Acute Follicular Tonsillitis

Thesis for Degree of
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by
David Wield
M.A. Edin. (1887)
M.B., C.M., Edin. (1891)

Barnard Castle
Co. Durham
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Acute Follicular Tonsillitis

History and Definition

Attention apparently has not been directed to this disorder till the earlier part of the present century. In 1818 a severe epidemic occurring in the province of Bourbon, brought it first forcibly under the notice of the medical profession in France, and since that time the opinion that it exists as a separate acute specific disease has rapidly gained ground.

In France and on the Continent generally it seems to be of a much severer type than what is met with here. Rilhet and Barthéz (1) in 1861, recorded a fatal case, whose course was that of an "intoxication, rappelant "la fièvre pneumonique et les exsudations "purulentes," and remarked that the postmortem examination revealed

changes in the abdominal organs such as one meets with in the specific fevers, and sought to establish certain resemblances to the suppurations which follow puerperal fever. Lázegue in 1868, in his "Traité des Angines" speaks of it as "not a local inflammation but a "general disorder—a sort of infectious fever."

Of later years other foreign observers have noted its many complications and sequelae, whose variety and frequency would seem to be additional grounds in favour of its being considered an acute specific febrile disease. Among these they record endocarditis, pleurisy, pneumonia, ovaritis and orchitis.

1. Lázegue—"Traité des Angines"—Paris 1868.
2. Frenkel—Société de I. de Berdie—1887.
peritonitis, purpura, albuminuria, erythema, articular affections, infective phlebitis and acute paraplegia, as well as the after-weekness, and slow convalescence, prolonged like that following typhoid fever.

Two types of the condition are described as occurring, the one mild, the other severe, and the course of the latter is characterized by high fever, general malaise, weakness, constipation, albuminuria, sympathetic and visceral complications, foetid breath, and sometimes even a fatal ending. Like other fevers it runs a cyclical course. As

(1) Tabbi - Lo Sperimentale - 1870 p. 389
(4) Jepke - "Ueber Albuminurie bei Angina Pustellaria"
(5) Boeck - Verh. der. f. Dermatologie 1883 p. 481.
(7) Tabbi - Revue d'Aggregation de Landouzy.
According to Sloy, its incubation is two or three days, according to Dauchez, from two to nine, and the rapid invasion is ushered in by rigor, fever, headache, delirium, and often gastric pain, the period of fever lasts from seven to ten days, and, along with local signs of redness, swelling, and exudation into the tonsillar crypts, and the general symptoms of the febrile state, great depression may occur, and sometimes increase of the liver and splenic dulness. The tendency of the condition to recurrence is also remarked on, as well as the occasional occurrence of its spread by contagion.

Sloy—"L'Infection dans les Amygdales aiguës."
Dauchez—"De l'amygdalite infectieuse et contagieuse."
Dorling—"De l'amygdalite considéree comme maladie contagieuse et infectieuse." Paris 1890 p.140
Dubousquet Laborderie—"Contagion de l'amygdalite aiguë."
T. du med. de Paris 1891. 28. iii p.537 p.565.
Schnell—"Contagion de l'amygdalite aiguë."
From time to time bacteriological researches by microscope and culture have been undertaken, and these have revealed the presence among the contents of the crypts of various pathogenic organisms, including streptococci (found by Fraenkel, Cornil, Hanot, Kurth, Sendtner, Claisse and others), staphylococci of various sorts (by Fraenkel, Gabbi, Craikowski, and others), and pneumococci (by Gabbi, Bardon, Rendu and others).

As regards frequency these have been met with in the order in which their names occur. Sometimes but but one isolated variety occurs, at other times several kinds are seen in the same subject, and some connection has even been deduced.

Claisse — Soc. med de Hopitaux 42. 20 Jan. 92.
Craikowski — Med. Gazetta liubarska 1889. 1890.
Gabbi — Sopra un caso di infezione follicolare acuta infettiva — Le Sperimentali 1889. 231.
between the nature of the microorganisms present and the symptomatic type of the tonsillar affection.

As to what is the precise nature of the process, foreign opinion seems to be divided, some considering it to be the local manifestation of a primarily general infection, while others hold that it is a primarily local condition which becomes secondarily infective by the entrance into the circulation of septic organisms and products.

Only within the last ten or twelve years has this disease attracted general notice in this country, and here, happily, it appears to be of a much milder type, such severe complications being rarely recorded, and fatal cases apparently unknown.

As we see it, acute follicular tonsillitis, or, as it might more appropriately be termed, acute lacunar tonsillitis, may be defined as an acute specific disorder affecting the lacunar epithelium, or epithelium of
the crypts of the faucial tonsil; consisting in a peculiar inflammation of these parts of the tonsil, and in the formation in the lacunae of an abundant yellowish exudation, characterized by sudden onset, intense general affection of the whole system, and high fever, falling, generally by crisis, on the third or fourth day of illness, also frequently by the epidemic distribution of the disease, and occasionally by its spread by contagion; and caused probably by the attacks of pathogenic micro-organisms, which have found their way into the crypts of the affected tonsil.

