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V.—MONILIA CANDIDA INFECTION OF THE MOUTH *

MOELLER'S DISEASE, PNEUMOCOCCUS INFECTION OF THE TONGUE, ETC.

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ST. LOUIS

J. B., aged 53, a heavy-set laborer, well nourished, entered the Barnard Free Skin and Cancer Hospital, Jan. 22, 1916, complaining of a sore mouth. He stated that the condition had existed for seven years. He did not know how the trouble began, but stated that he was a constant tobacco chewer. About four or five months before his entrance to the hospital he was injured in some way, and the cheek was nearly cut through.

He presented over the entire left side of the buccal mucous membrane, invading somewhat the right side, a thickened mat of whitish filiform projections which was sharply defined against the healthy mucous membrane. The appearance of the entire lesion was peculiar, looking at first glance like a form of leukoplakia. It mounted to the hard palate, sweeping over it and throwing out a peninsular extension to the right side and extended backward to the left pillar of the fauces. Here it was fissured, particularly at the angle of the mouth and at the junction of the buccal mucous membrane with the ramus of the jaw.

All of the teeth of the left side of the lower jaw had been extracted. The peculiar appearance of the lesion could be described best as a "frozen doormat" appearance, i. e., a doormat covered with frozen moisture as one frequently sees in the winter, the white filiform projections being thickly matted and of a white glistening appearance on a whitish macerated base. (See Figs. 1 and 2.)

* Studies, reports and observations from the dermatological departments of the Barnard Free Skin and Cancer Hospital and the School of Medicine, Washington University, St. Louis, Mo., U. S. A., service of Drs. M. F. Engman and W. H. Mook.

Scrapings from the lesion, prepared with potassium hydroxid in the usual way, disclosed a peculiar fungus which we thought at first to be some variety of the trichophyton group, but on further study we saw that it was something unique, and sent the cultures and smears to Prof. George Moore of the Missouri Botanical Gardens, who kindly furnished us with this report:

Fig. 1.—*Monilia candida* infection of the mouth.

"The fungus which you sent me is undoubtedly the Soorpilze of Plaut. While there have been some dozen names attached to this plant, I am inclined to think that Plaut's decision that it should be called the *Monilia candida*, as described by Bonorden, is correct. At least until it is more carefully studied, this is the name it should go under. It certainly is not a yeast and both microscopically and culturally it corresponds with the organism with which Plaut worked and which he described in his 'Neue Beiträge zur systematischen Stellung des Soorpilzes in der Botahik.'"

This fungus was constantly found and was so firmly engrafted on the lesion that we considered it the probable etiologic factor. No antiseptic mouth washes or applications affected its growth in any way. We did not take out a piece of tissue for fear of metastasis.

Fig. 2.—*Monilia candida* infection of the mouth.

Fig. 3.—Moeller's glossitis.

In the anterior portion of the lower jaw, at the junction of the gum with the buccal mucous membrane, was a raised infiltrated lesion about 2 cm. in diameter which looked very suggestive of a carcinomatous change. The lesion was raised and hard, and somewhat lobulated

along the edges of the gum. There were enlarged glands under the jaw on the left side. The Wassermann reaction was negative, and there was no history of syphilis.

As no local treatment seemed to affect the progress of the condition, the patient was put under anesthesia and the whole area was cauterized, which did not seem to delay the peripheral extension of the process; in fact, it seemed to accelerate rather than to retard it. It extended rather rapidly, involving the mucous membrane of the palate on the right side by a sharply defined raised border, leaving in

Fig. 4.—Pneumococcus infection of the tongue.

its wake the “frozen doormat” appearance, the fungus remaining constantly present.

Finally, the suspicious area on the left lower jaw became so markedly carcinomatous that an operation was performed. The patient dropped from sight then for some months, but has since returned and, only a few weeks ago, a final operation was done for the carcinomatous process of the mouth. This operation necessitated the removal of almost all of the lower jaw.

Although we have not demonstrated the etiologic relationship of this fungus to the condition in the man's mouth, we believe that the invasion of the fungus through its constant irritation for years was

sufficient to produce the so-called cancerous degeneration that so frequently occurs in any prolonged inflammation of the mucous membranes, and we present the case as unique in its clinical and bacteriologic aspects.

