WOODY PHLEGMON WITH REPORT OF CASES.

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In 1896 Paul Reclus described a new clinical pathological condition heretofore unrecognized and designated by him as phlegmon lingeux. It is characterized by an infiltration of the tissues of the neck and overlying skin; board-like to the touch, very chronic in its course with sharply defined borders, painless and never accompanied by any signs or symptoms of an acute inflammatory process. He cited five cases which he had previously treated and gave the detailed histories of each patient.

Following this report it was presented by various German authors under the title of *holz phlegmon* and by English writers as *woody phlegmon*.

In looking up the English literature in this subject, one is surprised by the small number of papers alluding to this subject. In searching the various standard text books on surgery, I find it casually mentioned in Keen's Surgery, in Tillman's and in General Surgery by Lexer and Bevan, and in De Costa's Surgery it is gone into quite extensively. While the occurrence of this disease is quite infrequent, it is of sufficient importance, that all of us should familiarize ourselves with the diagnosis and treatment, and especially the differential diagnosis between this disease and several of the chronic conditions with which it might be conflicted.

Judging from the cases cited in the literature, it usually occurs in adolescence, more frequently in those who are undernourished, although it does occur in the young and robust. In fact Tichtner of Leipsic describes several cases of a milder variety which affected children and young adults only.

The disease runs a very chronic course and usually affects the tissues of the neck, although it may occur anywhere in the body, several cases of woody phlegmon having occurred in the abdominal wall and some in the legs, and one of the cases which I have seen affected the lower leg and foot. We, as oto-laryngologists, being interested only in the disease as occurs in the neck, I shall confine my discussion to this particular phase of the subject.

The first symptom which presents itself, is a swelling either at the angle of the jaw or in the submaxillary gland. The swelling increases slowly; is not painful nor accompanied by any sign of an acute inflammation such as chills, fever nor redness.

The gland at times remains swollen for quite a long period—sometimes as long as six or eight weeks and gradually the swell-

ing which now becomes edematous, extends down the side of the neck, not stopping until it reaches the clavicle and extends from the mid-line of the neck posteriorly until the trapezius is reached. As the swelling progresses, it becomes more firm and board-like in its consistency, hence the name woody phlegmon. The overlying skin becomes firmly attached to the subcutaneous tissues and assumes a dark reddish hue. At no time is there any great amount of pain, neither spontaneous nor upon deep pressure. On account of the firm attachment of the skin, subcutaneous tissue and muscles, there is a restriction of the various movements of the head simulating the restricted movements of a torticollis. There is also difficulty in deglutition, and on this account the patients emaciate quite rapidly. There is at times interference with respiration and frequently it is necessary to do a hurried tracheotomy on account of the edema of the larynx. Reclus' second case which he reports succumbed in a very short time to edema of the larynx. During the progress of the disease, which extends usually over a period of several months, small superficial skin abscesses occur, which may open spontaneously; even these may cause little or no pain. The contents of these abscesses are sometimes quite clear, but usually filled with turbid fluid.

The full development of this stage requires anywhere from six to ten months. At the height of the disease, the entire (not always unilateral) side of the neck is hard as wood, and cannot be confounded with any other condition. The difficulty of the diagnosis of which I will speak later, is usually in the earlier stages, before this typical picture is presented. The disease terminates either in a gradual resolution and recovery or in death, either from edema of the larynx or by gradual exhaustion.

Pathology. The exact etiology is not yet clear, but most authorities agree that it is a very low grade infection, not of sufficient degree to cause a breaking down of the tissues but merely causing an infiltration of the connective tissue and a secondary contraction of same, thus causing the peculiar characteristic hard board-like swelling.

From the small abscesses and often direct from an incision into the mass, we are able to recover various pus organisms. Reclus as well as others recovered a diplococcus which occasionally grew in small chains. In one of his cases Reclus isolated a diphtheroid bacillus, from which a vaccine was made, and employed with great success, the patient recovering in much shorter time than in the other cases.

However, no special bacteria have been recovered in all cases, so that we might isolate any particular one as being pathognomonic.

