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Forty cases of acquired oral syphilis and a review of the literature

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Abstract. The aim of this study was to describe 40 cases of acquired oral syphilis (AOS) and to discuss the distribution of demographic characteristics, clinical features, and differential diagnosis of the disease. A retrospective study was conducted covering a 17-year period at a single institution in southern Brazil. Moreover, a literature review was performed through a search of the PubMed database for articles on AOS published between 1955 and March 2018. Data were analyzed descriptively. The predominant group within the case series was male patients in their twenties. The vast majority of cases (92.5%) were in the secondary stage of the disease. The lips were the most commonly affected site, with greyish-white mucous patches and reddish ulcers. In the literature review, the largest number of reported cases came from North America. Male patients in the third and fourth decades of life were most affected. AOS occurred more commonly as mucous patches and ulcers on the tongue and palate. Similarities regarding the distribution by sex, age, and anatomical location were found in the present study when compared to cases reported elsewhere. Clinicians, oral pathologists, and maxillofacial surgeons should familiarize themselves with the variable spectrum of signs and symptoms of AOS in their clinical practice to improve diagnosis and management.

Key words: sexually transmitted diseases; treponemal infections; chancre; syphilis; oral mucosa.

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There are various hypotheses about the origin of syphilis. Some have stated that the disease may have been documented by Hippocrates in Ancient Greece (600 BC)[1]. Others have argued that it was an old disease in the Old World, although it was confused with leprosy and possibly suffered mutations that made it more contagious in the 16th century[2]. However, the most accepted theory claims that the disease was brought from the Americas to Europe by the Italian navigator and explorer Christopher Columbus around 1492[3]. Various reports of syphilis have been described since the great spread by the army of King Charles VIII of France. Promiscuity and the houses of prostitution in Europe caused syphilis to spread rapidly at the end of the 15th century and the beginning of the 16th century, killing thousands of people[3].

Syphilis continues to be a global problem. The World Health Organization (WHO) estimated that 5.6 million new cases of syphilis occurred worldwide in 2012[4–6]. In recent years, there has been a significant increase in the prevalence of

infectious syphilis in the Western world[6,7]. Although this has been noted particularly in Europe[8], there is also a global trend, as observed in the USA[6] and in the countries of Latin America including Brazil[9].

Syphilis is an infectious disease caused by the bacterium *Treponema pallidum*[10–12]. Transmission occurs by sexual contact with infectious lesions, vertically during pregnancy, and by direct contact with contaminated blood[10–14]. Acquired syphilis can be classified into four clinical stages, i.e., primary, secondary, latent, and tertiary[10,11,13–16]. Acquired oral syphilis (AOS) in the primary, secondary, and tertiary stages may present as chancre, mucous patches, and syphilitic gumma. The diagnosis of AOS is made by clinical examination complemented by non-treponemal and treponemal serological tests. VDRL (venereal disease research laboratory) and RPR (rapid plasma reagin) are the non-treponemal assays most frequently used, while FTA-ABS (fluorescent treponemal antibody absorption), TPHA (*Treponema pallidum* haemagglutination), TPPA (*Treponema pallidum* particle agglutination), and MHA-TP (microhaemagglutination assay for *Treponema pallidum*) are the specific tests used[10,11,17,18].

The clinical diagnosis of AOS is often difficult since the condition may resemble a host of other disease entities and requires an increased level of suspicion on the part of clinicians, oral pathologists, and maxillofacial surgeons, as well as familiarization with the clinical manifestations of the disease[10,11,15]. Considering the importance of the oral manifestations of syphilis, the objective of the present study was to describe 40 cases of AOS and to discuss the distribution of demographic characteristics, clinical features, and differential diagnosis of the disease.

