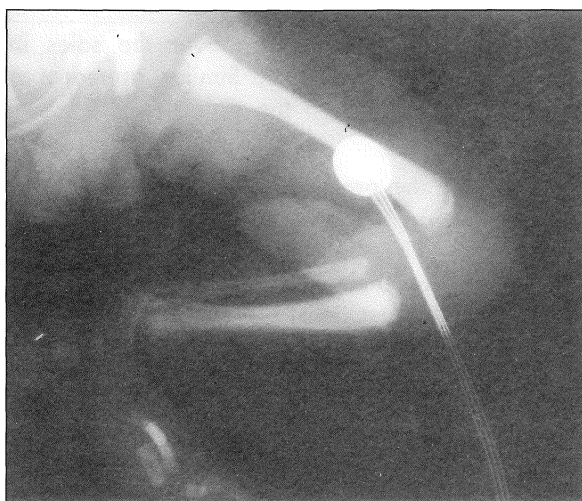


**Fig. 1:** Peeling of the skin over the soles in an affected baby. Similar appearance was noted on the palms.

Jaundice was the presenting symptom in 3 babies (23%). One had a swollen left elbow while another was hydropic. Five (38%) had respiratory distress at birth and 4 of these babies required mechanical ventilation. The gestational age of this subgroup of babies ranged from 29-35 weeks and their birthweights 1110-1570 g. The VDRL titres of these infants ranged from 1:4 - 1:512 dilution and all were positive for the TPHA test. Surprisingly the only hydropic infant had a VDRL titre of 1:4 dilution. However, her fluorescent treponemal antibody-absorption test (FAT-ABS) IgM was positive. Nine (69%) were anaemic, (Hb ranged from 6.3-11.5 g/dl) and 6/11(55%) had thrombocytopenia ( $< 150 \times 10^9/L$ ). The serum immunoglobulin IgM was strongly positive in all 13

infants. All 4 babies who had a FTA-ABS IgM test done were found to be positive. Liver function test of the three jaundiced babies revealed conjugated hyperbilirubinaemia, raised aspartate aminotransferase (AST), alanine aminotransferase (ALT), and alkaline phosphatase (ALP) levels. Ten (77%) had radiological changes in the long bones (Fig. 2). Lumbar puncture was attempted in 11 infants; 6 had a traumatic tap. Although 4 C.S.F. samples were reactive for the VDRL test (range 1:1-1:2 dilution) none had biochemical evidence of meningitis.

As the initial presumptive diagnosis was septicaemia in most of these infants, crystalline penicillin (100,000-200,000 units/kg/day) and gentamicin (5 mg/kg/day) were the initial choice of antibiotics prescribed, until the bacteriological results were available, when crystalline penicillin alone was continued for 10-14 days, longer for those whose CSF was reactive for the VDRL test. Those who had respiratory distress were managed in the conventional manner. Three babies developed conjugated hyperbilirubinaemia and one neonatal necrotizing enterocolitis (NEC). All made an uneventful recovery. The only baby who succumbed was a hydropic baby giving an overall mortality of 8%.



**Fig. 2:** "Moth-eaten" appearance (suggestive of metaphysitis) at the ends of long bones of a preterm hydropic baby with early congenital syphilis

## Discussion

Following the advent of penicillin therapy, the incidence of ECS had been dramatically reduced. Despite a highly organised health care, the past decade has witnessed a resurgence of ECS in several countries such as Trinidad<sup>3</sup>, the United States<sup>1</sup>, and the United Kingdom<sup>2</sup>. This increase paralleled that of an increase in early infectious syphilis in women<sup>1</sup>. A rate of 48/100-000 livebirths in our study is higher than the 39/100,000 and 22/100,000 livebirths reported in Texas<sup>5</sup> and the Mersey region, UK<sup>2</sup> respectively. It is well-known that ECS is often under reported and those abortuses and stillbirths due to syphilis may not be recognised and documented. Thus, the magnitude of the problem is higher than actually reported.

