

A Cross Sectional Study of Secondary Syphilis in A Tertiary Care Hospital

Authors:

Dr. Vaishali Makwana, Assistant professor, C.U. Shah Medical College & Hospital, Surendra nagar. 123vaishali123@gmail.com

Dr. Arti Patel, 3rd year resident (MD DVL), C.U. Shah Medical College & Hospital, Surendra nagar. arupatel999@gmail.com

Dr. A. P. Vyas, Head of Department, C.U. Shah Medical College & Hospital, Surendra nagar. aniruddhapvyas@gmail.com

Dr. J. N. Dave, Professor, C.U. Shah Medical College & Hospital, Surendra nagar. jndave48@yahoo.com

Abstract:

Introduction:

Syphilis is a multisystem disease caused by spirochete *Treponema pallidum*. Syphilis, the great imitator, presents with a wide range of mucocutaneous and systemic manifestations. Worldwide variety of clinical presentation and detection of rare morphological variants in 20th century has created diagnostic difficulty. Therefore, we have conducted this study to analyse demographic data, clinical presentation and correlated serological findings in patients with secondary syphilis attending sexually transmitted disease (STD) clinic at a tertiary care center. Method:

A retrospective cross-sectional study of the patients with secondary syphilis, detected at the STD clinic from August 2017 to August 2019 over a period of 2 years was done. Age, sex, occupation, education, complaints, duration, history of high-risk behavior, past history, personal, family and sexual history of the study population were recollected.

Result:

Among 3241 patients who attended the STD clinic during defined study period, 51 patients were diagnosed as secondary syphilis. Out of 51 patients included in the study, 40 patients were (78.4%) were male and 11 patients (21.6%) were female.

Most common age group was 21-30 years (47.1%). [Table 1]

Discussion and Conclusion:

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 trend of rising homosexual behavior and HIV infection

among adolescents and young adults may lead to altered clinical picture, further adding to the diagnostic confusion. Hence,

sexual history, careful examination and serological testing may help more increasing diagnostic accuracy. There is increased

prevalence of secondary syphilis among the males, especially among young males with heterosexual orientation.

In case of

lesions over perianal region and atypical presentation should raise suspicion of Homosexual behavior and contact should be

traced properly in this situation. There is increase need of awareness specially among females for early detection and

prevention of spread of sexually transmitted disease. Observations of this study emphasize the urgent need for

implementation of programs to focus on sex education and counseling to the adolescents and young adults who tends to be

the vulnerable population in the society.

Secondary syphilis is not uncommon entity, so in regular day to day practice as a dermatologist, we should not miss the

diagnosis in case of palmoplantar eczematous lesion and maculopapular rash over trunk.

Keyword: Syphilis, Secondary Syphilis, Tertiary Care Hospital, Cross Sectional Study

Introduction:

Syphilis is a multisystem disease caused by spirochete *Treponema pallidum*. Syphilis, the great imitator, presents with a wide range of mucocutaneous and systemic manifestations.

Various stages of syphilis are primary, secondary, early latent, late latent and tertiary syphilis. Studies have shown that secondary stage of syphilis may present with macular (Roseolar syphilide), papular, pustular, annular, follicular, nodular, papulosquamous, papuloulcerative (Rupoid syphilis), condyloma lata, split papule, noduloulcerative syphilide, Snail Track ulcer in mouth, Moth-eaten patchy alopecia over scalp & mimics many dermatological conditions.

Syphilis is transmitted through direct sexual contact, trans placental transmission, blood transfusion and sharing of needles. Although bacterial sexually transmitted diseases (STDs) have reduced in compare to viral STD since last 20 years. There is observation of re-emergence of syphilis is found in India as well as in western countries.^{1,2} The patients of secondary syphilis should be diagnosed and treated carefully to avoid spread of disease.

Worldwide variety of clinical presentation and detection of rare morphological variants in 20th century has created diagnostic difficulty. Therefore, we have conducted this study to analyze demographic data, clinical presentation and correlated serological findings in patients with secondary syphilis attending sexually transmitted disease (STD) clinic at a tertiary care center.

Method:

A retrospective cross-sectional study of the patients with secondary syphilis, detected at the STD clinic from August 2017 to August 2019 over a period of 2 years was done. Age, sex, occupation, education, complaints, duration, history of high-risk behavior, past history, personal, family and sexual history of the study population were recollected.

Details of clinical examination of lesions like size, shape, color, floor, base, margin, consistency, tenderness, bleeding on touch, pus discharge, number of lesions etc. were noted. Along with that data of lymph nodes and general examination also noted at the time of presentation. The various investigations like venereal disease research laboratory (VDRL) test, *Treponema Pallidum* haemagglutination assay (TPHA) and Enzyme-Linked Immunosorbent Assay (ELISA) for HIV were noted. In few cases where other diagnostic methods were employed like genital swab preparation, urine routine microscopic examination, crush smear, culture and sensitivity etc. were recorded.