Owing to the fact that the tonsils, teeth, gums and mouth harbor a great number of bacteria, the infection is supposed to originate somewhere in this region and carried by the lymphatics to the neck, which we all know are well supplied by the lymphatic system. However, the bacteria are of such a low grade that they do not set up an active inflammation and cause deep-seated abscesses, but, as described before, they cause rather an infiltration of the various structures of the neck, which by secondary contraction bring about this wood-like swelling.

Pathology. If we examine a piece of this tissue microscopically, what do we find? This depends somewhat upon the region from which the specimen is taken. If we obtain a section through the submaxillary gland we of course find evidences of a chronic inflammation, which is shown by an increase of the connective tissue stroma, and an infiltration of leucocytes. Owing to the epithelial lining of the tubules, one must be careful not to mistake these epithelial cells, often cut at various angles, for a carcinoma. If we cut through the structures in the neck, there is a firm tissue which is very fibrous. Microscopically there is nothing seen, except an increase in the connective tissue. While this disease *per se* is not a malignant one, yet there are true cases of carcinoma or sarcoma of the larynx or pharynx in which this hard board-like swelling occurs, somewhat obscuring the diagnosis. This condition presented itself in the first case which I will report.

The diagnosis when the disease is fully established is comparatively easy. The board-like feeling, absence of pain and temperature, the difficulty of active movements of the head, the deep reddish purple discoloration of the skin cannot be mistaken for anything else. In the earlier stages the disease is often mistaken for malignancy, either carcinoma or sarcoma, but a careful microscopical examination must disclose the malignancy. Actinomycosis must also at times be differentiated, but a careful examination will disclose the Ray fungus.

The prognosis is usually good. Tichtner reports that all his cases recovered. Judging from all the literature which can find, including the following: Reclus, Krause, Fichtner, Sick, Long, Jenney, Kusnetzoff, Muchsam, Merkle, Powers, Grant, Worthington and others, I should say that 75 per cent of the cases recover. The prognosis depends whether resolution occurs or whether the process continues and death ensues, either from edema of the larynx or from gradual exhaustion due to slow starvation on account of the interference with deglutation.

Treatment. Two things must be taken into consideration in the management of these cases. First, the strength of the individual

must be kept up, by feeding, tonics, etc.; second, everything must be done to promote resolution. This consists in multiple incision all through the affected areas. Hot, moist compresses, applied over the entire affected region, is also beneficial. Some have advised to attempt a dissection of the entire mass, but the best results have been obtained by multiple incision in various portions of the tumor.

Dr. Joseph C. Beck and I have had five cases, three of which recovered and two died. I will report the first and fifth cases, both of which were fatal.

Case 1. Mr. K——, January, 1911. Comes complaining of difficulty in swallowing and speaking. Voice is muffled. Noticed also that during the past year this swelling has been present only on the right side, below the angle of the jaw. States his tonsils were sore four months ago, at which time he consulted a physician, who made an incision into the tonsil without relief to his condition.

Examination. Nose negative. *Mouth.* Oro-pharynx and larynx negative. *Right Ear.* Shows evidence of scars from old healed-out suppuration. Swelling present about the size of a walnut, quite movable, not painful below the angle of the right jaw, running forwards and towards the submaxillary region. Other physical examination negative.

Although no history given antiluetic diagnostic treatment was administered (Cypridol). The growth externally gradually increased, spreading along the side of the neck toward the hyoid bone in back into the scalenous region. Along with this the voice became very much thicker. The skin over the entire swelling appeared to take on the appearance of a dark red color and to the touch did not seem painful nor fluctuating. Pharyngeal, laryngeal and base of the tongue examination still negative, and in view of the fact that antiluetic treatments, including X-ray, gave no results, we decided to incise it at the point which was most significant of fluctuation. Following this, bleeding was profuse, but no pus expressed. A culture was made from the blood without any growth. After inserting a drain, moist, hot compresses were applied and patient was relieved from the thick feeling in the throat. A piece of the tissues was taken from the region of the neck and subjected to microscopical examination. It showed nothing but round-celled infiltration.

