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Clinics in Dermatology COVID-19: Important Updates and Developments
 Edited by Franco Rongioletti, MD, and Leonard J. Hoenig, MD

Syphilis and the COVID-19 pandemic: Did the lockdown stop risky sexual behavior? ☆



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Abstract Restrictive measures to contain the coronavirus disease 2019 (COVID-19) pandemic might produce different effects on other infective diseases, especially those affecting the most intimate sphere of sexuality. The epidemiology of syphilis could reflect the consequences of whether people are avoiding or not risky behaviors. To understand the course of syphilis during the COVID-19 outbreak, we performed a retrospective observational study of all new diagnoses observed at the STDs Service of the Dermatology Clinic at Cagliari, part of the Italian sentinel surveillance system. All incident cases diagnosed during the first 6 months of each year, from 2016 to 2020, thus including the recent lockdown period, were retrieved from the database. Of the 87 cases studied, 18 occurred during the first 6 months of 2020, almost all patients (88%) presenting with early phases of the disease and reporting unprotected sexual intercourse in spite of community containment and social distancing. Comparison with the previous 4 years found no significant statistical differences that hospital access and management limitations had not impaired the management of patients with syphilis. We alert the medical community of the possible increase of sexually transmitted diseases, as society returns to normal.

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Introduction

Sexually transmitted diseases (STDs) require efficient inclusive policies for prevention, early diagnosis, and treatment, more so during a global crisis, such as the coronavirus 2019 disease (COVID-19), which was declared on March 11, 2020, to be a pandemic by the World Health Organization (WHO).¹ Community containment through quarantine and social distancing measures to control the severe acute respi-

ratory syndrome coronavirus 2 (SARS-CoV-2) spread should have limited the circulation of STDs, in parallel; however, few, but controversial, data are available to understand the consequences on sexual behavior and STD epidemiology.

Lockdown measures might have affected a patient's referral to dermatologic STD centers for laboratory testing and availability of care.^{2,3} The few available surveys dealing with this topic found a decreased incidence in all STDs during the lockdown,^{4,5} whereas other reports indicated no significant change.^{6,7} Even less data are available specifically for syphilis.⁴ For these reasons, we have performed a retrospective observational study of all patients newly diagnosed at the STDs Service of the Dermatology Clinic at Cagliari, part of the Italian sentinel surveillance system, during the first 6 months of each year, from 2016 to 2020.

☆ <http://dx.doi.org/10.1016/j.clindermatol.2020.11.006>

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Table 1 Demographic characteristics of syphilis new cases observed at the Dermatology Clinic of Cagliari University, during first 6 months of the last 5 years

Demographics	2016	2017	2018	2019	2020
No. of cases	16	16	21	16	18
Mean age, y	33	39	43	47.5	42
Median age, y	31.5	39	41	45.5	38
Male/female	16/1	16/1	7/1	5/1	17/1
Primary syphilis	5 (32%)	4 (25%)	5 (24%)	4 (25%)	6 (33%)
Secondary syphilis	7 (43%)	8 (50%)	6 (28%)	3 (18%)	1 (6%)
Recent latent	3 (18%)	4 (25%)	8 (28%)	8 (50%)	10 (55%)
Late latent	1 (7%)	0 (0%)	2 (10%)	1 (7%)	1 (6%)

**Fig. 1** Primary syphilis of the glans penis in a 22-year-old man, and of the glans extending to the frenulum and foreskin in a 43-year-old man.

Materials and methods

All cases of syphilis diagnosed at the STDs Service of the Dermatology Clinic in Cagliari were retrieved from the database. The period of observation included the first 6 months of each year, from 2016 to 2020, thus including the recent lockdown period (Table 1). Data collected contained age, gender, stage of disease, previous STD(s), and sexual orientation. Statistical analysis was performed applying the χ^2 test for categorical variables and the *t* test for continuous variables. Our Ethical Committee approved these investigations related to infective disease monitoring in Southern Sardinia (S.A.R.DERM), PG/2007/5575.

Results

In the period of observation (the first half of each year from 2016 to 2020), 87 cases of syphilis were diagnosed (Table 1), of which 18 cases occurred during the first 6

months of 2020. The male/female ratio was of 17:1, and the mean age and median age were 42 and 38 years, respectively (range 22-72 years). Almost all patients presented with the early phases of disease: 33% of them had primary syphilis (Figure 1), 6% secondary syphilis (Figure 2), and 55% recent serologic reactivity. Only 6% of the patients were found to have late latent phase syphilis.

Most of the patients admitted that unprotected sexual intercourse had occurred during the lockdown. Compared with the previous 4 years, there was no significant statistical differences for the number of cases, age, male/female ratio, or stage of the disease; however, there was a slight increase of recent latent syphilis and a minimal decrease of secondary syphilis, especially compared with the 2018 numbers, where there had been a peak number of cases found.

Discussion

On March 9, 2020, a Decree of the Italian President of the Council of Ministers suspended all outpatients services,



Fig. 2 Secondary syphilis in a 40-year-old HIV-positive man.

including dermatology. Hospital access was permitted only for urgent visits from March 9 through May 4, after access has been significantly limited.

Our data, showing incidence of diagnosed new cases of syphilis during the first 6 months of the last 5 years, are only partially consistent with the literature. Data from Madrid and Rome suggest a strong decrease in STDs and a syphilis diagnosis during the lockdown, as a result of social isolation and closure of leisure venues, which has reduced the opportunity for casual sexual encounters.^{4,5} In northern Italy, the area most affected by the COVID-19 pandemic, the incidence of STDs, including syphilis, seems comparable with the number of patients diagnosed before the lockdown,⁶ whereas in Bologna the percentage of visits for syphilis, gonococcal pharyngitis, and inflammatory genital diseases had significantly increased, suggesting that the lockdown had not actually interfered with sexual activity.

The steady state of syphilis contagiousness in Cagliari metropolitan area, Southern Sardinia, maintained during the worst critical period of the actual pandemic, is worth several considerations. A positive aspect is that the restrictive measures adopted by the Italian Health Care System have not affected the patients' assistance for relevant STDs, such as syphilis, as urgent access was efficaciously maintained and care provided exactly as before the COVID-19 pandemic. Concern about patient fear for hospital access² or even denial of care seems unfounded in our community. It is likely that only the occasional diagnosis of late latent syphilis, characterized by the absence of clinical signs and symptoms, may have been delayed. The high percentage of patients (88%) with highly contagious syphilis suggests that social containment and lifestyle changes imposed to counteract SARS-CoV-2 infection did not limit the development of

infectious syphilis. The improved familiarity and availability of the Internet, coupled with the increased time spent alone at home, might have induced people to seek sex online in the "surface" and "dark" web.⁸ Telephone hotlines and smartphone apps, dedicated to dating and sexual meetings, seem to have continued unabated at full pace during the time of reclusion.

Several experts have observed that people having sex online are at high risk of promiscuous interactions, when the relationship moves offline.⁸⁻¹² The Internet is a common way to elicit friendship for men who have sex with men,¹⁰ and nondisclosing men who have sex with men increase the risk for infection of women and possible vertical transmission.¹¹ At this stage of the pandemic, we cannot predict how sexual risky behaviors will impact on the return to normal after the restrictions ease, but it would be reasonable to expect a surge of STDs. Sexually associated transmission of COVID-19 has even been postulated, as a result of person-to-person proximity and coupling with contact with body fluids.¹²

Conclusions

Despite the lockdown and the fear for SARS-CoV-2 infection, risky sexual activity has not diminished, and so the occurrence of syphilis in Cagliari has continued unabated.

Conflict of interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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