MOELLER'S GLOSSITIS

CASE 1.—Mrs. S. came for treatment for a sore mouth which she had had for nearly a year. The tongue and the buccal mucous membrane had, during the course of the disease, been so sore and painful that food could not be taken without great suffering. This condition was so marked that the patient had lost greatly in weight and was in a hysterical and almost desperate condition.

On examination, at the time of her first visit, the buccal mucous membrane of the right side presented migratory plaques of a mildly inflammatory con-

Fig. 5.—Pneumococcus infection of the tongue.

dition which seemed to be spreading peripherally by the raising up of a fine white line of epithelium in its progress, leaving in its wake a reddened inflamed area, extremely painful. These areas, according to the testimony of the dentist who accompanied the patient, would alleviate or, as he expressed it, "jump from one part of the mouth to another." There was also a similar lesion on the left side of the tongue. The dentist had applied the usual mouth washes and treatments of various applications without result. The patient was seen one week later and the following note was made:

The patient states that yesterday her mouth was apparently free from any disease when rather suddenly the burning sensation which usually precedes these attacks began. This was felt on the right side of the tongue and upper lip. This morning after experiencing these sensations the lip is swollen and the tongue presents some patches. On examination of this condition it is found that the right half of the upper lip is swollen and on the mucous membrane of the posterior surface of the lip there is an oval patch, 1.5 cm. in

diameter, with a slightly raised border of whitish epithelium, the whole of the remaining area being intensely red in color. On the tongue is an oval ridge enclosing an intensely reddened area. This ridge runs at right angles to the long axis of the tongue. These patches are very sore and burn so intensely that the patient states that she can eat only liquid food.

The lesions had the appearance of a parasitic infection, and we might have considered them as such had they not been so rapid in their spread. The diagnosis of Moeller's glossitis was made, and the patient

Fig. 6.—Chancre of the tongue.

Fig. 7.—Chancre of the tongue.

Fig. 8.—Early syphilis of the tongue.

was sent to the Barnes Hospital for a thorough overhauling. There the findings were absolutely negative as to any constitutional or inter-current disease. The roentgen-ray plates of the teeth showed several pus pockets, and smears of the pus from these pockets showed the endameba. Two diseased teeth were extracted, and under emetin and local treatment the pyorrhea disappeared. Since that time the patient has been absolutely well with no return of the disease.

This case is interesting in that out of the twenty cases gathered from the literature by Harris,¹ only three were reported as having recovered. The case above discussed recovered and the only possible etiologic factor discovered consisted of apical abscesses and pyorrhea.

Fig. 9.—Early syphilis of the tongue and oral mucous membrane with interstitial glossitis.

Fig. 10.—Early syphilis of the tongue and oral mucous membrane with interstitial glossitis.

CASE 2.—Mr. G. had the disease only on the tongue, but with the same clinical symptoms as the one above. The lesions are well shown in Figure 3. Unfortunately, we were not able to control this patient as we did the former one, and no results were obtained from treatment.

1. Harris, F. G.: *J. Cutan. Dis.* **33**:742, 1915.

PNEUMOCOCCUS INFECTION OF THE TONGUE

CASE 1 (Fig. 4).—This patient appeared at the dispensary, Nov. 7, 1917, complaining of a sore tongue. He first noticed blisters on the tip of the tongue, which became hard and leathery about six weeks before. He gave a history of having had syphilis some years before with syphilitic treatment ever since.

Fig. 11.—Late syphilis of the tongue.

Fig. 12.—Gumma of the tongue.

Examination of the tongue showed circinate white patches which were distinctly furry and definitely raised, involving practically the entire upper surface of the tongue. The center of the tongue almost had the appearance of "black tongue" in that the villous projections were covered by a dark brown or black material which was difficult to remove. On the tip there was a raised, hard plaque 1 cm. in diameter without furring. The mucous mem-

brane of the hard palate and the cheeks was involved in a similar manner, but these patches were grayish white. The Wassermann reaction was negative. Potassium hydroxid preparations were negative for fungi. He was given 0.5 gm. of arsphenamin without any effect on the lesions.

Scrapings from the tongue showed numerous epithelial cells, a very few Vincent's organisms, no diplococci and no fungi. Cultures, however, gave a nearly pure growth of pneumococci, among which were scattered a few colonies of *Micrococcus catarrhalis*.

