

# Resurgence of Syphilis in a Tertiary Care Center in South India - A Retrospective Study

Ranjani Raju<sup>1</sup>, Muthukumaran Rajaram<sup>2</sup>

<sup>1</sup>Assistant Professor, Department of Dermatology, Venereology and Leprology, Coimbatore Medical College and Hospital, Coimbatore, Tamil Nadu, India, <sup>2</sup>Professor, Department of Dermatology, Venereology and Leprology, Coimbatore Medical College and Hospital, Coimbatore, Tamil Nadu, India

## Abstract

**Introduction:** Syphilis is a sexually transmitted disease (STD) caused by *Treponema pallidum*. Syphilis, the great imitator, presents with a wide range of mucocutaneous and systemic manifestations, which can mimic more diseases. Although there has been a rise in viral sexually transmitted infections (STI), syphilis still continues to remain a commonly diagnosed STI. It still remains a major public health problem with significant regional variations.

**Aim:** This study aims to study the rising trend of syphilis in a tertiary care center.

**Materials and Methods:** A 5-year retrospective study from January 2013 to December 2017 was conducted from the case records in the STD Outpatient Department, Coimbatore Medical College, Coimbatore. Patient's data, clinical photographs, and laboratory results were compiled and studied.

**Results:** Of 14,229 cases studied, 414 cases were diagnosed as syphilis. Among 414 cases, 46 (11.11%) had primary syphilis, 83 (20.04%) had secondary syphilis, and 285 (68.84%) had latent syphilis. There were 246 males, 85 females, and 30 transgender. Of 246 males, 104 had homosexual behaviors and 32 had bisexual behaviors. Of 85 females, 20 were antenatal cases. Syphilis and human immunodeficiency virus (HIV) coinfection were found in 89 cases.

**Conclusion:** Syphilis has shown a rising trend over the past 5 years. The major risk factors were increase in number of men having sex with men people having unprotected sexual intercourse and HIV coinfection.

**Key words:** Human immunodeficiency virus coinfection, Latent syphilis, Men having sex with men, Rapid plasma reagin, Secondary syphilis, Transgender, *Treponema pallidum* hemagglutination

## 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, which can mimic more diseases. Syphilis is transmitted through direct contact with an infectious lesion during sex. Other less common modes of transmission are mother to fetus, blood transfusion and sharing of needles. Around a third of sexual contacts with infectious syphilis will go on to develop the

disease.<sup>[1,2]</sup> It is an actively motile spirochete by means of flagella in the periplasmic space enabling to retain in joint, eye, and extracellular matrix of skin. This is important in invasion and dissemination.<sup>[3]</sup> The site of infection is usually the genitals in heterosexual patients, but 32–36% of diagnoses in men having sex with men (MSM) + may be at other sites (i.e., oral, rectal, and anal).<sup>[4]</sup> Acquired syphilis is divided into two stages: Early and late. The early stage can be subdivided into primary syphilis, secondary syphilis, and early latent syphilis. The late stage can be subdivided into late latent and tertiary syphilis,<sup>[5]</sup> cardiovascular, and neurosyphilis. The primary syphilitic ulcer (chancre) usually starts as a single papule with regional lymphadenopathy. Multiple lesions are more common in patients who are coinfecting with human immunodeficiency virus (HIV).<sup>[6]</sup> The ulcers usually resolve in 3–8 weeks.

Without treatment, one-third of infected patients will go on to develop systemic symptoms representing secondary syphilis

### Access this article online



www.ijss-sn.com

Month of Submission : 09-2018  
Month of Peer Review : 10-2018  
Month of Acceptance : 11-2018  
Month of Publishing : 11-2018

**Corresponding Author:** Muthukumaran Rajaram, Department of Dermatology, Venereology and Leprology, Coimbatore Medical College and Hospital, Coimbatore, Tamil Nadu, India, Phone: +91-9842290800. E-mail: muthu30051964@gmail.com

around 4–10 weeks after the initial chancre (ulcer).<sup>[7,8]</sup> This usually presents as a rash and widespread lymphadenopathy. It is most commonly diffuse, symmetrical; maculopapular rash involves the trunk and extremities (including the palms and soles). A pustular form can develop.<sup>[9]</sup> Mucosal surfaces may become involved, with large gray, highly infectious lesions (known as condyloma lata) developing in warm, moist areas such as the mouth and perineum. Secondary syphilis resolves in 3–12 weeks, at which point the disease enters the latent stage, defined as early latent within 2 years of infection and late latent thereafter. Transgender persons are biological males who dress and socially behave as females often stigmatized and may use sex for a living. They also constitute an important group for the transmission of syphilis.<sup>[10]</sup>

