ever, some that were positive to aloin, but negative to guaiac. Of the 10 negative cases, all recovered, whereas 3 of the 8 positive cases died. In 4 cases a gross hemorrhage followed one to five days after the first appearance of a positive reaction. In 5 cases the appearance of the aloin reaction was accompanied by a rise in the pulse-rate of 10 to 22 beats; in 3 of these a large hemorrhage followed. He regards this combination as a very important means of foretelling hemorrhage.

Zuccola⁵ reports 23 cases of typhoid fever, with daily examinations of the stools. His results are unique, for he obtained positive tests in every case, and frequently throughout the course of the disease. He found in most cases early hemorrhages at the end of the first and beginning of the second week, corresponding to the stage of infiltration; later, "occult" hemorrhages were always present during the third week, at the time of the separation of the sloughs. They were more extensive and prolonged than the early ones. Positive tests were obtained as late as the thirty-eighth day.

The statements of Steele⁶ are in striking contrast with those of Zuccola; 3 cases positive out of 19, or 16%. The positive reactions were all in the second week, and occurred but once in each of the 3 cases; 92 stools were examined in all.

Cattaneo⁷ examined 3 cases, with positive results in one. In a fourth case, the reactions were positive for seventeen days after a large hemorrhage.

The conflicting statements with regard to the presence of blood in the stools in typhoid, as shown by the guaiac and aloin tests, are probably due to several causes. In the first place, they may be due to variations in the severity of the epidemic; for instance, Petracchi, with a mortality of 17%, found 44% positive; I had 25% positive, with a death-rate of 7%. Secondly, differences in technique and in the frequency with which the stools were examined are of importance; and thirdly, the personal equation, which is apt to be large when a color reaction is in question. The difficulty in determining the exact date of onset of the disease explains the discrepancies in the statements as to the period of greatest frequency of occult hemorrhages.

Conclusions.—From my own work and that of others, it would appear that:

(1) Occult hemorrhages may be detected by the guaiac and aloin tests in about 25% of all cases of typhoid fever.

(2) The application of these tests is of little value as a means of foretelling gross hemorrhages.

(3) It is of very little value in diagnosis, owing to the inconstancy and comparatively late appearance of positive reactions.

It seems probable that more complicated chemical methods would show a larger percentage of positive results, for the separation of the sloughs must always be attended by some

hemorrhage, however slight. Such methods, however, will probably consume too much time to be applicable to clinical work, and would be of doubtful practical value, owing to the increased difficulty of excluding hemorrhage from other sources.

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SORE THROAT. ETIOLOGY AND THERAPEUSIS.

BY EDMUND D. SPEAR, M.D., BOSTON.

THE first tonsil is a distinct glandular organ situated in the naso-pharynx and was clearly described by Luschka, whose name it bears.

Whenever one discovers an acute inflammation of the throat he must predicate the presence of a chronic affection of the same. Dividing, by age limit, the usual types of sore throat into those of youth, of middle age, and of senility, it is fair to assume that the infections of childhood shall furnish the greatest proportion of cases.

It is proposed to call attention principally to those forms of disease of the throat of which the most important clinical symptom is dysphagia. In this connection it is made evident that the first subjective evidence of infection will be manifested to the patient by pain during the act of swallowing. This dysphagia, at first noticed only as a slight lameness of the throat muscles, rapidly increases to localized soreness, describable as a "spot," usually to the side of the pharynx, and coincident with the usual site of infection in the naso-pharynx.

In explanation of the actual cause of sore throat, it will be recalled that the muscular tissues in this region spread out over the surface of the bones forming the pharynx, and grow thinner as they approach the caput pharyngis, over the basilar process of the occipital bone. The swelling of these tissues, together with infiltration into their substance by the products of inflammation, causes pressure upon underlying nerve filaments, which become more strongly compressed by the fibers of the pharyngeal constrictors contracting during deglutition.

As stated above, and bearing upon the question of early abortive treatment of tonsillar abscesses, it is noted that "sore throat" may be quite noticeably severe many hours before local objective symptoms are discoverable by ordinary inspection of the fauces. As the disease advances the infiltration of the deeper muscular structures of the fasciæ and of lymphatic vessels increases so that movements of the head or neck produce distress and pain. In very many severe cases of infection, however, *especially in those of incipient tuberculosis and of influenza*, there is great disparity between the evident intense constitutional infection and the local disease at the site of

⁵ Zuccola, P. F.: *Clinica Medica Italiana*, April, 1905, p. 193.

⁶ Steele, J. D.: *Am. J. Med. Sc.*, July, 1905, p. 49.

