THE ROLE OF THE TEETH AND TONSILS IN THE CAUSATION OF ARTHRITIS

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JOSEPH F. HAWKINS

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MOTTO:
DUM SPIRO, SPERO; CUM NOTIS VARIORUM.

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THE Trustees of the Fiske Fund, at the annual meeting of the Rhode Island Medical Society, held at Providence, May 31, 1917, announced that they had awarded a premium of two hundred dollars to an essay on "The Role of the Teeth and Tonsils in the Causation of Arthritis," bearing the motto:

"Dum spiro, spero; cum Notis variorum."

The author was found to be DR. JOSEPH F. HAWKINS, of Providence, R. I.

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The Role of the Teeth and Tonsils in the Causation of Arthritis.

That the absorption of chemical toxins from micro-organisms can and does produce serious pathological lesions in the organs, glands and joints of the body is an established and accepted fact by the medical man who is abreast of the latest research in experimental medicine.

To have an acute tonsillitis the initial event of an acute rheumatic attack is so common that it is now generally accepted as a clinical fact, and, upon minute history taking, one will find it in the majority of cases. As far back as 1798 Eyerlen[1] noted that not only in primary attacks of rheumatic fever, but in subsequent attacks, there was a history of tonsillitis preceding. Other observers have noted this fact and recorded their opinions:[3] that they found sore throats as a precedent in from 1.5% to 80% of the cases. It is evident to every clinical observer that, many times, a constant forerunner of almost any systemic disturbance is of so slight importance that it may be overlooked or not mentioned by the patient unless brought out by the questioning of the physician; while, on the other hand, there might be quite serious disease in or about the teeth and tonsils, with little or no local manifestation. Tonsils are

removed in children usually on account of their size. They are obstructive mechanically. In adults the tonsils may be small, even to being completely submerged out of the line of vision of the observer, yet be an infected, toxin-producing, chronic poisoning source of various vague pains, and would never be removed for the same reason as in childhood, but when removed, have proved to have been the grave menace just mentioned. Recent writers, employing better methods of examining the teeth and tonsils, are finding many more cases of arthritis when these organs are diseased than formerly. Goadby,[4] and others, report cases of polyarthritis originating in pus pockets about the teeth, and all are apparently agreed, at this time, that the most frequent port of entry is there or through the tonsils. As far back as 1904 Gürich,[5] who, by the way, believed that joint symptoms, endocarditis, pericarditis, pneumonia, myocarditis, pleurisy, and all the other complications of an acute rheumatic fever, were all the result of metastases from a primary focus elsewhere in the body, was the first to attempt systemic treatment of acute rheumatic fever through the tonsils. He reports 12 cases of tonsillitis and four of peritonsillar abscess preceding the appearance of the acute arthritis, and 14 cases where plugs were seen in the crypts. A year later he reported[6] 140 cases of acute and chronic arthritis treated by tonsillar therapy, with 98 cures and 23 cases unaffected by the treatment, which consisted

of making parallel incisions through the tonsils and curetting the tonsillar tissue. Enucleation was not done at that time. Four years later Rosenheim[7] reported 10 cases of acute articular rheumatism treated by tonsillectomy and he was probably the first to enucleate the tonsils in acute rheumatic fever. One year later Hess[8] stated he thought acute follicular, phlegmonous, catarrhal tonsillitis or quinsy ushered in attacks of arthritis, and emphasized the importance of the tonsils in the etiology of the disease, but did not resort to surgical treatment of the tonsils. One year later still, 1910, Schichold[9] reported 70 cases, and called attention to other sources than the tonsil, and particularly mentioned the sinuses and the teeth.

Among the latest organisms to be studied in relation to arthritis is a small gram negative diplococcus, first observed by Connellan in 1914, while examining extracted teeth for Hasbrouck and Palmer, and now known as the Connellan-King diplococcus. He was searching for Endamoeba buccalis, and on examining abscesses situated upon the roots of many of the teeth found the Streptococcus viridans, and Streptococcus hemolyticus; also a gram negative diplococcus which he had never seen before, nor could he find anything in the literature calling attention to this organism. King made cultures from other parts of the mouth and throat, and the new organism was found in the crypts of the tonsils and around the teeth. It is a typical bean-shaped, gram negative diplococcus,

slightly smaller than the gonococcus when it has attained its maximum growth on its best growing medium, which has been found to be human blood agar with a little veal serum added. It has a characteristic appearance on the medium, the colony being a light dull yellowish brown with a rounded contour, about the size of staphylococcus albus, growing best at a temperature of 39°-40° C.

Dunham, Van Lingelshein, Elser and others have reported several gram negative organisms found in the mouth and in other parts of the body, but this organism does not compare with them and *has never been found outside the mouth and throat*, after over three years' searching investigation. It is necessary, in preparing the medium, to use the titration method, and the acidity must be 0.2% or less.

With the Hiss sugar serums no reaction occurred except coagulation of albumen, showing it is not a gas producer, and thus accounting for the absence of pain in the teeth, where it was found in the apical abscesses.

Cultures have been made from the ear, nose and accessory sinuses, but all have been negative for this organism. When found it has been in a tonsillar crypt, or some sinus in the tonsillar fossæ after the tonsils have been removed, or around the roots of teeth; partially anærobic chambers. It is not pyogenic, but is a powerful toxin producer; causes local infection, and is non-infectious for the general blood stream.

Many arthritic or so-called rheumatic joints in which this organism was suspected to be the cause, were aspirated: blood cultures have been made from patients in whom it was found and all have been negative for the organism. A similar condition is met with in the Tetanus and Klebs-Loeffler bacilli. It grows best in the presence of moisture. Clinically, the throats in which it is found are also moist and have other characteristic appearances. The mucosa is darker than normal, of a purplish, unhealthy hue, and the tonsils are usually rather small and submerged, with a brownish yellow serum exuding from their crypts. While the subject of the treatment is not under consideration here, if we are to prove our case and make good the claim that arthritis is produced, in many instances at least, by a focal infection from the teeth and tonsils and would be and are relieved or cured by the elimination of that focal infection, it must be shown that cases of arthritis are relieved or cured by the removal of infected tonsils and teeth. This has been done by many accurate observers. These have been freely quoted throughout this essay and the author will personally reminisce upon one. Dozens could have been quoted as easily. Not from psychic females open to suggestion and relieved by the same, but by strong men and innocent children who knew not the meaning of the word psychology. They have received no suggestion. They have received relief.

It has happened that the removal of infected tonsils and teeth has been followed also by very seri-