Materials and methods

Patients

A case series study was conducted on 40 patients with manifestations of oral syphilis and with positive VDRL and FTA−ABS serological test results[18]. The sample was composed of patients who had voluntarily presented to the Diagnostic Centre for Oral Diseases of the School of Dentistry, Federal University of Pelotas (RS, Brazil) between January 2001 and December 2017. Patients were examined and their data were collected by four different experts in oral and maxillofacial pathology and oral medicine, who had at least 20 years of experience. Disagreements between evaluators were resolved by discussion until consensus was reached. The study was approved by the Ethics Committee of the Federal University of Pelotas. The patients gave written informed consent for the publication of their cases in agreement with the Declaration of Helsinki.

The data were grouped according to patient age, sex, skin colour (white or non-white), duration of the complaint, symptomatology, anatomical location, type, and lesion staining (clinically), lesion size (determined according to the largest diameter in millimetres), and disease stage (determined according to the clinical data and laboratory results, and classified as primary, secondary, or tertiary)[13].

The sites involved were divided into the following categories: lips, labial commissure, palate (soft and/or hard), tongue (ventral and/or dorsal and/or lateral border), buccal mucosa (unilateral and/or bilateral), and gingiva and/or alveolar ridge. The diagnosis of syphilis was made on the basis of clinical data and serological tests. A positive non-treponemal test (VDRL) and a positive treponemal test (FTA-ABS) were required and considered for the final diagnosis. For the VDRL test, the results were visualized as reactive, weakly reactive, or non-reactive. For the FTA-ABS test, readings were scored by degree according to titration[18]. Exclusion criteria were lack of socio-demographic data and lack of information about the clinical features of the disease.

Literature review

The PubMed (National Library of Medicine) database was searched for articles on AOS in February 2018, considering reports published from 1955 to March 2018, using the following key words: ((((syphilis)[MeSH Terms]) OR (great pox)) OR (pox; great)) AND ((((((((((mouth)[MeSH Terms]) OR (oral cavity)) OR (cavity; oral)) OR (cavitas oris)) OR (vestibule of the mouth)) OR (vestibule oris)) OR (oral cavity proper)) OR (mouth cavity proper)) OR (cavitas oris própria)) AND (((((oral manifestations)[MeSH Terms]) OR (manifestation; oral)) OR (manifestations; oral)) OR (oral manifestation)). The titles and abstracts of all reports identified by the electronic searches were read independently by two authors (L.F.S. and J.A.A.A.).

The references retrieved in the search were exported to EndNote software (Thompson Reuters, New York, NY, USA). After removal of duplicates, the selection of studies was performed in two phases. In phase 1, titles/abstracts that met the eligibility criteria were included. If a title/abstract provided insufficient information for a decision about inclusion/exclusion, the full text was obtained and assessed in phase 2. Those that met the eligibility criteria were also included.

Inclusion and exclusion criteria

The eligibility criteria were case reports, case series, and retrospective or prospective studies on AOS. Studies in English, Spanish, or Portuguese were selected. For studies appearing to meet the inclusion criteria, for which information in the title and abstract was insufficient, the full report was obtained in order to make a clear decision. Disagreements were resolved by discussion between the authors. Exclusion criteria were articles on congenital syphilis, review articles, and studies in which the methodological approaches to syphilis were immunohistochemical, histomorphometric, genetic expression, histopathological aspects, or cytological, unless any of these publication categories reported cases with sufficient clinical information.

Data extraction and analysis

The authors independently extracted data using a specially designed data extraction form. Any disagreements were resolved by discussion. For each study included, the following data were extracted, when available: author and year of publication, country, number of cases reported, participants' sex and age, skin colour (white or non-white), anatomical location of the lesions (lips, palate, buccal mucosa, tongue, labial commissure, gingiva/alveolar ridge), clinical presentation (mucous patches, ulcer, nodule, macule, perforation), and stage of the disease (primary, secondary, latent, or tertiary).

The data analysis was performed using IBM SPSS Statistics version 25.0 software (IBM Corp., Armonk, NY, USA). Descriptive statistics (mean ± standard deviation, numbers and percentages) were used to characterize the cases regarding socio-demographic data and clinical features.

Results

Case series

The socio-demographic data and clinical features of the 40 patient cases are shown in Table 1. The survey included 24 men and 16 women, and the age group most represented was 20–30 years. The mean

Table 1. Socio-demographic data and clinical features of the sample.