## MATERIALS AND METHODS

A retrospective study was done with analysis of the data collected from laboratory records in our sexually transmitted disease (STD) outpatient department (OPD) from January 2013 to December 2017. This study was done in the Department of Dermatology, Venereology, and Leprosy, Coimbatore Medical College, Coimbatore. It included all persons attending STD clinic, namely referral from Integrated Counseling and Testing Centre and Antiretroviral Therapy Centre, referral from target intervention non-governmental organization (NGO), and referral from antenatal clinic. Of the total sexually transmitted infections (STI) patients, the records of syphilis patients were analyzed thoroughly. The recorded clinical history (sociodemographic features - age, sex, occupation, education, and marital status) and clinical examination findings along with photographs of chancre, secondary syphilis skin and mucosal manifestations, stage of syphilis, and concomitant STI were analyzed in every case of syphilis. The results of rapid plasma reagin (RPR), *T. pallidum* hemagglutination assay (TPHA), and HIV coinfection were scrutinized in all cases. Latent syphilis was diagnosed by positive serology during screening. The various stages of syphilis in different patient populations were obtained clinically and serologically, and the percentage positivity was calculated each year.

## RESULTS

A total of 14,229 cases were studied in the 5-year study period from January 2013 to December 2017. Of these, 414 cases were positive for both RPR and TPHA [Table 1]. In the present study, the prevalence of syphilis increased from 35 (1.91%) cases in 2013 to 145 (2.78%) cases in 2017. The gender-wise distribution was analyzed in 414 cases. There were 246 males and 85 females, male-to-female ratio is (3.2:1) and 30 transgender [Table 2]. Of 246 males, 104 had homosexual behaviors (MSM) and 32 had bisexual behaviors (homosexual and heterosexual). Of 85 females, 30

were female sex workers. The association of HIV coinfection and antenatal sera positivity was analyzed [Table 3]. Of 414 patients, 89 patients were diagnosed to have HIV coinfection. Of the 85 females, 20 of them were antenatal patients. All the 20 antenatal cases had latent syphilis. The percentage of various stages of syphilis year wise was analyzed [Table 4]. There were 46 (11.11%) cases of primary syphilis, 83 (20.04%) cases of secondary syphilis, and 285 (68.84%) cases of latent syphilis. Primary syphilis presented with chancre in glans penis, shaft of penis [Figure 1] with bilateral lymph nodes. Secondary syphilis presented with macules in trunk [Figure 2], palmoplantar papules and pigmentation [Figure 3], condyloma lata [Figure 4], and one patient with HIV coinfection presented with features of malignant syphilis [Figure 5].

## DISCUSSION

Syphilis has shown a rising trend at our institute from January 2013 to December 2017. Majority of the cases found in our study were in the latent stage of syphilis followed by secondary and primary stage of syphilis. The increase in the number of latent stage of syphilis was due to inadequate antibiotic treatment and spouses of those with active disease with lack of barrier method of contraception. In our 5-year study period from January 2013 to December

**Table 1: Total OP cases and seropositive cases of syphilis**

Years	2013	2014	2015	2016	2017	Total
Total number of op. cases	1836	2054	1780	3344	5215	14229
RPR and TPHA positive	35	42	108	84	145	414

RPR: Rapid plasma reagin, TPHA: *Treponema pallidum* hemagglutination assay,

**Table 2: Male, female, and transgender distribution year wise**

Years	2013	2014	2015	2016	2017	Total
RPR and TPHA positive cases	35	42	108	84	145	414
Male	19	25	39	57	106	246
Female	10	10	18	21	26	85
Transgender	6	7	11	2	4	30

RPR: Rapid plasma reagin, TPHA: *Treponema pallidum* hemagglutination assay

**Table 3: HIV coinfection and antenatal seropositive cases**

Years	2013	2014	2015	2016	2017	Total
RPR and TPHA positive patients	35	42	108	84	145	414
HIV coinfection	14	9	21	22	23	89
Antenatal seropositive	1	1	5	4	9	20