The nomenclature of this condition is in some respects faulty and misleading. The term "Acute Follicular Tonsillitis" is decidedly inappropriate, in as far as the seat of disease is not in the follicles, but is chiefly, or altogether, confined to the lacunae epithelium; still, as that name has already obtained general currency, both at home and abroad,
I have not ventured on any alteration.

The little, moreover, that has been, till lately, known of the pathology of tonsillar affections, and their consequent imperfect classification, has caused many synonyms to be from time to time employed in the denotation of this disease, so that, even now, many cases of acute follicular tonsillitis are to be found described under one or other of such designations as "epidemic," "acute infectious," "diphtheric," "diphtheroid," "ulcerated," "febrile," or "hospital" sore throat.

Structure and Physiology of the Tonsils.

Before proceeding to the clinical aspects of this condition, a short review of what is known as to the structure and functions of the tonsils may not be out of place.

The faucial tonsils are two prominent bodies which occupy the recesses formed on either side of the faucae, between the anterior and posterior palatine arches. They are usually about half an inch in
length, and a third of an inch in depth and thickness, but differ very much in size in different individuals.

The free inner or faucial surface of the tonsil is covered by an epithelium, continuous with that of the mucous membrane around—in this case, therefore, stratified squamous—and the smoothness of the surface is broken by the round orifices of the lacunae or crypts. These are twelve or fifteen in number and are recesses lined by an involution of the same epithelium, and imbedded in a diffuse adenoid infiltration in which are the follicles or germ centres, arranged in varying number around the crypts.

The Blood-Supply of the Tonsil is very large and from various arteries, viz. the tonsillar and palatine branches of the facial, the descending palatine and ascending pharyngeal arteries, and the dorsal artery of the tongue. These vessels, according to Schmidt, do not penetrate far into the tonsil,
but soon break up into long capillaries, which enter the germ centres, curve on themselves in their centres, and pass out again into the venules, which are numerous, of comparatively large calibre, and which have very thin walls. The veins enter the tonsillar plexus on its outer side.

The nerves are supplied from the trigeminal, the posterior palatine and external palatine branches from the sphenopalatine ganglion, and the glossopharyngeal, as it approaches the base of the tongue, sends slender branches to the tonsil over which they form a sort of plexus (Circulus Tonsillaris). Each of these nerves receives connecting branches from the superior cervical ganglion of the sympathetic system.

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Footnotes:


The connective tissue consists of a network of fine fibres closely interlacing in every direction, and by open radicles in the spaces of the fine mesh as produced arise the lymphatic vessels. These unite into several large trunks as they leave the tonsil, and ultimately pass into the superior deep cervical glands. There are no lymphatic vessels in the germ-centres, nor where these underlie epithelium do any interpose between. All are efferent. There are no lymphatics passing to the Tonsil.

In the Germ-centres according to Gulland, the meshes of the connective tissue supporting the capillaries are very fine, and the condensation of the fibres at the periphery by the pressure of the vessels forms a sort of capsule, just as Swain shows the capsule of the

foveal itself to be formed by the pressure on, and condensation of, the connective tissue by the emigrating leucocytes.

Within the germ-centres is constantly going on mitotic division of leucocytes and the daughter cells, after being held for some time in the fine meshes, are driven through the peripheral fleshy tissue, either into the lymphatics, into the diffuse infiltration surrounding the germ-centres, or through the epithelium into the crypts, and so on to the tonsillar surface.

While in the connective tissue they remain mostly stationary, but when they come to penetrate the epithelium and reach the tonsillar free surface, or when they enter the efferent blood, or lymphatic vessels, they develop amoeboid form and become wandering cells, with the powers of amoeboid movement, of ingesting foreign matters by that movement, and of utilizing these particles for nutriment, if they are capable of being so utilised.
The faecal tonsil is but one of a series, all members of which are identical in structure, in so far as each consists of invaginations of epithelium, whose lumen is continuous with that of the alimentary canal, and which are surrounded by a ciliated tissue. They may be single, as in the case of the lingual tonsils, or compound, as in the faecal, but all possess these essential characters and to all of them the one common function of producing leucocytes can be assigned, each being an arrangement of bloodvessels and connective tissue for the purpose of furthering the division of leucocytes.

"F. L. Sullivan - "The Function of the Tonsils" 1891.
This series may be divided into two groups, one placed around the entrance from the mouth into the pharynx, and the other surrounding the posterior nares. Thus, Biekel shows that the ring of adenoid tissue formed by the palatal tonsils on either side, the lingual tonsils below, and the slight adenoid infiltration, which he describes as running along the lower surface of the velum palate, above, will more or less accurately close the entrance to the pharynx, the palatal tonsils fitting into the glossopiglottidean hollows, resting on the lingual tonsils and separated from one another only by the uvula. The entrance to the respiratory tract is similarly hemmed in by the pharyngeal tonsil, the tubal tonsils, and by the diffuse adenoid infiltration running along the floor of the nose and the upper

surface of the velum palati as described by Buckel and Hör. Kellian, moreover, has pointed out that the stream of air passing through the nose, falls directly on the pharyngeal tonsil, and that this tonsil is smaller and more rudimentary in animals which have the more complicated so as to otherwise purify the air inspired, and Gulland shows that in the coarser feeding animals the tonsils as a rule are larger.