Case	Age (years)	Sex	Skin colour	Duration of the complaint (days)	Anatomical location						Type of lesion	Lesion size (mm)	Stage
					Lips	Palate	Buccal mucosa	Tongue	Labial commissure	Gingiva/alveolar ridge			
1	29	M	White	30	1	0	0	0	0	0	Mucous patches + ulcer	20.0	Secondary
2	20	M	White	NR	1	0	0	1	0	0	Ulcer	35.0	Secondary
3	45	M	White	NR	1	0	0	0	0	0	Ulcer	NR	Secondary
4	23	F	White	NR	1	1	0	0	1	1	Mucous patches + ulcer	NR	Secondary
5	44	F	White	20	1	0	1	1	0	0	Mucous patches + ulcer	NR	Secondary
6	45	F	White	NR	1	0	0	0	0	1	Mucous patches + ulcer	NR	Secondary
7	25	M	White	NR	1	0	0	0	0	0	Nodule	NR	Secondary
8	37	M	White	60	1	0	0	0	0	0	Ulcer	NR	Primary
9	23	M	White	90	1	1	0	1	1	0	Mucous patches + ulcer	NR	Secondary
10	22	M	White	30	1	0	0	0	0	0	Nodule + ulcer	15.0	Secondary
11	58	F	White	60	1	0	1	1	1	0	Mucous patches + ulcer	20.0	Secondary
12	83	M	White	NR	1	0	0	1	0	0	Mucous patches + ulcer	10.0	Secondary
13	27	F	White	30	1	0	1	0	0	0	Mucous patches	NR	Secondary
14	50	M	White	NR	1	1	0	0	0	0	Ulcer	NR	Secondary
15	39	F	White	30	1	0	0	0	0	0	Mucous patches + ulcer	NR	Secondary
16	47	M	Non-white	150	1	0	0	1	0	0	Mucous patches + ulcer + macule	20.0	Secondary
17	20	M	White	7	0	0	0	1	0	0	Ulcer	10.0	Secondary
18	19	M	White	30	1	0	0	0	0	0	Ulcer	15.0	Primary
19	18	M	White	40	1	0	0	0	0	0	Ulcer	20.0	Secondary
20	53	M	White	30	0	0	1	0	0	0	Ulcer	10.0	Primary
21	26	M	White	NR	1	0	0	0	0	1	Ulcer	NR	Secondary
22	33	M	White	120	1	1	1	1	0	0	Mucous patches + ulcer	20.0	Secondary
23	25	M	White	60	1	1	1	1	0	0	Mucous patches + ulcer	NR	Secondary
24	18	F	Non-white	120	0	0	1	0	0	0	Mucous patches	10.0	Secondary
25	63	F	White	NR	1	0	0	0	0	0	Mucous patches	20.0	Secondary
26	40	M	White	NR	1	0	0	1	0	0	Mucous patches + ulcer	15.0	Secondary
27	32	F	White	45	0	0	0	1	0	0	Mucous patches	15.0	Secondary
28	61	M	White	NR	1	0	0	1	1	0	Mucous patches + ulcer	NR	Secondary
29	60	M	White	NR	1	0	1	0	1	0	Mucous patches + ulcer	30.0	Secondary
30	40	F	White	90	0	0	1	1	1	0	Ulcer	18.0	Secondary
31	21	F	White	NR	0	0	0	1	0	0	Mucous patches + ulcer	7.0	Secondary
32	36	F	White	90	NR	NR	NR	NR	NR	NR	Mucous patches + ulcer	NR	Secondary
33	51	M	White	15	0	0	0	1	0	0	Ulcer	NR	Secondary
34	23	F	White	60	1	0	0	1	0	0	Mucous patches	1.0	Secondary
35	20	M	White	20	NR	NR	NR	NR	NR	NR	Mucous patches	NR	Secondary
36	29	F	White	30	0	1	0	1	1	1	Ulcer	NR	Secondary
37	29	F	White	10	0	0	0	1	0	0	Mucous patches	10.0	Secondary
38	42	M	White	60	1	0	0	0	0	0	Mucous patches	NR	Secondary
39	38	F	White	60	0	0	0	1	0	0	Mucous patches	NR	Secondary
40	24	M	White	180	1	0	1	1	0	0	Mucous patches	NR	Secondary

