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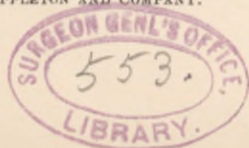
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REPORT OF THREE CASES OF  
XEROSTOMIA, OR DRY MOUTH.

By WALTER F. CHAPPELL, M. D., M. R. C. S. ENG.

THE writer's case of xerostomia was shown before the Laryngological Section of the Academy of Medicine in May, 1895; for the histories of the other cases he is indebted to Dr. Beverley Robinson and Dr. Charles H. Richardson of this city. An anonymous communication in the *Medical Times and Gazette* of November 21, 1868, gave the first history and symptoms of an affection which was subsequently called xerostomia by Hutchinson and Hadden, mouth dryness being about the only symptom in the first cases which came under their observation. Since then some twenty-three cases have been reported. Many of these have exhibited symptoms and trophic changes pointing to the central origin of the disease. Dr. Frazer, in the *Edinburgh Hospital Reports*, volume i, collected nineteen cases; thirteen of the patients had dryness of the mouth, three had dryness of the mouth and nose, one had dryness of the mouth and eyes, and two had dryness of the mouth, nose, and eyes. The teeth were absent in five of these cases, and their disappearance dated from about the time of the first symptoms of mouth dryness. In one case the

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teeth were well preserved. No note was made concerning the teeth in the remaining cases.

The history of the writer's case is of special interest, inasmuch as the different symptoms and changes reported in the various cases were all exhibited in one patient. Furthermore, the nature of the death is an added proof of the central origin of the affection.

Mary K., aged forty-six, native of Denmark, came to the throat department of the Manhattan Eye, Ear, and Throat Hospital on the 14th of May, 1894, complaining of dryness of the eyes, nasal fossæ, mouth, larynx, and trachea. Her family history was clear with the exception of that of her mother, who had suffered all her life with epileptic attacks, which occurred three or four times a year. Personal history was free from any known rheumatic or specific affection. She married at twenty-two, but had no children, and enjoyed perfect health until five years ago, when she began to have dry sensations in the eyes and nose which obliged her to rub the parts considerably at times. The attacks were much intensified during the menstrual period, and markedly lessened between the periods; so much was this apparent that about the middle of the month the dryness lessened to such a degree that it caused little discomfort. As time progressed the dryness increased and extended to the mouth, tongue, pharynx, and larynx, and about the same time she noticed she had to urinate more frequently than usual. About four years after the onset of the mouth dryness the parotid glands began to swell; at first they were not tender, but a little later they would suddenly enlarge at times and become tender, and after two or three days gradually subside.

*Condition on Visiting the Hospital.*—General condition good, but she seemed nervous, talking fast and expressing herself in exaggerated terms, crying very readily, and altogether seemed in a condition bordering on hysteria. The dryness of the eyes, nasal fossæ, tongue, mouth, larynx, and trachea was complete and continuous, although the menstrual



period had ceased for two years. The dryness of the eyes was so intense that the rubbing necessary to produce relief caused the conjunctivæ to become very red. The nasal fossæ were clear. Mucous membrane of the septum and turbinals was pale, atrophied, and dry. The tongue was very red, and the buccal mucous membrane somewhat pale and dry and sprinkled with small portions of food which adhered to the surface and caused constant desire to drink and clean the mouth. All her teeth decayed and crumbled so much that they had to be removed about a year after the first symptoms of mouth dryness. She also complained of a troublesome dry cough which nothing but oily sprays could relieve. The epiglottis looked pale and anæmic, and the arytenoids very red and somewhat swollen.

A small white patch at the lower part of the interarytænoid space was thought to be adherent mucus, but proved to be a small superficial ulcer, which was accompanied by another, a short distance below, on the posterior wall of the trachea. The walls of the trachea were red and dry in appearance.

Both parotids were much enlarged, especially the right, and seemingly consisted of three or four nodular masses, which were hard and non-sensitive and resembled those of a patient with severe mumps. Submaxillary glands were also enlarged, and the lowest of the posterior chain of cervical glands. Stenson's duct was patent.

The bladder symptoms had gradually increased, and when she visited the hospital she had a constant desire to urinate. Constipation was extreme. The temperature was taken at her first visit and registered 100° F., and at frequent subsequent intervals it was never found to be less than 99° F. in the mouth. Mastication or the application or administration of different medicines never started any appreciable secretion in the mouth. Taste was considerably impaired, and only some of the most pungent solutions were immediately detected. The nasal mucous membrane and the conjunctivæ were also particularly non-sensitive, as ammonia, oil of mustard, and such remedies produced little reaction.

The treatment of the case during the three months she visited the hospital consisted in the use of general nerve tonics, iodide of potassium, pilocarpine—in fact, everything was done that it was thought might relieve the extreme dryness. The laryngeal and tracheal ulcers healed under applications of nitrate of silver. She ceased visiting the hospital early in August, 1894.

Her next visit was on February 4, 1895, and was the result of a communication I had sent her. She gave the following history: A few days after her last visit to the hospital she called at the house of a friend who had just died, and while there she became quite excited and suddenly lost the use of the left arm and leg. She did not completely lose consciousness, but for a few moments was unable to speak. For a time she was confined to her bed, but improvement gradually set in and she now has some power in her hand and arm, and also became able to walk with assistance. Her body was well nourished, but her will power was evidently much weakened and she wept constantly. The parotid glands had increased considerably in size, but the dryness of the upper respiratory tract was not so great. Two weeks after her appearance at the Academy of Medicine she became very drowsy, and could only be aroused sufficiently to take nourishment. Eventually she became completely paralyzed on both sides, and died four weeks after I had shown her before the section of the academy. I regret to say a post-mortem was not allowed.