The patient was called out of the city and we were unable to follow the case any further.

CASE 2 (Fig. 5).—The patient, a Chinaman, stated that for the last few months his tongue had been sore. He presented a serpiginous inflammatory

Fig. 13.—Gumma of the tongue.

process involving the anterior portion of the tongue, characterized by numerous tiny, circular papules, the entire process having a definite border which seems to be advancing. Potassium hydroxid preparations from the tongue were negative for fungi. Cultures showed numerous colonies of *Micrococcus catarrhalis*, the pneumococcus and a few thread-like organisms. It was impossible to determine the causative organism from the cultures but the findings in the previous case and the somewhat similar clinical appearance suggested that this case might also be a pneumococcic infection.

On this basis, the patient was treated with a solution of oxgall which has a dissolving effect on the capsule of the pneumococcus. A saturated aqueous solution of oxgall was painted on the tongue daily for four days with immediate relief of the burning and discomfort. The application was then continued every other day for only a few times, and the final result was a complete cure.

SYPHILIS OF THE MOUTH AND TONGUE

CASE 1 (Fig. 6).—*Chancre of the Tongue*.—This patient was seen for the first time April 4, 1916, complaining of a sore on the tongue. He did not know how he contracted it, but had suspicion that it might have come from kissing. He gave no previous history of a sore elsewhere on his body.

Fig. 14.—Gumma of the tongue.

Fig. 15.—Gumma and carcinoma of the hard palate.

Examination revealed an ulcer about 1.5 cm. in diameter on the right side of the tongue at the tip. The border was slightly raised and somewhat infiltrated; the base had a raw, red appearance with a grayish membrane at the border. There was a marked adenopathy of the submaxillary and lingual glands. Spread generally over the trunk was a maculopapular eruption, which had appeared six weeks after the sore on the tongue. The dark field examination for the spirochete was positive and the Wassermann reaction was 4+.

He was put on intensive treatment at once, and the lesions promptly disappeared. Although he was kept on treatment for a couple of months, he appeared at the office in December, 1917, with symptoms of central nervous system involvement. A spinal puncture was done at the Barnes Hospital, and the fluid showed increased pressure, a cell count of 246 mononuclears and

Fig. 16.—Tuberculosis of the tongue.

Fig. 17.—Tuberculosis of the tongue.

positive Wassermann and Ross Jones tests. He received 0.2 gm. of arsphenamin and daily injections of bichlorid of mercury, with complete rest in bed for a month. His improvement was marked and, when discharged from the hospital, the cell count had dropped to 30.

This case not only illustrates chancre of the tongue, but also the frequent early involvement of the nervous system in initial lesions of the head.

CASE 2 (Fig. 7).—*Chancre of the Tongue*.—This patient entered the hospital with a sore on the tongue of one month's duration. On the left side of the tip of the tongue was a destructive crateriform ulcer, very inflammatory. There was marked cervical and submaxillary adenitis but no secondary eruption was evident. The lesion healed very quickly on mercurial injections. At first glance the lesion looked like a gumma but the location, acuteness and marked adenopathy served to differentiate it.

CASE 3 (Fig. 8).—*Early Syphilis of the Tongue*.—The patient had very curious circinate and papular lesions on the tongue. Mercury by mouth was given with absolutely no effect on the lesions but the disease disappeared completely on injections of arsphenamin, to recur a month or so later when the arsphenamin was discontinued. The case is illustrative of mercury fast spirochete, a not uncommon occurrence.

Fig. 18.—Lupus erythematosus of the lip.

CASE 4 (Figs. 9 and 10).—*Early Syphilis of the Tongue and Oral Mucous Membrane*.—This patient entered the clinic May 29, 1918, and gave a history of having had a chancre followed by an eruption. He was treated for several months, and all the lesions cleared up with no trouble until the present time. The present trouble began about a month before we saw him when he noticed a soreness of the tongue. He presented thick mucous plaques on the oral mucous membranes, with special involvement of the tongue. The tongue was somewhat infiltrated with marked interstitial glossitis. On the left hand he also had large squamous infiltrated plaques. The Wassermann reaction was 4+, the lesions healing readily under antisypilitic treatment.