F, female; M, male; NR, not reported.

age of the sample was 35.9 ± 15.1 years (range 18–83 years); the mean age of the men was 36.4 years and of the women was 35.3 years. White individuals (95.0%) were more affected than non-white individuals (5.0%). The duration of the complaint ranged from 7 days to 180 days (mean 58 ± 42.9 days). Eighteen patients had a single lesion and 20 patients had multiple lesions in the oral cavity. The anatomical location of the lesion was not reported in two cases. The lesions most often affected the lips ($n = 28$), followed by the tongue ($n = 20$), buccal mucosa ($n = 10$), labial commissure ($n = 7$), palate ($n = 6$), and gingiva/alveolar ridge ($n = 4$). Only two patients reported erythematous patches in other body regions.

The clinical aspect of the oral lesions mostly included the association of greyish-white mucous patches and reddish ulcers ($n = 15$), followed by reddish ulcers and erosions ($n = 12$), reddish mucous patches covered with a fibrinous pseudomembrane ($n = 10$), nodule lesion ($n = 1$), nodule and reddish ulcer lesion ($n = 1$), and reddish mucous patches with ulcer and nodule lesion ($n = 1$) (Fig. 1A–F). Pain was reported by six individuals and a burning sensation by two. The size of the lesions ranged from 1.0 mm to 35.0 mm, with a mean of 16.0 ± 7.6 mm. Regarding the stage of the disease, 37 (92.5%) patients were in the secondary stage and three (7.5%) were in the primary stage.

Additionally, eight patients were cigarette smokers and one was a crack smoker. One subject reported that he was HIV-positive. The provisional clinical diagnoses included syphilis (14 cases), granulomatous infections (paracoccidioidomycosis and leishmaniasis, in two cases each), and pemphigoid, adenocarcinoma, necrotizing sialometaplasia, Kaposi sarcoma, herpetic infection, and erythroplakia (one case of each).

Literature review

A total of 617 articles were retrieved in the literature review, and 554 were excluded. The remaining 63 studies (247 cases) were selected according to the inclusion criteria (Table 2)[7,10–13,15–17,19–73]. The studies were conducted on four continents: North America (112 cases), South America (69 cases), Europe (48 cases), and Asia (18 cases). The countries reporting the highest numbers of cases were the USA ($n = 90$), Brazil ($n = 68$), Italy ($n = 20$), and China ($n = 7$).

Demographic data and clinical features were not available in some cases. From the available data, the mean age of the cases reported was 39.5 ± 16.0 years (range 2–83 years) and the age groups most represented were 20–29 years and 30–39 years (i.e. the third and fourth decades of life). Of the cases reported in the literature, 131 were male (78.9%) and 35 were female (21.1%). Regarding skin colour, 51 were white (94.4%) and three were non-white (5.6%). Concerning the anatomical location, the tongue was affected in 105 cases (33.9%), the palate in 99 cases (31.9%), the lips in 53 cases (17.1%), the buccal mucosa in 42 cases (13.5%), and the labial commissure in 11 cases (3.6%). With respect to the clinical presentation, 108 (44.1%) presented as mucous patches, 74 (30.2%) as ulcers, 37 (15.1%) as perforations, 16 (6.5%) as nodules, and 10 (4.1%) as macules. Regarding disease stage, 132 cases (55.0%) were secondary syphilis, 77 (32.1%) were in the tertiary stage, and 31 (12.9%) were in the primary stage (Table 2).

Of 85 patients with information on serological tests for HIV, 30 (35.3%) were HIV-positive. Regarding sexual behaviour, 35 men reported sexual practice with men.