RPR: Rapid plasma reagin, TPHA: *Treponema pallidum* hemagglutination assay, HIV: Human immunodeficiency virus

**Table 4: Percentage of various stages of syphilis**

Years	2013 (%)	2014 (%)	2015 (%)	2016 (%)	2017 (%)
Primary syphilis	7 (20)	8 (19.04)	10 (9.2)	7 (8.3)	14 (9.6)
Secondary syphilis	11 (31.4)	19 (45.2)	17 (15.7)	6 (7.1)	30 (20.6)
Latent syphilis	17 (48.5)	15 (35.71)	81 (75)	71 (84.52)	101 (70)



**Figure 1: Primary syphilis-multiple well defined ulcer with clean floor and indurated base in penis -chancre and few ulcer with secondary bacterial infection.**



**Figure 3: Hyperpigmentation present over both palms**



**Figure 2: Multiple hyperpigmented papules with few papules showing scales over the surface in arms and forearms (secondary syphilis)**



**Figure 4: Condyloma lata - moist papules and plaques with broad base and flat top lesions**

2017, the number of syphilis cases with MSM behavior is particularly increased. Some of the MSM groups were involved in exchange of money for sexual gratification (both for oral and anal intercourse). Exchange of money among MSM people has become a new trend. MSM people in the middle and higher socioeconomic status have easy access to internet, use internet chat rooms, and gay clubs to meet their partners.<sup>[11]</sup> A culture of alcohol consumption also exposes sexual risk-taking behavior. Coinfection with syphilis and HIV is common due to shared risk factors related to sexual behavior.<sup>[12]</sup> The trend toward increasing cases of coinfection

may be a reflection of increasing instances of unsafe sexual practices.<sup>[13]</sup> Syphilis has shown a rising trend in a tertiary care center in North India, in 2015.<sup>[14]</sup> The study in Ireland by Muldoon and Mulcahy showed 118.9% increase in syphilis (2007–2009) over 3 years.<sup>[15]</sup> Another study, the USA<sup>[16]</sup> and Sweden,<sup>[17]</sup> also showed similar observation.

The study in West Bengal showed decrease in the prevalence of syphilis during 2004–2008 from 10.8% to 3.6%.<sup>[18]</sup> An epidemiological study of STD in the past 5 years from January 2013 to December 2017 showed increase in percentage of viral STI herpes [24.2%], wart [23.2%], and decrease of syphilis cases [5.74%].<sup>[19]</sup> In our study, we found that there was increase in the STD OPD census and number of syphilis cases increased from





**Figure 5: Papules and plaques with ulcer and central necrosis - malignant syphilis**

35 (1.91%) in 2013 to 145 (2.78%) in 2017. The increasing trend of syphilis in our study attributes to improved surveillance system, leading to increased case detection.

## CONCLUSION

This 5-year retrospective study shows the resurgence of secondary and latent stages of syphilis in the STD clinics. MSM group of people is at increased risk. Most people approach quacks and private practitioners due to confidentiality concerns and stigma associated with STD clinics which, in turn, leads to increase in latent stage of syphilis. Exchange of money, access to internet, use of internet chat rooms, and gay clubs to meet their partners among MSMs are the added causes for the resurgence of syphilis. The efforts of NACO and other NGOs should continue to improve the surveillance rates. It is also essential to further spread awareness of the use of barrier methods of the contraception in prevention of STI transmission. Mobilizing the MSM community to take an active role in these efforts is crucial for their success. Training providers to improve their skills in diagnosing and treating syphilis, to screen sexually active MSM routinely for syphilis and other STDs, and to screen for STDs in conjunction with HIV counseling and testing is also critical for controlling syphilis among MSM.

## LIMITATION

Since this is a retrospective study and conducted in a tertiary care center, it does not reflect the current situation in the community. These results do not indicate the exact

prevalence of syphilis in the community as it is a hospital-based study.