In the mucous covering the tonsillar surface, great number of leucocytes containing microbes are to be found, while only with difficulty can any be made out in the stationary leucocytes which lie under the epithelium of the crypts. In Gulland's experiments he could find them there only in one out of many tonsils which he examined. This fact serves to show what a stout
resistance the outward stream of leuco-
cytes opposes to the inward passage
of pathogenic organisms from the
mouth, and also how the conflict
between leucocyte and organism takes
place on the surface, not in the sub-
stance of the tonsil.

These rings of tonsillar tissue,
pouring out constant streams of bac-
ericidal leucocytes would then seem
placed as they are, to prevent, or
assist in preventing, the entrance of
pathogenic microbes beyond the buccal
and nasal cavities, and the fauces.

Tonsils may, in addition, have to deal
with such as remain in the mouth
during the intervals of swallowing,
being assisted probably in this warfare
by the germicidal properties of the saliva.
The theory that the tonsil is a
functionless survival is completely nega-
tived by the study of its characteristics
through the animal series, by a know-
ledge of its changes in development,
and by observation of its ever increasing
complexity in size, number, situations, and structure, as we ascend in the mammalian order.

Among other theories that have been recently advanced are several which suggest that the tonsil is more or less directly concerned in the work of nutrition.

Hingston Fox (1) thinks that it has something to do with reabsorption of the surplus saliva, and that important interchange may go on through the stratified squamous epithelium, the buccal fluids being accumulated in the crypts.

Seager Spicer (2) has a similar idea that the tonsils act as "sewage farms" for the contaminated buccal, nasal, and lachrymal secretions.

(3) W. Hill, basing his theory on

Stohr's observation of the passage of leucocytes through the mucous membrane, thinks that the tonsils supply leucocytes for the purpose of "peacening" in the pharynx and stomach. He also believes that they are absorbent organs, but thinks they have to do with the products of salivary digestion and the buccal secretion "which may, for the most part have entered by the general buccal mucous membrane, and been conveyed to the glands by the convergent absorbent lymphatic vessels" a method of conduction which Schmidt has shown to be anatomically impossible.

To refute these various assumptions, it needs but to point out that the period of time during which food is in contact with the tonsillar surface is too short to admit of any digestive action taking place; that in certain animals with simple tonsils, such as the rabbit, cat, and guineapig, there exists an overhanging lip, which would
prevent the food getting into the crypts, as Fox suggested it might; and that, even if there is an amylolytic ferment in watery and glycerine extracts of the tonsillar tissues, as Hili and others affirm, very little of our food could be at all affected by it, and in carnivorous animals, which have large tonsils, it could be of no use at all. Also, even if this action could be predicated of the faucial tonsil, how explain, on these hypotheses the functions of the pharyngeal tonsil, with which food never normally comes in contact at all. Certain experiments of Bodeau and conclusively proved the absence of any marked absorptive property in the tonsil. He applied carefully to its surface various aniline colours, carmine, Berlin blue, solutions of atropine, melted lard, olive oil, lanoline, salts of iron, and in no case did absorption occur to any appreciable extent. Also, in but one out of two hundred cases in which
he examined the tonsils for tubercle, did he find tubercular ulcers there, and that only in very advanced general tuberculosis.

Pathology.

From what has been already said, it is clear that the chief obstacle to the ingress of organisms through the epithelium, is the constant outward flow of leucocytes. Unless this be diminished, or stopped for a time, there is but little chance of microbes gaining a footing in the substance of the tonsil.

In certain cases, however, such conditions may occur. In animals, Stöhr, Hofmeister, and others have shown the production of leucocytes in adenoid tissue to be most active in states of health, and after meals; conversely, in illhealth, it is

   Part III. v. xxii. 1887.
diminished, and in cases of severe illness, such as pyopneumothorax, Stöhr (1) states that the requirements of the system may be such that the flow of leucocytes through the crypts is stopped, and the whole supply is pent by the blood and lymphatic vessels to the affected viscera. In such a case the cell divisions would still occur actively as before, but, on account of the diversion of the stream, the spaces in the epithelium would be left empty, and excellent opportunity would naturally be afforded for the buccal microbes to inter se and set up local changes, to be followed or not, according to the nature of such as gained entrance. In general disease, for while all the bacteria of the mouth are not harmful, pyogenic organisms are by no means uncommon, even in the mouths of healthy persons. (2)

(1) Stöhr—"Über Tonsillen bei Pyopneumothorax"—
(2) Ruffer—"The Pathogenesis of the Alimentary Canal"
Quart. Journ. of Micr. Sci. 1880, 1081, 1890.
When chronic hypertrophy of the tonsil is present, certain alterations in the epithelium and secretion of the crypts may occur, as well as in these structures themselves, which expose the tonsil the more to adverse influence from without.