Discussion

The diagnosis of syphilis can be a challenge for clinicians, oral pathologists, and maxillofacial surgeons[6,10]. Oral health care providers must be aware of oral and systemic manifestations of this disease at any stage and refer cases they diagnose to specialized centres for sexually transmitted diseases (STD), in order to avoid the development of complications in the meninges, brain, spinal cord, cerebral and spinal blood vessels, and myocardium[74].

In the case series of Brazilian patients presented here, the patients were more often affected in the third decade of life (age group 20–29 years) and none of the case patients was <10 years of age. The literature review revealed that the affected individuals were most often in the third and fourth decades of life (age groups 20–29 years and 30–39 years). It is possible to infer that in countries with poor socioeconomic conditions, individuals start their sex life earlier and are therefore more exposed to STDs. This conclusion was reached by Kalamar et al.[75], who evaluated young people from low- and middle-

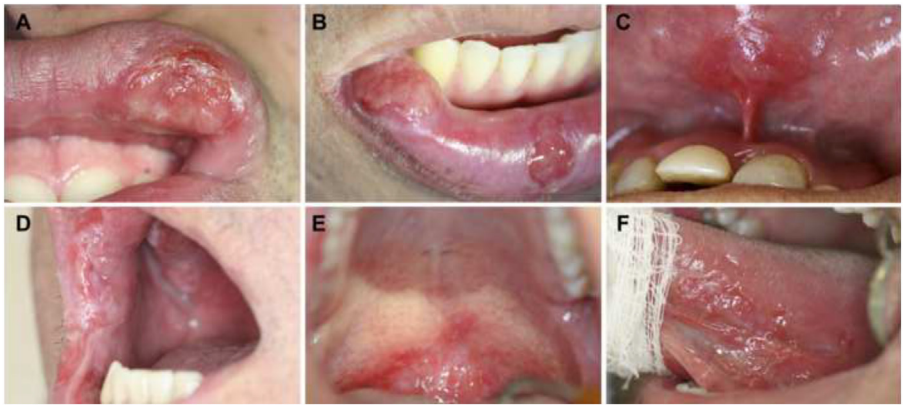

Fig. 1. Clinical aspects of oral acquired syphilis. (A) Chancre of primary syphilis; erythematous and ulcerated mass of the left upper lip. (B) In the lower lip, note the reddish erosion and nodular lesions covered with a fibrinous pseudomembrane of secondary syphilis. (C) Circumscribed reddish ulcer of secondary syphilis on the upper labial mucosa. (D) Extensive mucous patches presenting with erythematous areas of secondary syphilis in the region of the right labial commissure, and buccal mucosa showing greyish-white and reddish ulcers. (E) Irregular erythematous lesion of secondary syphilis on the soft palate. (F) Extensive irregular reddish ulcer covered with a fibrinous pseudomembrane of secondary syphilis in the left lateral border of the tongue.

Table 2. Demographic data and clinical features of the cases of oral syphilis retrieved in the present literature review.

Variable	*n* (%)
Sex[a] (*n* = 166)	
Male	131 (78.9%)
Female	35 (21.1%)
Ratio	3.7:1
Age[a] (decade of life) (*n* = 130)	
0–9	3 (2.3%)
10–19	6 (4.6%)
20–29	31 (23.8%)
30–39	31 (23.8%)
40–49	27 (20.8%)
50–59	14 (10.8%)
60–69	11 (8.5%)
70–79	5 (3.9%)
80–89	2 (1.5%)
Skin colour[a] (*n* = 54)	
White	51 (94.4%)
Non-white	3 (5.6%)
Number of lesions[a] (*n* = 130)	
Single	84 (64.6%)
Multiple	46 (35.4%)
Anatomical location[a,b] (*n* = 310)	
Tongue	105 (33.9%)
Palate	99 (31.9%)
Lip	53 (17.1%)
Buccal mucosa	42 (13.5%)
Labial commissure	11 (3.6%)
Clinical presentation[a] (*n* = 245)	
Mucous patches	108 (44.1%)
Ulcer	74 (30.2%)
Perforation	37 (15.1%)
Nodule	16 (6.5%)
Macule	10 (4.1%)
Disease stage[a] (*n* = 240)	
Primary	31 (12.9%)
Secondary	132 (55.0%)
Tertiary	77 (32.1%)