CASE II (reported by Dr. Beverley Robinson).—On November 20, 1894, Mrs. X. called upon me professionally, sent by Dr. Demorest, of Passaic, N. J. She complains of an almost constant pain in the roof of her mouth. This pain has lasted several years and came on soon after a severe attack of grippe. Many medicines and washes have been tried without notable good effect. It has been considered to be a local manifestation of gout. This opinion was regarded as doubtful by other competent clinicians. Unquestionably she has other manifestations of gout—*i. e.*, enlarged and painful joints, particularly those of her fingers, and these joints have

been made less painful by reason of antarthritic remedies. Patient has always been of spare habit, but remarkably active. She suffers from occasional pain in her temples and eyes. No organic disease has ever been discovered.

Repeated examinations of the urine have shown it to be normal. She raises occasionally a little thick phlegm which looks like boiled starch. The principal pain at the roof of the mouth is to one side of the median line. The gums are swollen. Patient is obliged to put a piece of brown paper against the painful region at bedtime to prevent contact with the tongue. She takes water frequently at night to relieve the buccal dryness. Formerly she was relieved a short while by mastication of food. Now, as soon as she stops eating, pain returns. Anything held in the mouth that excites salivation relieves her. She chews gum mainly because it is softer than most other useful substances. Patient has a floating kidney on the right side.

I gave the patient a solution of chlorate of potassium internally, hoping in this way to awaken the secretion of the salivary glands, and also prescribed tablets of tincture of strophanthus with the idea of strengthening her heart action. She returned in four days and told me that the potassium apparently increased the buccal pain. I repeated the chlorate-of-potassium solution, however, but advised her to take it in very small doses, well diluted. The strophanthus tablets were also continued. Patient was advised to hold wine of coca in the mouth to see if any lessening of the pain could be obtained. It remained without effect.

*November 28th.*—Urine again examined. No sugar; no albumin. Passes rather more than a quart in twenty-four hours; quantity variable, especially when feeling badly. Has headaches every three days. Patient believes them to be of rheumatic origin. Suffers at night from distention of stomach and bowels with gas. This distention is relieved with camphor internally.

*December 5th.*—Mouth dryness almost intolerable at times; has been worse since she took chlorate of potassium and strophanthus. Has taken cod-liver oil lately after meals,



which improved her general condition and relieved her headaches. Mouth dryness and pain, however, are as bad as ever. Patient took colchicine and salicylate of sodium during three months without doing her mouth any good; was of evident service so far as joints were concerned. The use of olive oil, three parts, and oil of wintergreen, one part, locally applied to the mouth gives slight temporary relief. Has had stomach lavage. This appeared to relieve her headaches, but did not affect the pain in the mouth, jaw, or tongue, where it now is.

20th.—Patient took a little brandy and water the other day and her mouth has been more painful ever since. Thinks the bad condition of her stomach caused it. I tried her with frequent doses of calomel, soda, ipecac, and bismuth, but with no result.

In reply to a note from me the patient writes from Morristown, N. J., that she has been under Dr. Barker's care since she last saw me, but there has been no improvement; in fact, she says, "I fear it grows slowly worse."

CASE III (reported by Dr. Richardson).—Miss X., aged sixty, applied to me for treatment of her condition in January, 1893.

The following history was given: Several years previously the patient had sustained a severe nervous shock. A sister had been stricken with a fatal apoplexy in her presence. For the four succeeding years Miss X. was an invalid and under medical care for nervous prostration. She suffered much from headache and insomnia and had attacks of intermittent deafness. She acquired the habit of taking camphor, eight to ten drops of the tincture several times daily. About the fall of 1890 the teeth began to crumble and decay, necessitating the extraction of nearly all. At this time also was the dryness of the mouth first noticed. She could no longer moisten a postage stamp sufficiently to make it stick.

When she came under my observation she was markedly neurasthenic. The mouth was dry. The mucous membrane was rather pale. She swallowed dry food with extreme difficulty and used frequent draughts of water to facilitate deglutition. There was no change apparent, either to sight or



feeling, in the salivary glands. She passed a large amount of pale urine of low specific gravity, 1.004 to 1.006, without casts. Neither galvanism nor faradaism of the glands produced any appreciable result.

Pilocarpine in small, repeated doses, a fifteenth to a tenth of a grain every two to three hours, produced a fair amount of moisture in the mouth.

She has been kept on general tonic treatment for the past three years, and while her general health has improved the dryness of the mouth remains the same.

In order to have some standard by which I might roughly determine the amount of moisture present in the mouth, I devised a test paper as follows: Some ordinary blue litmus paper was rubbed over with finely powdered and absolutely dry tartaric acid. This produced no change in the color of the paper, but when applied to the moist normal tongue it *instantly* became of the characteristic red. In the case which forms the basis of this report this test paper applied to the dorsum of the tongue required forty seconds' application before the characteristic change was developed. On the floor of the mouth, by the orifice of Wharton's duct, where in the normal mouth there is usually a little lake of saliva, thirty seconds were required to change the color.



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FRANK P. FOSTER, M.D.

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