Patient not willing for study and patients with age <10 years were excluded from the study.

Result:

Among 3241 patients who attended the STD clinic during defined study period, 51 patients were diagnosed as secondary syphilis. Out of 51 patients included in the study, 40 patients were (78.4%) were male and 11 patients (21.6%) were female. Most common age group was 21-30 years (47.1%). [Table 1]

Table 1: Age and sex wise distribution of cases

AGE GROUP	MALE	FEMALE	TOTAL
11-20 yrs.	2 (3.9%)	1(1.96%)	3 (5.9%)
21-30 yrs.	16 (31.4%)	8 (15.7%)	24 (47.1%)
31-40 yrs.	14 (27.5%)	0	14 (27.5%)
41-50 yrs.	4 (7.8%)	1 (1.96%)	5 (9.8%)
51-60 yrs.	4 (7.8%)	0	4 (7.8%)
61-70 yrs.	0	1 (1.96%)	1 (1.96%)
Grand total	40 (78.4%)	11 (21.6%)	51

Table 2: Secondary syphilis and occupation

OCCUPATION	Male	Female	Total
Student	1(1.96%)	1 (1.96%)	2 (3.9%)
Manual Laborer	32 (62.75%)	4 (7.8%)	36 (70.6%)
Office worker	3 (5.9%)	1 (1.96%)	4 (7.8%)
Truck driver	4 (7.8%)	0	4 (7.8%)
Unemployed	0	0	0
Retired	0	0	0
Housewife	0	5 (9.8%)	5 (9.8%)
Total	40 (78.4%)	11 (21.6%)	51

Table 2 shows that among 51 patients included in the study, manual laborers (n=36; 70.6%) were found to be the most common group, followed by truck driver (n=4; 7.8%) in males. In females most of the patients found to be housewives (n=5; 9.8%), followed by manual laborer (n=4; 7.8%).

Table 3: Clinical features

	MALE	FEMALE
Genital ulcer	18 (35.2%)	0
Maculopapular rash	10 (19.6%)	4 (7.8%)
Annular Plaque	5 (9.8%)	3 (5.8%)
Condyloma lata	2 (3.9%)	0
Lymphnode Unilateral	6 (11.8%)	4 (7.8%)
Lymphnode Bilateral	4 (7.8%)	2 (3.9%)

Table 3 shows that Out of 51 patients included in the study cutaneous lesion commonly found was genital ulcer 18 cases (35.2%) followed by maculopapular rash 10 cases (19.6%) in males & maculopapular rash 4 cases (7.8%) and plaque 3 cases (5.8%) in females.

With reference to the anatomical region, the most common site of involvement was penis 18 (35.2%) and least common was oral mucosa 2 (3.9%) in males and most common site was trunk 3 (5.9%) in females.

Table 4: Sexual behavior

Sexual behavior	Male	Female
Homosexual	08 (15.69%)	00
Bisexual	06 (11.8%)	00
Heterosexual	26 (50.98%)	11 (21.56%)

In our study it was observed that homosexual behavior was present in 15.69% males and bisexual behavior in 11.76% males.

Table 5: Marital status

	Male	Female
Married	27 (52.94%)	10 (19.60%)
Unmarried	13 (25.49%)	00
Others		1(1.96%)-widow

In our study total married cases were 37 (72.54%) with 27 (52.94%) male and 10 (19.60%) females.





Figure 1

Figure 1: (A) & (B) genital ulceration.





Figure 2: (A) & (B) palmo-plantar syphilide.

Figure 2





Figure 3

Figure 3: Erythematous annular plaques on palms and soles.



Figure 4

Figure 4: maculopapular rash on back.

Discussion:

The epidemiological profile of STDs all around the world has been changed since last 3-4 decades. In contrast to 1960 & 1970, when profound number of bacterial STDs were detected, now there is a constant rise in number of viral STDs since 1980.

This could be both due to the spread of HIV as an epidemic all over the world and also because of the changing sexual practices. Viral infections are dominating the STD world today,³ but in bacterial infection syphilis is emerging. Various studies have shown a rise in the prevalence of syphilis in recent years in India¹ as well as in the Western countries.² The rising trend of syphilis is noticed in Ireland. Similar observation of re-emergence of syphilis is made by pialoux et. al in france.⁴ Rising trend of syphilis at our institute during the year 2017 -2019 (16.6%). Similar results have been reported by Jain et al.³ & Shah, B.J et al.⁵ during the year of 2009-2012.

Young adults between the age group of 21–30 years constituted nearly 45.28% of the cases in our study. Studies done by Jain et al³, Chandran V et al⁶ and Shah B.J et al.⁵ have found almost similar age group affected by secondary syphilis.⁷

In our study most of the secondary syphilis cases were males (79.25%). Almost similar result was found in the study conducted by Nishal et al. (85.71%)⁸ and Jain et al. (70.9%)³

In this study female patients constituted 11 cases (21.6%) of total study population. Less number of females in our study could be due to asymptomatic nature of the disease, lack of knowledge of infectivity and stigma of attending STI clinic in our country.