[a] Data were not available in some cases.
[b] This variable was not analyzed in terms of number of individuals, but rather in terms of number of lesions presented.

income countries and stated that risky sexual behaviour, condom use, and sexual activity are subject to social desirability bias. The changing epidemiology of oral syphilis reflects the decreasing use of barrier methods of contraception by adolescents and young adults[76]; moreover, these individuals have a higher risk of contracting sexually transmitted infections than those in other age groups[77]. Other authors argue that a false sense of security exists, originating from the concept that STDs are curable, and that this has led individuals to have a large number of sexual partners and also to maintain sexual promiscuity, mainly with condomless anogenital and oral sex among men who have sex with men (MSM)[10,78].

A predominance of the disease in male individuals was demonstrated in the case series presented (24 male and 16 female), in agreement with the present literature review, which revealed 131 male subjects (78.9%) among the cases reported (male-to-female ratio of 3.7:1). The discrepancy between the sexes may be explained by the fact that there is a higher risk of infection among MSM[78,79]. However, there was no information concerning the sexual behaviours and habits of the patients in the case series herein, a fact that represents a limitation of the study. Data retrieved from the review revealed a total of 35 cases with information on sexual practices among men. The authors believe that obtaining this kind of information is complicated in Brazil, where the stigma, discrimination, and intolerance of same sex behaviour are often more severe[80]. Moreover, two single-centre studies from Brazil[11,16] demonstrated that men were more often infected (83.3% and 73.3%, respectively), and a large case series from Mexico[19] showed that no woman was affected.

In the oral cavity, clinical features are often non-specific and lesions may not be synchronous with skin manifestations[10]. In the case series presented, the lips, tongue, and buccal mucosa were the most affected sites. In contrast, the literature review showed that the most affected locations were the tongue, palate, and lips. Primary syphilis is characterized by the chancre that develops at the site of inoculation, which becomes clinically evident 3 to 90 days after the initial exposure[6,7,10,74]. The upper lip is affected more frequently in males, whereas lower lip involvement predominates in females[20,74]. Some of these findings may reflect involvement during oral sex[13,21,81]. It is difficult to argue with these features, since only three patients in this study were diagnosed in the primary stage. Interestingly, the literature review showed a few cases in this stage. However, it should be noted that this stage is asymptomatic and symptoms resolve within a few days, so many patients do not seek any treatment[10,11]. Therefore, these cases can be misdiagnosed.

The second stage is known as secondary (or disseminated) syphilis and presents at 4 to 10 weeks after the initial infection[6,7,10,74,81]. Mucous patches, papules, and papillary lesions are the most frequent presentations[15,16,74,81]. In contrast to the isolated chancre noted in the primary stage, multiple lesions are typical of this stage[17,74]. Accordingly, half of the subjects in the case series were affected at multiple sites. In this study, 92.5% of the cases were diagnosed as having secondary syphilis. Only individuals in this stage presented a symptomatology, i.e., pain or a burning sensation, at a rate reaching almost 22%. These features are in strong agreement with those reported by Siqueira et al.[11], Pires et al.[16], and Ramírez-Amador et al.[19], who stated that almost all of their patients were diagnosed in this stage. Accordingly, the literature review revealed that 55.0% of the affected individuals had secondary syphilis, with mucous patches present in 44.1% of cases. However, data compiled from single reports should be interpreted with caution.

In 1967, Meyer and Shklar reported a large case series from the USA, with 68 of 81 cases (84%) presenting oral lesions of tertiary syphilis[73]. However, due to the treatment of syphilis with penicillin since 1940, a notable decrease of this stage may now be observed. Nowadays, this clinical condition is uncommon and arises in about one third of patients with untreated secondary syphilis[74]. Nevertheless, in the Indian subcontinent, some individuals with oral manifestations of this stage have been reported[60,65]. Oral features of tertiary syphilis have been characterized by gumma and atrophic luetic glossitis, and much more rarely by syphilitic leukoplakia (with the risk of oral squamous cell carcinoma)[73,74]. No case in this stage was diagnosed at the Diagnostic Centre for Oral Diseases of the School of Dentistry, Federal University of Pelotas.