Sokolowski, has accordingly, of late made some excellent observations on the pathological anatomy of the gland, in cases of hypertrophy and lacunar disease. The tonsil, after careful diagnosis, being excised by the guillotine, placed, hardened, cut into pieces and then microscopically examined. The results of his researches show that tonsillar hypertrophy seldom occurs alone, but generally in connection with a universal proliferation of the neighbouring lymphoid tissues. It is characterised by a general increase in the size of the tonsil in all directions.


or “Contribution à la Pathologie de” Archiv. Int. de Laryngologie 1871. t. iv p. 331 à 348.
The mucous membrane is reddened, and the
openings of the crypts are nearly round and
generally very wide, while the normally
clear fluid content of the crypts is
generally turbid. In some cases the
crypts themselves are larger and wider
than usual, and their epithelium is
more or less thickened and infiltrated. On the
other hand, they may be narrowed by the
pressure of enlarged follicles over which
irregular elevations may appear in the
otherwise smooth epithelial surface, while
sometimes the internal pressure of the
connective tissue may be so great as
to cause the follicles to penetrate the
epithelium and project into the lumen
of the crypt. The narrowing may even
amount to almost absolute closure with
resulting dilatation below its level, or the
orifice may be found quite obliterated
as if by some former superficial inflammation.
The follicles are increased in number
and in size, and, like the adhered tissue,
show little other change. Instead of
a turbid fluid, the crypts sometimes
are filled with yellowish-white cheesy masses composed of more or less concentric layers of epithelial cells and lymph-corpuscles, among which Scholowzki found the following kind of organisms — various micrococci, diplococci, streptococci, staphylococci, leptothrix bacillus, and in one case that of actinomyces.

In one form of hypertrophy the condition found in the lacunae is shown to be due to rapid desquamative change occurring in the epithelium, so that the crypts are speedily filled with leucocytes and successive layers of epithelium, whose retention, either alone or with inflammatory changes superadded, may induce a form of tonsillitis, characterized, like the Rheumatic sore throat of Trouseau, by the short duration of severe pain on articulation, swallowing or touch, and affecting sometimes two or three lacunae, sometimes but one at a time. The symptoms of this condition, however, are readily and speedily,

relieved by introducing a probe, and freeing the exudation mass out of the crypt.

In hypertrophy of the tonsil, the microorganisms present in the exudation mass probably are saprophytic in action. They are always found most plentiful in that part of the cheesy mass which projects outside the cryptic orifice, and few or none are met with in the part which fills the crypt.

The presence of such a foreign body must cause its irritation a tendency to further hypertrophy, and no doubt forms a suit starting point for the further inroads of the various organisms, and so for the development under suitable conditions, of chronic or acute disease whose character will naturally vary according to the harmless or malignant properties which the germs may happen to possess.

To Acute Follicular Tonsillitis, he gives the name of "Tonsillitis racemosa Pseudomembranacea" and describes it
as a pseudomembranous inflammation situated in the lacunae. Three typical cases were examined after excision, with the result that the contents of the crypts were found to consist almost entirely of lymph-corpuscles embedded in a fine fibrinous network. Micrococci of various sorts were found therein, but not so much in the deeper parts as near the orifices. The relation of the fibrin to the connective tissue was somewhat different to that found in Aiphtheria, here it is diffused among, and causes necrosis of that tissue, while here it was separated from it by the disorganised epithelium, and, only in the superficial layer of the connective tissue, were a few separate necrotic areas to be seen. The epithelium was quite disorganised, and the fibrinous contents so filled the crypts, that it was difficult to make out their outlines.

The Adnoid tissue showed no change except perhaps increased infiltration. Various forms of lymph-corpuscles, and
many cells "apparently plasma-cells" were seen in the adenoid tissue, the lymphatics, and in the follicles themselves. In all three cases the blood-vessels were widely dilated and engorged with blood.

Careful microscopic examination showed it to be a typical diphtheritic membrane that lined the lacunae, containing in its meshes many lymph-corpuscles and diplococci. The epithelial cells among the fibrin were in a state of necrosis and especially in the upper layers were readily visible, look on colour badly, and their nuclei in most cases could not be made out. In all three cases this fibrinous membrane was found, and in each, small superficial necroses of the connective tissue were observed.

He concludes that the process in this disease is typically diphtheritic, as far as the pathological anatomy shows, though it differs from ordinary diphtheria in its situation, in its lesser malignity and in the slowness of its tendency to spread.
Further investigation, however, is required before we can accept this pathological finding as finally settling the question as to the nature of this condition. The number of cases examined is rather limited, the microbes peculiar to diphtheric processes have not been found, and no experiments have been made to prove whether inoculation will communicate a similar "diphtheric affection" or diphtheria itself. The differences in the courses of diphtheria and of acute follicular tonsillitis, in symptoms, signs, and events, seem so marked that I am still inclined to side with those who regard the two affections as absolutely distinct diseases.

Causation.

In my observations of acute follicular tonsillitis I have been made on upwards of a hundred cases which I have met with, as assistant medical officer of a large public school, during the last two years, and on about
half that number of scattered cases which I have encountered in general private practice. The school boys number nearly two hundred and fifty, vary in age from ten to sixteen years and are, almost without exception, the sons of tradesmen and farmers. The school is situated in a high, dry, exposed locality with excellent natural advantages for drainage, and the general health of the inmates is above the average.