CASE 5 (Fig. 11).—*Late Syphilis of the Tongue*.—The patient stated that for the last five years he has had sores on his tongue. He presented several ulcerated serpiginous lesions, particularly on the border of the tongue. The tongue itself was very much thickened (interstitial glossitis) and presented numerous foul-smelling fissures. His Wassermann reaction was 4+ at the time he entered the Barnard clinic, May 14, 1917, and on treatment with arsphenamin, mercury and potassium iodid the lesions promptly healed and the Wassermann test was negative the last time he was seen, April 20, 1918.

The last two cases showed interstitial glossitis of syphilitic origin. This condition is rarely mentioned in the textbooks and, in our experience, it is rather common in both early and late syphilis of the tongue.

CASE 6 (Fig. 12).—*Gumma of the Tongue*.—The patient stated that from the time he had an infection of the tooth, two years ago, he has had a sore on his tongue. The tooth was pulled and the lesion cauterized by his family physician but it promptly became worse.

He presented a foul ulceration on the right side of the tongue near the tip, the border of the ulcer being somewhat rolled and very hard. He was put on treatment with arsphenamin, mercury, and potassium iodid and was very much improved when last observed.

Fig. 19.—Lichen planus of the tongue.

This case is illustrative of the fact that latent syphilis has a tendency to produce active lesions after a local irritation. The infected tooth irritated the tongue, and in this location a nest of spirochetes was started into activity, resulting in the formation of a gumma. The gumma had existed about two months and, had it remained much longer and suffered further cauterization, there is very little doubt but what carcinoma would have developed on top of the syphilis.

The location of the gumma in this case is unique, as it is situated on the border of the tongue and not in the center where gummata are usually found. The rather hard and glistening border of the ulcer raised the suspicion of epithelioma, but the response to the therapy instituted, substantiated the diagnosis.

CASE 7 (Fig. 13).—*Gumma of the Tongue*.—This patient stated that he had had a penile sore at the age of 6. No eruption followed, and he had had no further trouble until about six weeks before presenting himself, when nodules appeared on the forehead and tongue. He was 28 years old when first seen by us.

On the forehead were small gummatous nodules. On the dorsum of the tongue there was a raised, hard, nodular, painless mass; just posterior to this was a smaller, similar one. On the right edge of the tongue near the tip was an ulcerated nodule, very much infiltrated and painless. The entire dorsum of the tongue was deeply fissured. The ulcer on the edge looked very much like a chancre. The location in this, as in the last case, is unusual for

Fig. 20.—Lichen planus of the oral mucous membrane.

a gumma, but the absence of massive adenopathy and the concomitant symptoms make certain the diagnosis of gumma. All of the lesions healed very rapidly on mercury and arsphenamin treatment.

CASE 8 (Fig. 14).—*Gumma of the Tongue*.—In this case there was no history of syphilitic infection. In about the center of the left half of the tongue there was a nodule about 2 cm. in diameter which was raised about 5 mm. above the surface of the tongue. It broke down in three weeks, leaving a crateriform ulcer.

When first observed, the patient stated that the lesion had existed about ten days and that it had grown rapidly. From his statement, one might conclude that the lesion was a chancre. There was no massive adenopathy and dark field examination was negative. The Wassermann reaction was positive and the lesion healed rapidly on mercury and potassium iodid.

CASE 9 (Fig. 15).—*Gumma and Carcinoma of the Hard Palate*.—This case is illustrative of cancer superimposed on syphilis. The patient had a perforation of the hard palate, and surrounding this was a rolled, hard, elevated lesion that was plainly a cancer. His Wassermann reaction was 4+.

Fig. 21.—Leukoplakia of the tongue with beginning carcinoma.

Fig. 22.—Carcinoma of the tongue.

TUBERCULOSIS OF THE TONGUE (FIGS. 16 AND 17)

This patient was referred from the medical clinic, July 16, 1918, with a diagnosis of incipient pulmonary tuberculosis and with a request for a diagnosis of a lesion on her tongue. She gave a history of having had a small sore on the tongue about six or seven months previous, located in the center of the tongue and slowly growing worse. Another lesion, on the side of the tongue, began about four months ago and spread fairly rapidly.

