

## Original Research Article

# Clinico epidemiological study of secondary syphilis: a retrospective study from a tertiary care centre in Tamil Nadu

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## ABSTRACT

**Background:** Syphilis caused by spirochete *Treponema pallidum* is a bacterial sexually transmitted infection [STI] with protean manifestations. There is a rising trend of this disease due to changing sexual orientation and behavioural practices. The aim was to study the incidence, age, sex distribution, clinical presentation and serological findings of secondary syphilis in patients attending the Institute of Venereology in a tertiary care centre at Chennai.

**Methods:** Retrospective analysis of data of patients diagnosed as secondary syphilis who attended our institute over a period of 2 years from March 2015 and February 2017 was done. Complete epidemiological, clinical and investigational data were analysed.

**Results:** Among 57,316 patients who attended the STD clinic 459 patients were diagnosed to have syphilis. Among them 11.6% were found to have secondary syphilis with majority falling within the age group of 21 to 30 years. Among the 53 patients with secondary syphilis 94% were males, among which only 30% were married. Males having sex with males were affected more. Out of the various clinical presentations of secondary syphilis macular lesions was most commonly observed. Serological test done showed VDRL and TPHA positivity in 100% of patients with secondary syphilis.

**Conclusions:** There is increased prevalence of secondary syphilis among the males, especially among young unmarried males with homosexual orientation and promiscuity. Observations of this study emphasize the urgent need for implementation of programs to focus on sex education and counselling to the adolescents and young adults who tends to be the vulnerable population in the society.

**Keywords:** Syphilis, Secondary syphilis, VDRL, Annular syphilide

## INTRODUCTION

Syphilis, a great imitator of all diseases, is one of the major curable sexually transmitted infections having a worldwide prevalence of 0.5%, with considerable regional variation.<sup>1</sup> It is a disease of public health importance due its propensity to cause congenital infection. Recent years had witnessed rising trend in incidence of syphilis due to changing sexual orientation and behavioural practices.<sup>2-4</sup> This sexually transmitted

disease known for its prevalence in human kind since 15<sup>th</sup> century during which it began to spread across Europe after being introduced by Columbus's sailors who acquired it from new world.<sup>5</sup> There had been a decline in the prevalence of the infection in the past. However, in the recent years there is a resurgence of syphilis among the sexually transmitted infections though viral infections are considered to be common. This infection is known for its latency, chronicity and varied manifestations. Various stages of syphilis are primary, secondary, early latent,

late latent and tertiary syphilis. Studies have shown that secondary stage of syphilis has more clinical presentation.<sup>6,7</sup> In the background of resurgence of syphilis which tends to occur in varied prevalence in different regions, this study was undertaken to observe the clinico epidemiological and serological investigation findings in patients with secondary syphilis attending the STD clinic in a tertiary care centre in Chennai.

## METHODS

A retrospective detailed analysis of all the patients with secondary syphilis who had attended the STD clinic in our centre from March 2015 to February 2017 over a period of 2 years was done. Age, sex, occupation, literacy level, complaints, duration, past history, personal and sexual history of the study population was collected. Details of the various investigations like dark field microscopy, venereal disease research laboratory (VDRL) test, *Treponema Pallidum* haemagglutination assay (TPHA) and ELISA for HIV was noted.

Inclusion criteria included the age of the patients above 12 years and patient who had history of sexual exposure. Seropositivity of both VDRL and TPHA were included in

the study. The exclusion criteria were age less than 12 years, pregnant patients and patients without history of sexual exposure. All the data entry was done using Microsoft Excel 2010 software and statistical analysis was done by SPSS version 17.0.

## RESULTS

Among 57,316 patients who attended the STD clinic during the study period 0.8% had syphilis. Among these patients with syphilis 11.6% were diagnosed to have secondary syphilis (Table 1). Patients in the age group of 21 to 30 were the most common age group constituting about 60% of the total cases (Table 2).

### Sexuality and marital status

Among the 53 patients 24 men and all the 3 females were married. Homosexual behaviour was commonly seen in unmarried men being practiced by 80% of them while bisexuality and heterosexual behaviour was observed more in married men. Majority of the patients, nearly 70% were found to be promiscuous with the incidence being more common in unmarried (80%) compared to married individuals (60%) (Table 3).

**Table 1: Total census with breakup of sexually transmitted disease, syphilis and secondary syphilis.**

Period	Total census		Sexually transmitted diseases		Syphilis		Secondary syphilis	
	Male	Female	Male	Female	Male	Female	Male	Female
March 2015 to February 2017	35399	21917	1556	2017	372	87	50	3

**Table 2: Age and sex distribution.**

Age (in years)	Male	Female
12-20	5	
21-30	29	3
31-40	15	
41-50	2	
>50	0	

**Table 3: Sexual behaviour and marital status.**

Sexual behaviour	Male		Female	
	Married	Unmarried	Married	Unmarried
Homosexual	2	28		
Bisexual	8	4		
Heterosexual	5	3	3	
Promiscuous	9	28		

### Occupation and literacy level

Manual labourers were found to be the most common group (47%) followed by office workers and unemployed (21%) with professionals (11%) being the least affected (Table 4). About 45% of the patients had only middle to high school education background. Degree holders (32%)

were second common to be affected followed by professionals (11%) and those with primary school education (9%). There was only one uneducated male in the study group.