The highest number of single case reports and case series was reported from the USA, which showed the largest number of syphilis patients with oral manifestations. Curiously, no case report of AOS from Oceania or Africa was retrieved from the PubMed database. However, epidemiological data have demonstrated that syphilis infection has remained endemic among Australian and African individuals[81,82]. In this context, the median syphilis rate in the African region (among seven countries) and in the Western Pacific region (among 10 countries), as reported by Global AIDS Response Progress Reporting (GARPR) in 2014, was 46.6 cases (range 23.5–452.4) and 93.0 cases (range 7.4–609.5) per 100,000 adult population, respectively[83]. Regarding the clinical features of AOS, similarities were seen across the four continents. South America, Europe, and Asia portrayed the secondary stage as more common, with mucous patches and/or ulcer lesions on the tongue, palate, and buccal mucosa. Since North America showed a high number of tertiary

stage cases, perforation and mucous patches were most present, with the tongue and palate being the more affected sites.

Oral syphilis lesions may mimic those of other groups of diseases, as shown in Fig. 2, hence the diagnosis remains a challenge. Health professionals, particularly clinicians, oral and maxillofacial pathologists, maxillofacial surgeons, and otorhinolaryngologists, should be familiar with the oral manifestations of syphilis and be prepared to include syphilis in the differential diagnosis of atypical oral lesions. The diagnosis is essentially made by serological tests[82]. The serological tests most frequently used are divided into non-treponemal and treponemal tests. The VDRL – a non-treponemal test – measures both IgG and IgM antiphospholipid antibodies formed by the host in response to lipoid material released by damaged host cells early in infection and lipid from the cell surfaces of the treponeme itself. FTA-ABS – a treponemal assay – uses *T. pallidum* or its components as the antigen[13]. The histopathological features are not conclusive and classically reveal perivascular infiltration by lymphocytes, plasma cells, and macrophages[4]. Therefore, the diagnosis in the present case series was always made on clinical and serological grounds, without recourse to biopsy. The treatment consists of antibiotic therapy, regardless of the stage, with parenteral penicillin being the drug of choice[81]. After diagnosis, the patients were referred to several hospitals throughout Brazil, a fact that precluded the retrieval of information about treatment and follow-up.

It is important to highlight that the number of syphilis-positive cases reported in this study may represent an underestimation, mostly because of STD-related stigma, which is the main cause of patient withdrawal and failure to return to the services to obtain the results of the requested tests. Another limitation of the present investigation was the lack of information about HIV-infected individuals. However, it is important to highlight that the presence of primary syphilis can facilitate the transmission and acquisition of HIV by up to five times, making it an important cofactor in the HIV epidemic[84]. There is a continuous trickle of case reports and case series suggesting that manifestations of syphilis may be more atypical or severe and likely to present with deeper or larger and multiple ulcers