The subsequent course of the patient was, swelling increased and greater endurance, and not only on the right side of the neck, but extending to the left.

About four weeks later patient suddenly developed a swelling within the larynx in the region of the epiglottis. Excised a piece and same subjected to microscopical examination, which proved it

to be adeno-carcinoma. From that time on the patient grew gradually worse, so that shortly after a tracheotomy was necessary, and while he ran the usual course of carcinoma of the larynx, it was complicated by a very unusual secondary involvement of the neck unlike that usually seen in carcinoma. That is, the woody phlegmon continued to the last. Patient kept getting worse and finally died of exhaustion.

Case 2. On December 30, 1918, I received the following letter: "I am referring a patient to you by the name of Mr. G. He expects to arrive at your hospital tomorrow morning, January 1, 1919. He has, what I would say, a carcinoma of the neck. He has been operated on several times, has had some few X-ray treatments and several applications of radium, but without any results. The surgeons who have operated and used the X-ray have given him very little encouragement."

January 1 Mr. G. presented himself, and the following history was obtained:

Age 59 years. Ever since he can remember has been troubled with scrofulous glands, which break down and suppurate, then heal spontaneously. About one year ago a dentist who was making a partial lower plate for him, tried to force same into position, when he heard something crack in his lower jaw on the left side. This caused some pain, which persisted for several weeks. He never returned to the dentist on account of fear of having his jaw injured again. Six months ago noticed a swelling just below the angle of the left jaw. It was not painful nor tender; consulted a surgeon who pronounced it cancer and advised an immediate operation. This was done in August. Shortly after this a swelling appeared on the right side at the angle of the jaw, which ruptured spontaneously. This swelling has opened and closed several times, always discharging pus. About this time the swelling began to involve the entire left side of the neck, which became stiff and hard, but never painful, nor was there any fever. Has been treated by radium and X-ray a great deal.

Examination. Nose in normal condition. Is wearing a complete upper set of teeth. The incisors and canine teeth are present, but show evidence of pyorrhea. The teeth in the right half of the lower jaw present, but the cuspids and molars absent on left side. Tongue freely movable. Tonsils small, submerged, not degenerated. Slight infiltration of the floor of mouth on left side, adherent to the deeper structures of the neck. There is a scar under the chin extending from the angle of the left jaw to the same position on the right jaw. At the end of the incision on the right side is a fistula, which extends upwards to the jaw, from which a thick,

clear mucoid secretion exudes; this probably being saliva. The entire left side of the neck from the jaw to the clavicle, and from the mid-line of the neck to the trapezius muscle is hard, sharply outlined and resembles a board. There is no tenderness, except in the area of the fistula. He is robust and well nourished, neck is stiff and in attempting to move his head he must turn his body.

Larynx. Normal. X-ray shows a thickening of the inferior maxilla near the angle, probably an osteitis or periostitis. Blood examination shows a plus Wassermann and practically normal differential count.

At the time of the removal of the gland, a portion was submitted to the laboratory and the following report returned: Mostly granulation tissue, no evidence of malignancy. I had a compliment fixation test made for tuberculosis, which was negative, as was also an Aberholden test for carcinoma. I made a diagnosis of woody phlegmon, and as he was unwilling to remain in the city, returned outlined above. In four weeks he returned somewhat emaciated and having some difficulty in swallowing.

home with instructions to his family physician for treatment as

I suggested to his physician that I believed the fistula, which was still annoying him, was due to the submaxillary gland and advised complete removal of same, and at the same time obtain another specimen for microscopical diagnosis.

On February 1 removed the right submaxillary gland, and took a small piece of tissue from the region of the left submaxillary gland also. The wound healed rapidly and he left for his home a few days later. The microscopical report showed, in one section, a neuro fibroma, in section two and three only fibroma, consisting of connective tissue with considerable round cell infiltration.

On May 1, 1919, I received the following from his family physician: "I wish to inform you as a matter of record that Mr. G. died April 22, 1919. The wound in his neck healed nicely. He was unable to eat solid food and finally could not take liquids. The trouble seemed to spread and involved the entire neck.

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