**Table 4: Occupation.**

Occupation	Male	Female
Manual labourer	25	
Office workers	11	
Professional	6	
Unemployed	8	3

### Mode of referral

Nearly 19% of patients had been referred by non-governmental organisations, while 17% reported on their own. Patients referred from other departments like General medicine, surgery and primary health centres were 36% and dermatology department were 28% respectively.

### Clinical features

The most common cutaneous lesion was macules in nearly 72% (Table 5) followed by maculopapular rash in

24%, plaques in 19%, genital ulcers in 17%, papules in 13%, annular lesion (Figure 1) in 6% and condyloma lata (Figure 2) in 6%. Regarding lymphadenopathy 36% had bilateral and painless nodes while 6% presented with painful nodes.

**Table 5: Clinical features.**

	Male	Female
<b>Genital ulcer</b>	9	-
<b>Macule</b>	38	-
<b>Papule</b>	5	2
<b>Maculopapular rash</b>	13	-
<b>Plaques</b>	9	1
<b>Annular lesion</b>	3	-
<b>Condyloma lata</b>	2	1
<b>Lymphnode-unilateral</b>	1	-
<b>Bilateral</b>	17	2
<b>Painless</b>	17	2
<b>Painful</b>	3	-
<b>Vaginal discharge</b>	-	3



**Figure 1: Annular syphilide.**



**Figure 2: Condyloma lata.**

With reference to the anatomical region (Table 6), the most common site involved was palms and soles (Figure 3) presenting with hyperpigmented scaly macules seen in 60%, over the scrotum (Figure 4) in 8% while the least involved site was mucosa in 4%. None of the patients in our study had hair or nail changes.

**Table 6: Site of involvement.**

Site	Male	Female
<b>Face and Neck</b>	4	
<b>Trunk</b>	15	2
<b>Palms and soles</b>	31	1
<b>Penis</b>	5	
<b>Mucosa</b>	2	
<b>Scrotum</b>	4	
<b>Hair and Nail</b>	Nil	Nil



**Figure 3: Syphilitic lesion on the soles.**



**Figure 4: Scaly patches over scrotum.**

## Investigations

*Treponema pallidum* demonstrated by dark field microscopy in only 20 patients (38%). This can be substituted for only 20 patients (38) of secondary syphilis had demonstrated *Treponema pallidum* by dark field microscopy.

## DISCUSSION

Many studies have shown that there is a rise in prevalence rate of syphilis in India.<sup>9</sup>

In our study the secondary syphilis reported among the syphilis patients were 11.6%. A study done by Nishal et al the secondary syphilis cases reported was about 41.76% in 2008 to 2012.<sup>10</sup> This disparity may be due to large number of patients screened in our study.

Young adults between the age group of 21–30 years constituted nearly 60% of the cases in our study. Jain et al has reported almost similar age group affected by syphilis.<sup>4</sup> The study by Nishal et al also shows more or less the same age group with maximum number of syphilis patients. One of the reasons for increase in number of cases in this age group could be due to internet and easy access to sexual contact through websites and high sexual activity in this age group.<sup>10</sup> About 74% of this 21–30 years age group were unmarried, most of them being homosexuals practising high risk behaviours. The females in our study belonged to the same age group and all were married. Re-emergence of syphilis had been well documented with the changing sexual practices particularly in association with spread of homosexuality.<sup>3,8</sup> The altered sexual behaviour in form of oro-genital and peno-anal contacts leads to varied clinical manifestation with more chances of oral and genital lesions.<sup>4</sup>

In our study most of the secondary syphilis cases were males (94%). Almost similar number of males was reported in the study conducted by Nishal et al. Only 6% of females were found to have secondary syphilis. The reason could be due to stigma of attending the STI clinics by females in our part of the country and asymptomatic nature of the disease in the females.<sup>4</sup> In western literature the male to female sex ratio are less than 2:1.

The clinical pattern of secondary syphilis in our study was predominantly macular lesions (72%) followed by maculopapular rash (24%), genital ulceration (17%) with condyloma lata and annular lesions (6% each). The previous study done by Kar and Nishal et al shows maculopapular rash as the most common manifestation.<sup>6,10</sup>

The commonest site of secondary syphilis were seen over the palms and soles in the form of macules in our study.

Spread of HIV infection also plays a major role in resurgence of syphilitic infection.<sup>4</sup> Concomitant HIV infection is associated with more severe forms of presentation with increased risk of neurological involvement. Lues maligna types of lesions were not seen in our study despite the presence of HIV coinfection in 23% of the patients. This could be attributed to the lack of severe immunological depression as most of them were on antiretroviral therapy and none of the patients were at end stage of AIDS.

Syphilis by itself was known to be great imitator of various clinical conditions from time being due its multi organ involvement which is seen even in the early stages of infection. This era of rising homosexual practices and HIV infection among adolescents and young adults may leads to altered clinical picture, further adding to the diagnostic confusion. Hence a very high index of suspicion combined with good sexual history, meticulous examination and serological testing may help in improving the diagnostic efficacy. Implementation of health programmes which focus upon behavioural intervention to reduce the high risk behaviours and to promote the consistent use of condom with proper use of health care facilities are essential to bring down the rising trend of syphilis among these vulnerable population.

## CONCLUSION

There is increased prevalence of secondary syphilis among the males, especially among young unmarried males with homosexual orientation and promiscuity. Due to varied morphology of skin lesions in secondary syphilis, patients having abnormal or suspected morphology of skin lesion should be screened for syphilis. Observations of this study emphasize the urgent need for implementation of programs to focus on sex education and counselling to the adolescents and young adults who tends to be the vulnerable population in the society.

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