Yet, in every term, a large proportion of the cases admitted to hospital come complaining of sore throat, headache, or a sense of general ill health, which on examination is found due, it may be at once, or it may be within twenty-four hours, to acute follicular tonsillitis.

(2) Climate. From my notes and from the previous records of the school, I find that this illness has been least frequent in the Summer Term - May, June and July, while the number of
cases occurring in the spring term—January, February and March, has been, in almost every year, slightly greater than that of those which happen in October, November and December—the winter term. Certain atmospheric conditions appear to have great influence on the disease. The bright, equable, warm, dry, weather of summer causes it to be rarely met with then, while rapid changes of temperature such as occur in spring and autumn seem to favour its appearance and it is especially frequent if a moist, humid, state of atmosphere persist, at any season, for the space of a few days.

Age: Torrell Mackenzie finds that, taking all ages into consideration, the greatest number of cases occurs between the twentieth and twenty-seventh years, that it is rare after middle age to see it, or before the age of five. Of General Hospital practice the latter statement may be accurate, but

"Torrell Dr. Kenzie" "Diseases of the Throat" 1848 London
as regards private practice I can hardly agree with it, as I have seen several cases in children under that age, notably one typical case of a child of two years and nine months.

In my school practice the greater number of cases have occurred among the elder boys, more boys over the age of fourteen being attacked, than of those under that age. The changes attendant on the attainment of the state of puberty may perhaps have something to do with this—the extra blood supply required by other glandular structures at that period probably leaving the tonsil the more defenceless, just as similarly we notice so often how prone young girls are to tonsillitis at their menstrual periods. Certain physiologists profess to recognize some connection, nervous or otherwise, between the tonsils and the reproductive glands; some have even recorded absorption and atrophy of the testicle as having occurred after tonsillotomy, and
as I have already mentioned, severe ovarianitis and orchitis are among the complications which are detailed by foreign observers as occurring in the course of this disease. I cannot, however, point to any case under my care, in which either of these conditions was present.

(c) Enlarged Tonsils. - In children and young adults whose tonsils are hypertrophied, the predisposition to tonsillitis is very much more evident, though often, they are afflicted with a mild or sub-acute, rather than a severe attack.

Whether this enlargement is congenital, or acquired in infancy or early childhood, whether it is, as is generally believed, the result of a strumous, or, as Dr. Wm. Smith would have it, the only remaining local evidence of a rachitic diathesis which has at an early age become extinct, or whether it

\(^{(*)}\) W. J. Smith "Diseases of the Tonsils" P.T. p. 5.

London 1865.
is due to past scarlatina[,] or to previous attacks of follicular tonsillitis, its evil influence as a determining factor is undoubted.

Many boys with enlarged tonsils are regular visitors, term after term, to our hospital. Some of them have been in our several attacks in close succession, one such boy having acute tonsillitis three times in as many months. The fact of having already suffered from this disease acts also as a predisposing factor, even where no hypertrophy has ensued; so much so that I could, I am confident, after looking over the records of a few years, pick out one half of the boys who were likely to incur acute follicular tonsillitis in the course of the following term.

In certain families, too, one sees so many members prone to such attacks, that there would seem sometimes to exist

"Faggy and Ry.fsmith "Principles and Practice of Medicine" vol I p. 191. Edition III."
a marked hereditary tendency to tonsillitis

Rheumatism - The Rheumatic diathesis has apparently so marked a
connection with tonsillitis, that Cheadle\(^1\) in his Barrieian Lectures in 1889, classed
it as one of the seven phases of the
rheumatic state in children. Other
observers have concurred in this opin-
on, and some have even averred that
forty, fifty, sixty, or even eighty per
cent., of cases of tonsillitis show
evidences, or give a history, of having
suffered from acute Rheumatism at
some previous time \(^2\) [Hag-Brown, Garrod,
Barlow, Dallon, Green, Cooke & others].

\(^{1}\) Cheadle - "Acute Rheumatic Arthritis of Children" Lancet 1/89 p. 826
\(^{2}\) Cooke & Garrod - "Attempt to determine the frequency
of rheumatic family history among non-rheumatic
\(^{3}\) Barlow - "Notes on Rheumatism and its allies
\(^{4}\) Dallon - "The etiology of Rheumatic Fever and
an explanation of its relations to other
This may be so in some neighbourhoods, but my experience here supports no such conclusions. In many cases one hears on enquiry of so-called "growing pains" or of slight transitory muscular pains, but a definite history of acute rheumatism is seldom to be obtained. Still, rheumatism often affects children so slightly that the fever may not have been diagnosed as rheumatic, may have been classed as a slight feverish attack, or may not even have come under the notice of a medical man, the arthritis being in general of a slight or comparatively painless sort, and the heavy, sour, perspirations and other symptoms, so constant in adults, not often attracting

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attention in the young. This must surely sometimes be so, else how does one see so often in children evidences of old standing endocarditis, pericarditis, &c., where no history of past rheumatism can by the most minute enquiry be elicited, even in better-class families.


