

## **Tonsillar disease in children / by James Carmichael.**

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# TONSILLAR DISEASE IN CHILDREN.

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THE frequent liability of children to affections of the tonsils is universally recognised. Disease of these glands is too often considered of minor importance, yet if we carefully watch the sequence of events in many cases, such conditions are apt seriously to affect the general health, and often form the starting-point of other and more serious ailments. There can be no doubt that we are sometimes apt to underestimate the importance, if not at times overlook, the slighter forms of tonsillar disease in young children. Nothing alarms such patients more than an examination of the throat, and we are apt to be deterred from pursuing our investigations in this direction if there be no special symptoms leading us to suspect the presence of disease. In no class of cases is a thorough and complete examination of the patient more necessary than in children, and, in carrying this out, we should never neglect to look carefully at the fauces. Tonsillar diseases may be conveniently classified into acute or chronic varieties, and these in their turn may be primary or secondary. The accompanying table shows in a nosological form the various affections of the tonsils to which children are liable, and may assist us in our consideration of the subject.

- |                    |   |  |  |
|--------------------|---|--|--|
| I. <i>Primary.</i> | { | <i>Simple Inflammatory.</i> —1. Simple or superficial catarrh. |  |
|                    |   | 2. Follicular catarrh.   |  |
|                    |   | 3. Parenchymatous tonsillitis, including tonsillar abscess.    |  |
|                    | { | <i>Complicated.</i> —1. Croupous.                              |  |
|                    |   | 2. Diphtheritic.   |  |
|                    |   | 3. Ulcerous.   |  |
|                    |   | 4. Aphthous.   |  |
|                    |   | 5. Parasitic.  |  |

II. *Secondary or Symptomatic.*—Accompanying acute exanthemata and other diseases, such as scarlatina, variola, diphtheria,

measles, typhus, pneumonia, dentition and dental caries  
stomatitis, gastric catarrh.

### III. Hypertrophy of tonsils.

I purpose in this paper to allude to a few of the more important of these varieties. In studying the diseased conditions of the tonsils it is necessary to remember their anatomical relations and structure. Lying between the pillars of the fauces on each side, they are barely visible in health when examining the throat. On the free surface of each gland are from ten to sixteen round or linear openings, leading into lacunæ or sinuses, which are lined with epithelial covering similar to that on the external surface. The gland substance consists essentially of reticulated connective tissue and lymph follicles, and is plentifully supplied with capillary bloodvessels, as well as lymphatics. These lymphatic vessels, embedded in the inter-follicular tissue, are very numerous, and communicate with several glands, generally termed tonsillar, lying at the angle of the jaw. In all affections of the tonsils they are liable to enlargement, and irritation may be set up in the other cervical glands.

In delicate or strumous children particularly, the glands are apt to become hyperplastic, and remain chronically enlarged, sometimes giving rise to abscesses. If inflammation does not occur, the glands may become caseous or tubercular, and the child then runs all the risks of general infection. In children it is now commonly admitted that you seldom have long-continued irritation of any mucous surface without implication, to a greater or less extent, of the lymphatic glands connected with the vessels supplying the part. We know in bronchial affections this is not unfrequent, likewise in gastro-intestinal disorders.

The simplest form of disease of the tonsils is *Superficial Catarrh*, characterized by slight redness of the surface of the glands, accompanied by increased secretion. This may be all that is noticed, no further development of the disease taking place. When, however, the catarrhal condition becomes more severe, redness of the surface is not only present, but also swelling of the mucous and submucous tissue, with extension of the catarrhal process into the follicles, this latter development being characterized by the appearance of small white points of secretion at the lacunar openings, denoting the true *follicular tonsillitis*, a disease which is met with in varying degrees of severity, accompanied by a corresponding amount of constitutional disturbance. The condition is readily recognised from the characteristic appearance of the tonsil. A complication is frequently met with in severe cases, more particularly in the symptomatic forms, characterized by an excessive amount of follicular secretion, accompanied by more or less croupous exudation on the surface. The spots of secretion at the openings of the follicles appear to become confluent from croupous exudation thrown out on the surface of the tonsil, giving rise to yellowish-white patches,

often covering large portions of the surface of the gland. This condition is interesting from a diagnostic point of view, as in the early stages it is apt, and, I believe, sometimes is, confounded with diphtheritic disease. The differential diagnosis can be made by a consideration of the constitutional condition of the patient, as well as the local appearances. Clinically we find in croupous tonsillitis the gland is of a pale red colour, and the patch yellowish-white, confined to the tonsil, and easily separable, leaving the mucous membrane denuded of its epithelial covering, but otherwise intact. In examining the exudation in these cases microscopically, in addition to the cellular elements of the follicular catarrhal exudation, we find blood corpuscles embedded along with the other cells in a fibrinous matrix. In diphtheria, on the other hand, the gland as well as the whole of the fauces is of a dark angry red tint, the patch is of a grayish or grayish-white colour, and cannot be scraped off without leaving a bleeding surface. The disease is not necessarily confined to the tonsil, but may extend to the whole of the fauces, and into the posterior nares, or over the epiglottis and into the larynx and trachea.