## REFERENCES

1. World Health Organization (WHO). Global Guidance on Criteria and Processes for Validation: Elimination of Mother-To-Child Transmission (EMTCT) of HIV and Syphilis. Available from: [http://www.apps.who.int/iris/bitstream/10665/112858/1/9789241505888\\_eng.pdf?ua=1&ua=1](http://www.apps.who.int/iris/bitstream/10665/112858/1/9789241505888_eng.pdf?ua=1&ua=1).
2. Charon NW, Greenberg EP, Koopman MB, Limberger RJ. Spirochete chemotaxis, motility, and the structure of the spirochetal periplasmic flagella. *Res Microbiol* 1992;143:597-603.
3. Simms I, Tookey PA, Goh BT, Lyall H, Evans B, Townsend CL, *et al*. The incidence of congenital syphilis in the United Kingdom: February 2010 to January 2015. *BJOG* 2017;124:72-7.
4. Anderson J, Mindel A, Tovey SJ, Williams P. Primary and secondary syphilis, 20 years' experience 3: Diagnosis, treatment, and follow up. *Genitourin Med* 1989;65:239-43.
5. Hook EW 3<sup>rd</sup>, Marra CM. Acquired syphilis in adults. *N Engl J Med* 1992;326:1060-9.
6. Rompalo AM, Lawlor J, Seaman P, Quinn TC, Zenilman JM, Hook EW 3<sup>rd</sup>, *et al*. Modification of syphilitic genital ulcer manifestations by coexistent HIV infection. *Sex Transm Dis* 2001;28:448-54.
7. Baughn RE, Musher DM. Secondary syphilitic lesions. *Clin Microbiol Rev* 2005;18:205-16.
8. GJESTLAND T. The Oslo study of untreated syphilis; An epidemiologic investigation of the natural course of the syphilitic infection based upon a re-study of the boeck-bruusgaard material. *Acta Derm Venereol Suppl (Stockh)* 1955;35:3-68.
9. Hicks C, Clement M. Syphilis: Epidemiology, Path Physiology, and Clinical Manifestations in HIV-Uninfected Patients; 2017. Available from: <https://www.uptodate.com/contents/syphilis-epidemiology-pathophysiology-and-clinical-manifestations-in-hiv-uninfected-patients>.
10. Russell D. Sexually transmitted infections in transgender persons. In: Russel D, Bradford D, Fairley C, editors. *Sexual Health Medicine*. 2<sup>nd</sup> ed. Sydney: IP communications; 2005. p. 951-4.
11. McFarlane M, Kachur R, Klausner JD, Roland E, Cohen M. Internet-based health promotion and disease control in the 8 cities: Successes, barriers, and future plans. *Sex Transm Dis* 2005;32:S60-4.
12. Zellan J, Augenbraun M. Syphilis in the HIV-infected patient: An update on epidemiology, diagnosis, and management. *Curr HIV/AIDS Rep* 2004;1:142-7.
13. Buchacz K, Greenberg A, Onorato I, Janssen R. Syphilis epidemics and human immunodeficiency virus (HIV) incidence among men who have sex with men in the united states: Implications for HIV prevention. *Sex Transm Dis* 2005;32:S73-9.
14. Sethi S, Mewara A, Hallur V, Prasad A, Sharma K, Raj A, *et al*. Rising trends of syphilis in a tertiary care center in North India. *Indian J Sex Transm Dis AIDS* 2015;36:140-3.
15. Muldoon E, Mulcahy F. Syphilis resurgence in Dublin, Ireland. *Int J STD AIDS* 2011;22:493-7.
16. Schumacher CM, Ellen J, Rompalo AM. Changes in demographics and risk behaviors of persons with early syphilis depending on epidemic phase. *Sex Transm Dis* 2008;35:190-6.
17. Velicko I, Arneborn M, Blaxhult A. Syphilis epidemiology in Sweden: Re-emergence since 2000 primarily due to spread among men who have sex with men. *Euro Surveill* 2008;13:19063.
18. Maity S, Bhunia SC, Biswas S, Saha MK. Syphilis seroprevalence among patients attending a sexually transmitted disease clinic in West Bengal, India. *Jpn J Infect Dis* 2011;64:506-8.
19. Singh SK, Kumar N, Gupta AK, Mohan L, Sushantika, Mohammed A. An epidemiological study of sexually transmitted diseases at STD clinic, Gorakhpur. *Int J Res Dermatol* 2018;4:185-9.

**How to cite this article:** Raju R, Rajaram M. Resurgence of Syphilis in a Tertiary Care Center in South India - A Retrospective Study. *Int J Sci Stud* 2018;6(7):120-123.

**Source of Support:** Nil, **Conflict of Interest:** None declared.