Total 37 cases (72.5%) were married - 27 males (52.9%) & 10 females (19.6%). One female was widow & there was history of extramarital sexual contact in that female. In the study done by Nishal et al. (82.56%) cases were married.⁸

Premarital & extramarital sexual relations were significant risk factors noted in males, while marital sexual relations were a significant cause of infection in female.

Most common mode of transmission was heterosexual contact (72.5%), while there were 13 cases (15.6%) of homosexual behavior. In contrast study done by Chandra V et al.⁶ & Kumar et al⁹, where homosexual behavior was more common (80%) and (60.2%) cases respectively; Shah BJ et al.⁵ reported (22.7%) cases similar to our study. The difference in these findings can be due to behavioral changes in this group, stigma of homosexuality in society and local regional variation.

Among the men, secondary syphilis was observed highest in manual labourers (62.75%) followed by truck drivers (7.8%); and out of 11 females; 5 were housewives, 4 females were labourer, one female was student and rest one was office worker. In this group 9 female were married. All of them contracted infection from their spouse. To conclude, most common occupation encountered was labourer (70.6%), similar result was observed in Chandran V et al⁶ where manual labourer were most common affected population. In the study done by Kumar et al 33.33% cases consisted of labourers⁹. The reasons of high prevalence of syphilis in this occupation (labourers) are low level of education, poor living conditions and contact with commercial sex workers etc.

About 15 cases (35.29%) had their secondary level education, 22 patients (43.13%) had taken primary level education and 9 patients (17.64%) were illiterate. Two patients (3.9%) [Husband -wife] were graduate and were doing office job. Most of the cases belonged to rural area (66.6%). The study done by Chandran V et al⁶ reported 45% patients having middle to high school education, 32% graduates, 9% with primary school education and 1 uneducated patient in their study.

The clinical pattern of secondary syphilis in our study was predominantly genital ulceration (35.29%). The sites affected were coronal sulcus (n=9), glans penis (n=4) & shaft of penis (n=2). Ulceration with indurated edges were present in 10 cases & pus discharge was seen in 10 cases. Out of 18 cases of genital ulceration, 4 of them had painful ulcer. In females there was no case of genital ulceration detected. In study of Chandran V et al, there were 17% cases of genital ulcer in males and no cases in female⁶.

Second most common presentation observed was maculopapular rash over the trunk (27.45%) along with palmoplantar syphilides. The study done by Kar et al¹⁰ has observed maculopapular rash 62% as a most common clinical presentation. This result is different from our result. In this study, 15.68% cases (n=8) presented with erythematous annular plaques over trunk, palms, soles and scrotum. These lesions were difficult to differentiate from annular lichen planus, eczema etc. The diagnosis was confirmed by RPR titer > 1:08 and skin biopsy that showed epidermal hyperplasia with moderately dense superficial & deep perivascular infiltrate. The infiltrate was composed of lymphocytes, with some histiocytes and variable number of plasma cells.

There were 2 male patients presented with condyloma lata at perianal region. Both of them had history of Homosexual contact. Similarly, 2 male & 1 female patient had Condyloma Lata in the study done by Chandran V et al.⁶

11 patients were diagnosed as having secondary syphilis based on positive serology and asymptomatic nature. All of them were detected in routine blood screening during blood donation.

Total 48 patients (94.11%) have shown RPR reactivity with titers ranging from 1:08 to 1:128 in which most common titer 1:08 (29.41%) followed by 1:32 (23.5%) with TPHA reactivity in all patients. In 5.9% cases RPR titer was less than 1:08 but TPHA was positive. In those cases, we considered diagnosis of inadequately treated or past infection of secondary syphilis. RPR and TPHA both tests were analysed to excluded biological false positive. So, we concluded that confirmatory test such as TPHA should be performed with reactive RPR regardless of titer.

Spread of HIV infection also plays a major role in resurgence of syphilitic infection⁷. 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 co-infection in 15.6% 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 the 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 trend of rising homosexual behavior and HIV infection among adolescents and young adults may lead to altered clinical picture, further adding to the diagnostic confusion. Hence, sexual history, careful examination and serological testing may help more increasing diagnostic accuracy.

Conclusion:

There is increased prevalence of secondary syphilis among the males, especially among young males with heterosexual orientation.

In case of lesions over perianal region and atypical presentation should raise suspicion of Homosexual behavior and contact should be traced properly in this situation. There is increase need of awareness specially among females for early detection and prevention of spread of sexually transmitted disease.

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.

Secondary syphilis is not uncommon entity, so in regular day to day practice as a dermatologist, we should not miss the diagnosis in case of palmoplantar eczematous lesion and maculopapular rash over trunk.

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