Zeigler<sup>1</sup> describes the *croupous exudation* "as a pale yellowish membrane, consisting of fibrinous filaments and granules beset with pus corpuscles," the cellular elements embedded in the matrix undergoing what he calls "coagulative necrosis." This membrane is very loosely adherent to the surface, and can be readily scraped off. The essence of the process appears to consist in abundant extravasation of liquid and cellular material, and "the absence of such agencies as hinder coagulation." The *diphtheritic process* he describes as one in which the "epithelium is not shed, but dies without desquamation, abundant liquid being at the same time poured out, which fills the cells, and gives rise to a condition of rigidity akin to coagulation." The exudation is rich in albumen. He describes a superficial variety of the disease in which the changes only involve the mucous surface proper, and says that what he calls this superficial diphtheria and the croupous exudations present many similarities, and are apt to be confounded together. In *parenchymatous diphtheria* a much greater extent of tissue is involved—not merely the epithelial surface, but also the underlying connective tissue. In both cases you have necrosis of the affected tissues, and a line of cellular infiltration separating the dead from the living. Hæmorrhages are not uncommon, and coagula in the lymphatics. These exudations are generally loaded with lower vegetable organisms. The pathological distinction between these croupous and diphtheritic affections of mucous surfaces is one of great interest, some observers believing in their identity, and others that each has, in the great majority of cases, its own well-defined pathological characteristics. Clinically I think we may, as a rule, make a distinction, although in exceptional instances it is difficult to

<sup>1</sup> *Pathological Anatomy*, p. 225.

draw a "hard and fast" line. Certain it is, that you have a simple form of patch confined to the tonsils alone, and clearing off within a few days or a week. On the other hand, you meet with cases where the patches are more adherent, and tend to spread over the adjacent mucous surfaces, the disease taking several weeks to run its course.

Professor Henoch<sup>1</sup> differentiates clinically between the simple forms of sore throat with exudation and the diphtheritic throat. He says "certain anginas present a similarity to diphtheria. On the second day of the disease round yellowish-white patches, the size of a pin's head or larger, appear upon the tonsil; occasionally they are isolated, but often confluent, so that the tonsil appears covered with an irregular whitish-yellow mass, which looks suspicious, but usually, he says, these patches leave no doubt of their benign nature, they are composed of purulent material secreted from the follicles, are loosely adherent, and easily detached. The yellowish colour of the patch is different from the gray or white colour of diphtheritic exudation. Cases occur not unfrequently in which judgment must be delayed for from twenty-four to thirty-six hours. Within this time simple catarrhal angina is either at a stand-still or subsiding, while diphtheria steadily increases in severity. I attach no importance to the fever and enlargement of the lymphatic glands, as they are common to both conditions. Microscopically you cannot arrive at a diagnosis, as bacteria are also found in both. Many cases of severe catarrhal angina are undoubtedly regarded as diphtheria by superficial observers, and this explains the fact that many physicians cure almost every case of diphtheria."

*Parenchymatous Tonsillitis* is much less frequently met with than the other affections, and so with *tonsillar abscess*, which in young children is extremely rare. Why this should be the case we are unable to explain.

*Complicated Forms.*—Of these I have already referred to the *croupous* variety, and have nothing further to add, except that under certain conditions, I believe this form of sore throat may take on diphtheritic action. Last year I had a little girl under my care in the Royal Hospital for Sick Children, suffering from scarlatina. She had well-marked follicular tonsillitis with croupous exudation from the commencement of the disease. By the tenth day the patches had cleared off the right tonsil entirely; on the left one there still remained a very little patch, about the size of a small pea. On the twelfth day this tonsil became more swollen, and of a dark red colour, and diphtheritic ulceration rapidly spread from it to the soft palate, uvula, and nares, and also to the other tonsil. The child had a prolonged and tedious attack of diphtheria. I have seen other cases of a similar nature, going to prove that diphtheria may be, so to speak, grafted upon an ordinary sore throat. This occurs most

<sup>1</sup> *Diseases of Children*, p. 286.

frequently, I believe, in scarlatina. Diphtheria is no doubt frequently met with in this disease at the commencement, or it may come on at a later period, being thus grafted, as it were, upon an ordinary catarrhal condition of the throat.

The *ulcerous* and *parasitic* forms of sore throat are commonly met with in connexion with similar affections of the mouth in children, and do not demand special note.