Mascola *et al*<sup>5</sup> (1984) found that mothers who were young (less than 25 years) and unmarried and those who received inadequate prenatal care were at risk of giving birth to offsprings with ECS. This could be related to their lower socio-economic status which precluded them from receiving adequate prenatal care. In the present study, a prominent factor associated with these patients was the lower socio-economic status (69%). Although 54% of the mothers in the present study were young (25 years or younger), all of them were married. Ethnic predisposition was one of the factors found in the USA<sup>5</sup> but this was not so in our study: only two were Indonesian immigrants who are known to harbour a number of infectious diseases. The recent precipitous increase in the number of ECS in New York City, USA was linked to the use of cocaine or "crack" among pregnant mothers, who often had multiple sexual partners and were less likely to have received prenatal care<sup>6</sup>. In our study, only one mother admitted to substance abuse during pregnancy and having had multiple sexual partners. This is expected to increase in the future as drug abuse is a major social problem in Malaysia.

Garland<sup>7</sup> noted that failure to detect ECS could be due to failure to perform a serological test on mothers presented in labour, or failure to repeat the test in the later part of pregnancy on mothers who were initially tested negative. Our study revealed that factors which were associated with ECS include inadequate/no prenatal

care, negative serology at booking and failure to repeat it in the third trimester and late reporting of results. Treatment failure was not a factor in our study.

ECS carries a high morbidity and mortality. A concerted effort must be made to prevent it. Stray-Pederson<sup>8</sup> demonstrated that the cost of screening for E.C.S. far outweighed the long term care for patients with congenital syphilis, including special educational need and institutional care, even in a population with an exceedingly low prevalence of maternal syphilis.

In the prevention of ECS emphasis should be placed on reducing the incidence of infectious syphilis in the community through public health measures – treatment of primary cases, contact tracing and their treatment.

Serological screening for syphilis in pregnant women should be continued, adequate follow-up ensured, their results reviewed and adequate treatment given if tested positive. Defaulters should be recalled and reviewed. The Centers for Disease Control, Atlanta, recommends a second screening test during the third trimester for high-risk women and follow-up must be ensured<sup>1</sup>. If a pregnant women presents at the time of delivery, serological screening for syphilis should be carried out and the result reported early<sup>1</sup>. The infant and mother should not be discharged from the ward before the results are known<sup>1</sup>.

Twelve of the babies were of low birth weight and 8/10 (80%) of the inborn had signs compatible with ECS. Thus, it is proposed that low birth weight infants should be carefully examined for clinical signs of ECS, and investigated and treated accordingly. Five (38%) of these babies had respiratory distress, 4 of whom needed mechanical ventilation and other supportive treatment. Although acute problems such as these required urgent attention, one should not overlook the co-existence of other conditions such as ECS. Two of the inborn neonates were missed as they did not have signs suggestive of ECS at birth and discharged before the VDRL/TPHA results were available. Early reporting of such results could have prevented the missed diagnosis.

### Conclusion

Early congenital syphilis is still a continuing problem in Malaysia, perhaps even on the increase. Prenatal serological screening for maternal syphilis must be continued and follow-up ensured. It should be repeated in the third trimester, say around 32-36 weeks gestation, for those high risk mothers. If a mother presents in labour, as an unbooked case, serological screening should be carried out. The results of the test must be made available early so that appropriate treatment can be instituted. Low birth weight infants should be examined carefully for evidence of ECS, even though they may have other acute problems, to avoid missing the diagnosis.

### References

- Centers for Disease Control. Congenital syphilis – New York City, 1986-1988. *MMWR* 1989;38 : 825-9.
- Ewing CJ, Proberts C, Davidson DC, Arya OP. Early congenital syphilis still occurs. *Arch Dis Child* 1985;60 : 1128-33.
- Ali Z. Resurgence of congenital syphilis in Trinidad. *J Trop Pediatr* 1990;36 : 104-8.
- Koh MT, Lim CT. Early congenital syphilis: Experience with 13 consecutive cases seen at the University Hospital, Kuala Lumpur. *Singapore Med J* 1990;32 : 230-2.
- Mascola L, Pelosi R, Blount JH, Binkin NJ, *et al.* Congenital syphilis – why it is still occurring? *JAMA* 1984;252 : 1719-22.
- Nanda D, Feldman J, Delke Z, *et al.* Syphilis among parturients at an inner city hospital: association with cocaine use and implication for congenital syphilis rates. *NY State Med J* 1990;90 : 488-90.
- Garland SM, Nigel Kelly V. Is antenatal screening for syphilis worthwhile? *Med J Aust* 1989;152 : 368-70.
- Stray-Pedersen B. Economic evaluation of maternal screening to prevent congenital syphilis. *Sex Trans Dis* 1983;10 : 167-72.