In the center of the tongue, about 6 cm. from the tip, the patient presented a ragged ulcer about 1.5 cm. in diameter and surrounded by a granulomatous infiltration, slightly elevated and soft to the touch. On the right side of the tongue, involving practically the anterior two-thirds including both upper and lower surfaces, were two well defined concentric rings of granulomatous tissue, the surface of the tongue inside these rings being studded with tiny tubercles of a yellowish red color and from 1 to 2 mm. in size. The Wassermann reaction was negative and no biopsy was done for fear of disseminating the infection.

LUPUS ERYTHEMATOSUS OF THE LIP (FIG. 18)

This patient was first observed in May, 1913, when the lesions on the lip were thought to be leukoplakia. She was seen again in March, 1916, and the following observations were made: Practically the entire mucous mem-

Fig. 23.—Lingua geographica.

brane and vermillion border of the lower lip were involved in a red, excoriated and, in places, slightly scaly, inflammatory process with some maceration on the inner surface. The appearance was that so often described as "collodion painted on the surface."

LICHEN PLANUS

Lichen planus of the mouth is of very great importance, as it is sometimes the first indication of the disease. One of our cases existed two years in the mouth before it appeared on the wrist. Another had been in the mouth one year before appearing on the penis as the ring-formed papule, thus showing, as Engman and Mook have pointed out, the apparent similarity of certain clinical types of this disease to syphilis.

CASE 1 (Fig. 19).—*Lichen Planus of the Tongue*.—The patient, first seen on Sept. 28, 1916, presented a macular type of lichen planus with marked lesions on the tongue and mucous membranes of the cheeks. He cleared up completely on bichlorid of mercury injections and several recurrences in the following two years were cleared up with Asiatic pills.

CASE 2 (Fig. 20).—*Lichen Planus of the Oral Mucous Membranes*.—Little history is available, but the patient had a very severe type of papular lichen planus with the typical papular and lace-like lesions on the mucous membrane of the cheeks.

CARCINOMA OF THE TONGUE

CASE 1 (Fig. 21).—*Leukoplakia of the Tongue with Beginning Carcinoma*.—This case shows how much dependence can be placed on the statements of a patient, as the subject in this case stated that he had noted the lesions on the tongue only for the last two weeks, but on examination of the tongue, one could see two small carcinomas starting on a base of an old leukoplakia. The carcinomas must have been in existence for some months. The tongue

Fig. 24.—Benign plaques of the tongue.

presented almost the appearance of a geographical tongue (or scrotal tongue), being fissured, white and glistening, with areas of epithelial hypertrophy or leukoplakia and in the center, toward the tip, two distinct nodules which showed black in the photograph from their beginning excoriation.

CASE 2 (Fig. 22).—*Carcinoma of the Tongue*.—The right side of the tongue presented a very large cauliflower lesion of several years' duration. The right half of the tongue, all of the right cervical glands, and both submaxillary glands were removed by operative measures and radium was applied. The patient recovered from the operation, healing was uneventful, and he passed from observation.

LINGUA GEOGRAPHICA (FIG. 23)

This case was rather interesting and illustrates what trouble such patients can get one into when they are so unfortunate as to meet with careless and inaccurate serologists. This girl had a fine position when some one noticed her peculiar tongue and immediately told her that it must be syphilitic. She was referred by some physician to a serologist who returned a 4+ Wassermann reaction. Through various unfortunate coincidences that occurred at this time the girl lost her position and also her home, and was brought to the clinic by a social worker.

Two other serologists who were thoroughly tried and reliable returned a negative Wassermann report on repeated examinations. To any syphilographer the tongue would immediately be classified as a geographical tongue.

BENIGN PLAQUES OF THE TONGUE (FIG. 24)

This patient presented grotesque plaques which appeared and disappeared at irregular intervals, and which began in early childhood. The process began as a denudation of the epithelium with a raised white border, beginning at the tip of the tongue and gradually sweeping backward to about the middle, where it stopped; it then began again at the tip. The time for this excursion is from ten to fourteen days. Her Wassermann reaction was negative and the potassium hydroxid preparations were also negative.

Every conceivable diagnostic method was employed and nothing abnormal was found. The girl was in unusually good physical condition and a roentgen ray examination of the teeth revealed no pathology. Treatment had no effect whatever on the excursions of the plaques, although both local and internal remedies were tried.