An important point in connexion with these catarrhal inflammations of the throat, and one which is peculiar both to them and diphtheritic affections, is infectiousness. It is a matter of common experience that, under certain conditions at all events, ordinary catarrhal sore throat is infectious. In a family you seldom have one case without others. So much so, that we constantly hear it said that the "sore throat has gone through the house." It seems probable that catarrhal diseases generally are more or less infectious. Conjunctival catarrh and bronchial catarrh are not unfrequently so. Some years ago, when a number of tourists visited the island of St Kilda, one of the party, in writing an account of the excursion, mentioned an interesting fact confirmatory of the infectiousness of ordinary catarrh. He stated, that the islanders were always afraid lest any of the visitors who came ashore were affected with cold, because it not unfrequently happened that the disease spread through the island. In the light of recent pathology, we find a possible explanation of the infectiousness of diseased conditions of mucous membranes, especially of the mouth and fauces. We know, that in children at all events, the buccal mucous surface forms a suitable nidus for various kinds of vegetable micro-organisms, the *Saccharomyces albicans* (Reess) or thrush fungus flourishes readily in the mouth, and so, in diseased conditions of the mucous surface generally, we may find micrococci and other vegetable forms. These, no doubt, in some way or other, may act as bearers of infection, taking root on any mucous surface, which forms a suitable nidus for their growth. An interesting point, and one well deserving of future investigation in regard to the simpler inflammatory affections of the tonsils, is to what extent these glands may form a nidus or a point of entrance for pathogenous micro-organisms into the lymphatic system. The question, for instance, whether the bacillus tuberculosis in this way gains entrance into the lymph spaces, with which these glands abound, is worthy of attention. The extreme liability of children to tubercular infection is well known, and in them it is often difficult to determine the starting-point of the disease. The clinical fact, that diseased conditions of the buccal mucous membrane, whether catarrhal or otherwise, are usually infectious, is, I think, sufficiently proved.

*Symptomatic* or secondary forms of sore throat are met with in the eruptive fevers, more particularly scarlatina and measles.

The *scarlatinal form* of tonsillitis is one of the most interesting



and important met with in children. It occurs in all degrees of severity. The simplest form is characterized by bilateral redness of the surface of the tonsils, edge of soft palate, and uvula. This usually lasts a few days, and, in a healthy child, disappears along with the eruption, leaving no immediate bad effects. The tonsillar lymphatic glands may sometimes be felt slightly enlarged, generally in delicate or strumous children, in whom irritation is more easily set up. The next form of tonsillitis, in degree of severity, is essentially of a *follicular* nature, both glands, as well as uvula and adjoining soft palate, being red and swollen; the secretion is excessive and of a sticky, mucous nature, but not of a sanious or irritating character. It is in this variety of throat affection that we so frequently meet with yellowish-white patches on the surface of the glands. These are usually of a simple nature, and present the characters of the croupous exudation already described. The throat generally gets well in a week or ten days, but the tonsils are liable to remain more or less hypertrophied. Parenchymatous tonsillitis is, compared with the two forms just mentioned, rare in children under seven. Above that age it is met with more frequently. It may or may not end in abscess.

The *aphthous* and *simple ulcerative* forms of tonsillitis are generally associated with similar conditions of the mucous membrane of the mouth, either during dentition, or as a complication of gastric catarrh, the result of improper feeding or defective hygienic conditions.

*Diphtheritic throat* is not an unfrequent complication of scarlatina. It may occur, as already stated, during the first week of the fever, or may come on at a later period, as secondary to a more simple form of tonsillar disease. Occasionally, cases of diphtheritic throat are met with, during scarlatinal epidemics, without any rash, a case of this kind perhaps occurring in a family where there are other cases of scarlatina. The question of the peculiar relation which appears to exist between scarlatina and diphtheritic affections is interesting. There can be no doubt that diphtheria frequently complicates scarlatina. In regard to the former class of cases, the question naturally presents itself, whether they are instances of primary diphtheria, or scarlatina without eruption complicated with diphtheritic tonsillitis. This, it appears to me, is very much the point at issue.