Cold appears to be a very common exciting cause. Sometimes an attack of tonsillitis may be attributed to neglect in changing clothes after playing games, or watching football matches, &c., in cold damp weather, or to getting wet while walking, and sitting in damp clothes. At other times draughty corridors may be blamed, or other defects in ventilation, and, without doubt, severe colds are frequently due to coming suddenly into cold schoolrooms from overheated dormitories.

Depress—probably has most of all to do with the causation of attacks of this complaint. In some cases we do find faulty joints in the fingers of the
clouds, or insufficient disconnection with the main drains; sometimes impurities in the water or milk supply may be detected, as in the epidemic of diphtheric tonsillitis at Ston in 1870, where the cows supplying the milk were found by Dr. Jocob (1) to be watered at a tank contaminated by drainage from a neighbouring sewage farm; or there may be badly-ventilated cowpools, or stable or other refuse lying too near the house. As we often find, is the case in many farm-houses, sewer gas may have found its way into the dwelling from ill-constructed drains, or by continued slight, and almost imperceptible, leakage, the ground air may be thoroughly poisoned and, especially in cases where the subsoil is faulty in character, may be drawn up into the building by the action of whatever

means of heating apparatus is in use. Of this way alone can one account the occurrence of suppurative tonsillitis in an epidemic form. Climatic influences may on such occasions favour its implantation in a soil already prepared for its reception by the continued breathing of impure air.

Thus, during the spring term of 1889, in this school an epidemic of tonsillitis prevailed, with which ninety-five, out of two hundred and thirty boys, were attacked. On the following winter term fifty-five cases occurred as well as other kinds of throat affections, and next spring, thirteen cases of catarrhal pneumonia, and a correspondingly large number of tonsillitis, were treated in the small hospital attached to the school. Attention was directed to the state of the drainage system, and defects were found in connection with some of the closets, and with the jointing and trapping of the drains; one especially notable where a defect
lively trapped pipe was discovered leading from a cellar below the building then used as hospital, directly into the main sewer. A new hospital, more commodious and separated from the main school-buildings, which had been in course of construction, was taken into service, the required changes and repairs in the sanitary system were effected, and, since that time, the drainage and ventilation of the school has been thoroughly tested and overhauled at least once a year. The result is that such epidemics have been unknown, and the average yearly number of cases has been reduced to less than fifty.

Another case of some interest in this connection is that of a child which had his first attack of conjunctivitis in August 1893. Great scarcity of water had for some time prevailed and the town water supply was intermittent during the night. In the higher parts of the town, in
the same terrace in which my little patient lived, two cases of typhoid fever occurred during that same month, and the drinking water supplying the terrace, on being tested, was found to have become contaminated with sewer gas, which had probably been sucked into the empty pipes during the night.

I may also mention the case of another house, where three children of one family were constant sufferers from tonsillitis, or other forms of sore throat. This family having left the town, the only child of the new occupants, a girl of thirteen, shortly after their taking up residence there, incurred her first attack of this disease. The cause of all these attacks I attributed to nothing else than an ill-kept stable-yard at the back of the house.

In many cases, according to Hingston Fox, and Cannon Browne, the
Differential diagnosis between cases due to cold, and those due to peptic, is made by the fact that peptic cases are bilateral from the start. This, however, I have not, so far, been able to verify.

(4) Contagion. Both in private and in school practice one meets with cases where the influence of contagion is shown. In the school hospital one cannot but notice how frequently, two or three days after the arrival of the first case of tonsillitis, one or other of the special friends follows him into the sick-room, and also how often, almost invariably in fact, if there be two or three cases of follicular tonsillitis in the general ward, other sufferers from sprains, fractures, and accidents, or convalescents from other ailments, how prone they are, on the second or third day, to exhibit symptoms of this same disease, while, if the tonsillitis cases be treated separately from...
the others i.e. in another ward, a single case of tonsillitis originating de novo, except it be in a very crowded ward, is most exceptional.

Outside the school, I may refer to two cases illustrative of the effects of contagion. The first is one where a young man of twenty-one years came home to this neighbourhood from one of the manufacturing towns of Yorkshire. He fell unwell on arrival, and, being called to the house next day, I found him highly feverish, and suffering from an acute attack of follicular tonsillitis, and, two days later, on revisiting my patient, I found his sister starting with the same condition.

The other one is where I was called to see a twelve-year-old girl in the drillite barracks here, found her a victim to this ailment, two days later found one of her brothers, the third day another, similarly affected. These four other cases seem to me to establish the fact of contagiousness being a distinct
characteristic of follicular tonsillitis, and the frequency with which one meets with children, who, especially in the early stages of the disease, have transmitted it to one or other of their playmates, serves to impress one with some idea of the virulence of that contagion.

Among other possible and minor causes I may place the irritation, and possible infection, caused by breathing in the fine dust ground by the boys' boots from the concrete flooring of the corridors and five-bet courts at the school.

**Symptoms**

As regards severity two varieties of this complaint may be distinguished, i.e., mild or subacute, and acute follicular tonsillitis. In either, the pathological condition of the tonsil, as far as can be seen by the naked eye, with or without the aid of a laryngoscopic
mirror, is precisely similar, except perhaps in the degree of acuteness of
the injection of the mucous membrane, and in the number of lacunae involved, while the symptoms also vary only in severity and duration, and constitutional disturbance is present in the milder cases in a much less degree. This being so, I may confine my remarks on the course of illness to the severer cases, where a comparatively large number, or all of the lacunae, are involved, and the typical local and general signs and symptoms are manifested.