⁷ Cattaneo, F.: *Revista Critica di Clinica Medica*, November, 1905, p. 713.

infection. Emphasis is intentionally laid upon an apparent absence of local manifestations because the naso-pharyngeal tonsil being "terra incognita" to most physicians lies also out of sight and therefore out of mind. Moreover, it is seldom possible during an acute infectious invasion of this region to make use of the rhinoscopic mirror. In individual cases, therefore, the skilled observer depends upon past experiences, and either immediately resorts to digital exploration, or direct treatment of this region. It is invariably the case that the first tonsil is entirely forgotten by the physician because the systemic disturbance would seem to demand so much attention. The fact remains, however, and has recently been explicitly confirmed by T. Clifford Allbutt, that reinfection is a constant factor in influenza, and this must occur, in the present writer's opinion, through the first tonsil. It is his belief that the most likely agency in this process of reinfection is the patient's own clothing. In the daytime the handkerchief, towel, and outer garments, and at night the bedding, more especially the pillow, serve as the media for this reinfection. Taken in connection with the fact that the situation of the infected areas in the naso-pharynx together with its condition of repose during sleep, during which the nasal chambers are more completely filled on account of a reflex vaso-motor paralysis, and respiration is more buccal than nasal, all conditions favorable to the development of noxious micro-organisms obtain.

In eliciting the presence of this symptom of soreness of the throat one should ask the patient if there is soreness or pain upon swallowing, then by watching the act performed one may note if there is difficulty or slowness, or if the head is held in any favored position. Examine the fauces under good illumination to determine to what extent, and upon which side, an acute process is situated. Feel along the sides of the neck for tender lymphatics and glands. Examine the nose and note its condition as regards swellings and secretions.

In the majority of cases study of the character of the voice will determine the location of the more important lesions. Hoarseness indicates affection of parts below the pharynx. A nasal tone implies obstruction, and the type of tone varies with the location: deeper if post-nasal, high pitched and feeble if nasal; in a monotone and repressed if there is extensive exudation and swelling, as in tonsillary abscess.

While deciding the question of diagnosis between what may be termed acryptic and cryptic infectious diseases, the former, because of their accompanying rashes being almost self-evident, while the latter are entirely concealed, it is allowable to use the cotton carrier dipped in some sterile liquid. Passed into the post-nasal space it will almost always reach the "sore spot" and will be brought out coated with blood or purulent material. Cultures made from dry swabs should include exudates from the deepest parts, although the discovery of any pathogenic germs in the nasal discharges is confirmatory of corresponding con-

ditions. For example, if Pfeiffer's bacillus of influenza is present in the muco-purulent nasal secretion it may be correctly inferred that the constitutional symptoms are the syndromes of the local infection which cause the "sore throat."

Treatment for "sore throat" is palliative or curative. Often with feelings of deep regret the writer recalls his early experiences with cases of throat disease. In the light of acquired knowledge the differentiation of the various constitutional diseases, including the exanthems, with the localization of their port of entry, have served to remind him of the fallibility of man, and he wonders at the credulity which caused him to prescribe sprays and gargles which ever proved valueless and inert.

It has been clearly indicated in this article that "sore throat" is usually the symptom of the invasion of the post-nasal tonsil, and through the circulatory system, of the economy by an infection. This latter, which was formerly spoken of as a contagium vivum, is now understood to include with the true materies morbi a specific micro-organism, its toxins and their various derivatives.

In children, whose post-nasal space is usually filled with adenomatous masses, and in whom exposure produces congested throats, this invasion may be the precursor of one of the exanthems, such as measles or scarlet fever, or of even more serious contagious disease, as diphtheria, cerebro-spinal meningitis, and of pertussis, of rheumatic fever, or of influenza.

These serious infections should be treated locally with the energy and thoroughness which their character demands. It is inconsistent with theory to allow the dangerous sequelæ which are constantly occurring from the toxemia to continue, and it is unwise, even with diphtheritic cases, to place full dependence upon the use of anti-toxin.

The writer, therefore, firmly advocates the removal of adenoids and direct sterilization of the naso-pharynx at the earliest possible moment.

Clinical Department.

A CASE OF RECURRENT SPONTANEOUS GANGRENE OF THE INDEX FINGER: SUCCESSIVE AMPUTATIONS OF THE PHALANGES: ABATEMENT OF THE PROCESS AFTER EXCISION OF A PORTION OF THE RADIAL NERVE AND STRETCHING OF THE MEDIAN.*

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THE patient was a slight, undersized girl of sixteen years, of somewhat nervous appearance and behavior, and was first seen at my clinic at the Massachusetts General Hospital on May 16, 1904. Her mother is living; her father died of "heart trouble." She has one sister and seven brothers; all are living and well. Twelve weeks before I saw her, she first began to have trouble with the index finger of the right hand. She

* Read at the Surgical Section of the Suffolk District Medical Society (Library Meeting), Jan. 24, 1906.