In certain epidemics we meet with cases of so-called diphtheria, perhaps, as I have already indicated, one case occurring in a family, several other members of which are actually suffering from scarlatina. My observation has led me to believe, although I do not feel inclined to give a dogmatic opinion on the point, that there are cases of scarlatina complicated with a malignant form of diphtheria, with little or no eruption. In certain epidemics, undoubtedly, we meet with cases of scarlatina maligna, with very scanty eruption, and these often complicated with diphtheria. Dr

Morell Mackenzie, in treating of diphtheria, seeks to get over the difficulty by describing a cutaneous eruption in some cases of diphtheria. He says the eruption is sparse, and not of a very definite nature, that it "more or less resembles the rash of scarlatina, but that it differs from it in not being followed by desquamation." Now, we know that desquamation takes place in scarlatina in direct proportion to the amount of eruption; if this be so, we would not expect desquamation in such cases as he describes, even on the supposition that they were of a scarlatinal nature, and I humbly submit that Dr Mackenzie has not proved the negative. The scarlatinal eruption, when scanty, is of so evanescent a nature that it is apt to be overlooked altogether, and it would appear probable that these cases of diphtheria, occurring in close association with scarlatina, may either be a malignant form of the disease without eruption, accompanied by diphtheria as a complication, or the eruption may be so sparse or evanescent, especially if the cases have not been under continuous and close observation from the first, as to escape detection altogether.

The other *symptomatic forms* of tonsillitis most commonly met with, in addition to the diphtheritic and scarlatinal, are in variola, measles, typhus, and also in croupous pneumonia.

In *measles*, the throat affection is usually of a simple catarrhal nature, and gives rise to little inconvenience at the time; afterwards, as a result of the inflammatory condition, the tonsils may remain more or less hypertrophied.

In *typhus*, the tonsillar affection is rarer than in measles, and usually of a simple inflammatory nature.

In *croupous pneumonia*, tonsillitis is sometimes met with in children, often usually associated with aphthous stomatitis, a similar condition of the mucous membrane to that of the skin of the lips, which so often shows a herpetic eruption.

*During dentition* tonsillar inflammation is seldom absent, when you have any degree of stomatitis. It may be of a simple catarrhal or follicular nature.

*Dental caries*.—In older children, who are shedding the milk teeth and cutting the permanent ones, you meet with tonsillar inflammation, apparently as a result of buccal irritation.

In *all the forms of stomatitis*, but more especially in the aphthous variety, you are apt to have tonsillitis as a complication.

In *the simpler forms of gastric catarrh*, you meet with a congestive form of tonsillar affection, in conjunction with superficial pharyngeal catarrh.

*Hypertrophy of the tonsils* is frequently met with in children, and the question which always seems to present itself, Is this hypertrophy ever of a primary nature, or is it the result of previous inflammatory affections of the glands? The decision of this question is not easy, on account of the difficulty of ascertaining in any given case of hypertrophy, which is brought to the surgeon, whether

the child has been previously the subject of the milder forms of catarrhal or inflammatory affection of the glands. In young children, as we know, the symptoms are objective; the child cannot tell whether, during some slight previous ailment, it has felt the throat sore or not. Children are liable to the milder forms of these diseases from cold, or in association with the process of dentition. Gastric catarrhal affections are more or less frequently accompanied by the milder forms of tonsillar disease, which is apt to be overlooked if a careful examination of the fauces has not been made. My own experience would lead me to believe, that in the great majority, if not in all cases of hypertrophied tonsils, the enlargement of the gland is secondary to repeated mild attacks of a catarrhal or inflammatory nature. It has been supposed that in delicate and strumous children, the tonsils and lymphatic glands may become enlarged from purely constitutional causes. I think this may, very reasonably, be doubted. It would seem more probable, that while such a constitutional condition as scrofula undoubtedly predisposes to disease of the glands, some exciting cause is required for its development.

Hypertrophy of the tonsils in children gives rise to a variety of conditions, in themselves more or less attended with distress and even danger. Dupuytren, Shaw, and others, have related cases where the development of hypertrophy at an early age induced, by obstructing the respiration, deformity of the chest or chicken breast very like that of rickets. Politzer<sup>1</sup> says narrowing of the nostrils is a frequent result, and when present may be considered a pathognomonic diagnostic sign of greatly enlarged tonsils. Cases are related where, in the absence of any other source of peripheral irritation, enlarged tonsils may produce laryngismus stridulus or spasmodic asthma, in the same way as we know nasal polypi give rise to reflex irritation.

Hypertrophied tonsils likewise predispose to repeated attacks of catarrh, which debilitate and annoy the child. Perhaps the most troublesome and serious result of tonsillar disease is cervical adenitis. The tonsillar glands become readily affected, and disease may spread to any of the other cervical glands. Far more satisfactory results in treatment may often be attained in the earlier periods, in these cases, by directing our attention to the cure of the tonsillar disease, than by local treatment of the glands, even if accompanied by the usual constitutional remedies. I cannot, however, in the scope of this short paper enter into the treatment of these affections. My object has rather been to insist on the importance of their early recognition with a view to treatment and the prevention of ulterior complications, which are so apt to develop themselves in children.

<sup>1</sup> *Jahrbuch für Kinderheilkunde*, Band xxi. Heft 1 and 2.