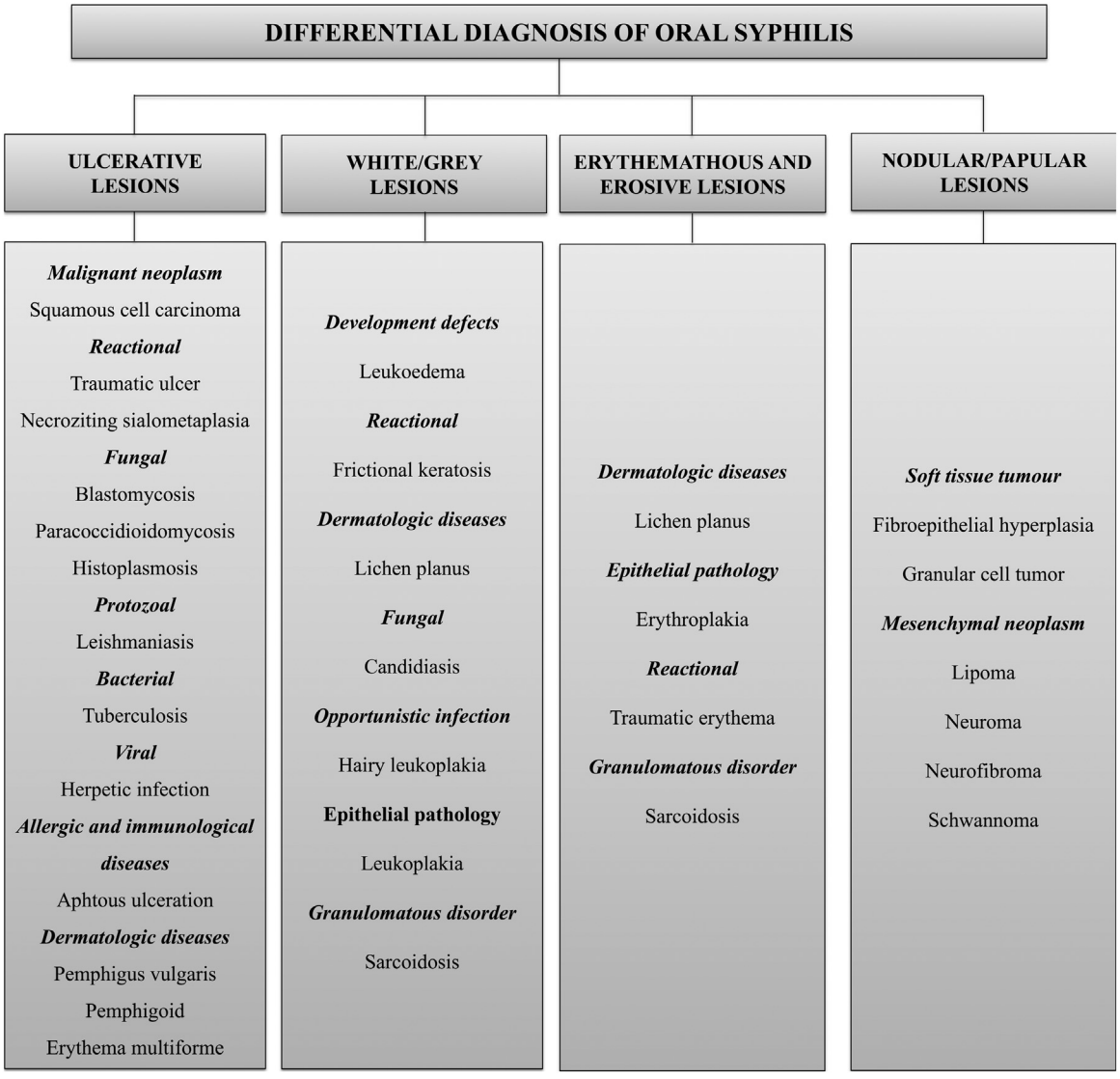

Fig. 2. Differential diagnosis of the oral clinical presentation of syphilis.

in the presence of HIV[10,84,85]. In the review presented, of the 85 patients for whom information about the performance of a serological test for HIV was reported, more than 35% were HIV-positive cases of AOS.

In conclusion, male individuals are more often affected by AOS than females. Depending on the stage at presentation, AOS has a variable spectrum of signs and symptoms. The case series revealed that young adults were more affected, with mucous patches and lip ulcers, in general agreement with the literature. Due to the increase in syphilis cases over recent years, this study provides information that could help clinicians, oral pathologists, and maxillofacial surgeons in the diagnosis and management of this disease.

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Competing interests. RAM is a research fellow of CNPq.

Ethical approval. The study was approved by the Ethics Committee of the Federal University of Pelotas (Approval No. 1.634.719).

Patient consent. The patients gave written informed consent for the publication of their cases in agreement with the Declaration of Helsinki.

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