The first complaint may be elicited by the general symptoms, and a feeling of chilliness, lassitude, aching all over, and general weakness may be what brings the patient to the sick-room, but generally the local symptoms are, from the first, most urgent. Sometimes vomiting marks the beginning of the attack, especially in children, more rarely faintness, but
generally it is ushered in by a well-marked rigor, or it may be by a sensation of chilliness lasting for some time, with occasional slight fits of shivering. At the same time pain is complained of in the throat, worse on articulation and when swallowing is attempted, and headache, often very severe, is generally present. The face is generally pale, the skin becomes dry and hot, and in a few hours the temperature will have risen to 101° or 102°, or even higher, if it have not already done so. The Pulse is comparatively rapid and full, registering 110, or 120 beats per minute.

On examination of the throat, one finds the tonsillar mucous membrane, on one or both sides, where not covered by a yellowish exudation, inflamed, reddened, and swollen, while, at the cryptic orifices, yellow beads of exudation project above the general surface. Soon this exudation begins to overlap the edges of the lacunar openings, and
to extend over the mucous membrane; but to a little distance in some cases, often so as to cover the whole tonsillar surface, and, in rare cases, it may spread even further, on to the sides of the uvula, or the adjacent anterior and posterior pillars of the fauces.

Sometimes, instead of the extension of the cryptic excudation, a thin layer of mucous pus seems to be what covers the mucous membrane between the orifices, but in either case the covering is readily removable, and at any time a probe can be readily passed through the thicker portions down into the crypts. The pharynx and soft palate may be slightly inflamed and hyperaemic, and the glands at the angle of the jaw on one or both sides, accordingly as one or both tonsils are affected, may be painful and enlarged, as sometimes are also the submaxillary glands.

Within twenty-four hours of the onset, fever is generally at its height,
and, while 102° or 103\% is commonly reached, 104° or 105° is not infrequent, especially in children. The pulse rarely exceeds 120 beats per minute, the breathing is slightly accelerated, the breath foul, and the moist tongue with its thick creamy-white coating is almost pathognomonic. The bowels are frequently constipated, and the urine is diminished in amount, deficient in chlorides, high-colored, loaded with lithates, contains excess of urea, and in a few cases where the febrifuguosis is great, 103° or more, may be slightly albuminous, just as we find it with high fever in some cases of catarrhal pneumonia and bronchitis.

Articulation and pronunciation are to some extent impeded; nasal breathing too, so that the patient snores when sleeping. Coughing is rare, but there is frequent painful clearing of the throat, and expectoration of a viscid, stringy mucus, which collects
about the throat, or painful efforts to swallow the same. There is, moreover, a constant complaint of throat, and great anorexia is also present. The sense of hearing, as well as those of taste and smell, is often impeded, and earache is frequently complained of. This pain may be sympathetic, or may be due to some spread of the inflammatory process to the Eustachian tube, or to pressure, when the tonsil is much enlarged, on the posterior palatine fold, involving interference with the attachments of the stylopharyngeus muscles, which goes from the soft palate to the pharyngeal extremity of the eustachian tube, or again to nervous inhibition of that muscle through the glossopharyngeal nerve. It might also be attributed to simple direct irritation of the chorda tympani branch of the facial nerve, from the proximity of the local inflammation to the course of that nerve, or to passage from the glossae to
the ramus of the lower jaw, or to in-
direct irritation of the facial, through
ts its connections with Meckel's ganglion.

The Pain of Tonsillitis is characteristic. It is complained of most on awak-
ening from sleep, is constant and severe
in the throat, and is aggravated by
the least movement of the temporomax-
illary articulation, by any external
pressure in the locality of the tonsil,
and often by the slightest movement
of the head. In most cases there is
fearful headache. Sometimes this is
so severe from the first as to form the
whole initial complaint; the severity
of the pain in the head causing that
present in the jaws to be disregarded
for the time, and this headache may
persist throughout the attack. It is
probably attributable to the intimate
nervous connection of the tonsil with
the sympathetic system, its nerves from
the Fifth, and the glossopharyngeal re-
sieving filaments from the superior cero-
sic ganglion.
When fever is high, and especially with young patients, there is apt to be slight delirium, the child wandering in his talk when night comes on, and muttering or sometimes crying out in his restless and fitful sleep.

Muscular pains and aches, chiefly in the neck, shoulders, and limbs, are more or less constant throughout, and the hot dry skin of the first day is soon moistened by an abundant cold pour feverperation. In some cases an evanescent erythematous flush is manifest, on one or both sides of the face, and extending down the neck slightly on to the chest. This I have seen in four cases. It never lasted twenty-four hours, and never spread lower than the upper part of the chest, and may have been due to sympathetic inhibition of the nerves of the arterioles, like that caused by inhalation of the vapour of nitrate of amyl. In these four cases there was no, or
subsequently, anything to point to this rash having been scarlatinal, no des- 
quamation, nor evidence of nephritis occurring, and no cases of scarlatina 
existed in the neighbourhood at the time.

This condition of matters persists for two or three days. Then, generally on the third day of illness, the temperature falls by crisis to normal or nearly so, the pains in head and limbs diminish, the thirst goes, the appetite begins to return, the skin becomes cool and natural, the tongue clean, the urine clear, and the motions soon regain their normal regularity. The throat symptoms too diminish rapidly, and ere long disappear. The tongue is now seen to be free from excitation, a little enlarged, its mucous membrane clean and healthy, and the cryptic orifices only a little more fatuous than is the case in health.

Short though its duration has been
this apparently trivial affection leaves behind it an amount of weakness, pallor, and anaemia, surprising from its seeming disproportion to the brevity of the attack, and convalescence is comparatively slow, a week or ten days generally elapsing before the return to health is fully established.

As a general rule, but one tonsil is affected. Even if both are simultaneously attacked, the duration of the course of illness is not prolonged. It sometimes happens, however, that the second tonsil becomes infected on the second or third day of the primary inflammation. In such cases, and they are not uncommon, crisis may not occur till the fifth or sixth day.

**Complications**

(a) Suppuration in cases where the inflammation begins in the lacunae I believe to be very rare. Out of a hundred consecutive cases of acute follicular tonsillitis I have seen but two
in which suppuration occurred, and
in one of these the tonsil was, from
chronic inflammation, so enlarged and
honeycombed, that accurate diagnosis
was difficult, while, in the other, only
two or three lacunae were mildly
attacked, and I am inclined to think
the interstitial inflammation was the
primary one. In this form of tonsillitis, what I have read of its path-
ology shows the interstitial elements
to be but slightly affected, the seat of
disease being mainly or altogether con-
fined to the lacunar epithelium.
It is true that the intensity of the
epithelial inflammation might cause
its spread to the interstitial elements
of the tonsils, with subsequent sup-
puration, but in that case one would
expect the majority of very acute
cases to end in quinsey, while every
mild one would escape.
I cannot but think that most
cases which go on to suppuration
are, from the facts, interstitial, and
and depend on different causes for their existence. The, how is it that we meet with two varieties of patients, subject to recurrent attacks of tonsilitis, the one class recovering invariably within a week without suppuration, and the other always undergoing a fortnight's misery, and often alternately suppurating tonsils, while it is rare to see both kinds of disease occurring in the same person.

(b) Extension to neighbouring structures in some cases this occurs to the lingual tonsils, these solitary glands are situated at the base of the tongue and, according to Ostmann, are about sixty-ply in number. Masser, Hagen, Renault, Blank, and Seifert, record cases

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(2) Masser - Revue Asiat. de Laryng. 1886.
(4) Renault - Arch. de Laryngol. 15/6/88.
(5) Seifert - "Die Pathologie der Pharynx - Tonsilen"
where this extension has happened, and a lacunar tonsillitis has started at the base of the tongue, with symptoms and signs much like those of faucial lacunar tonsillitis, and Fleischmann, Michieon, and Euvoritsch, narrate cases where this coexisted with similar tonsillar or pharyngeal inflammation.

Similarly after quinyx a phlegmonous affection of these glands is apt to take place, resulting often in abscess formation. Such a condition has been described by Bretschien, Bulstein, Scheel, and Harradale Shield.

It is not infrequent for lacunar tonsillitis to be complicated by naso-pharyngeal catarrh, catarrhal bronchitis.

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(3) Euvoritsch - "Die Krankheiten der Rundhöhle" xff. 20.
(4) Bretschien - Dissertation zu Würzburg 1888.
(5) Bulstein - "Krankheiten der Jungen" 1887.
(6) Scheel - "Die Krankheiten der Rundhöhle" p. 19.
or bronchopneumonia, either from extension of the inflammatory process, or, more probably, from effects of the chill which produced the primary inflammation. Laryngitis is rare—I have not as yet met with it in a single case.

(c) Haemorrhage is an unusual complication, but once I have seen it occur. It was in a schoolboy, and was so pure as to cause some anxiety. The bleeding started spontaneously, and, while it lasted, was profuse. It was, however, successfully controlled by means of ice, and by the pressure of a per-chloride swab, but not till a large quantity of blood had been lost.

(a) Rheumatism. A primary attack of acute rheumatism complicated or immediately following follicular tonsillitis I have but twice seen. Subacute rheumatic fever, affecting only one or two joints, is more frequent, but most often it occurs where an acute attack
has previously been suffered from, and may only be determined by the lower-
ity effect on the eruption of the tonsil.
pillar affection, the rheumatic predis-
position being already present. Slight
or severe arthritic pains are more or
less frequently complained of, and, in
one child, I have seen articular pains
along with a profuse pustulaceous
eruption, in another, a painful ery-
-thema, somewhat like erythema nodosum,
but affecting the inner aspects of the
thighs, coincide with the faucial
trouble, and other complications and
sequelae, which are generally considered
of rheumatic nature, are frequently
recorded.

It is purely possible that these may
be some manifestations of a secondary
infection of the circulation by pustulances
produced in the inflamed tonsil, or
that they may be caused by the action
of pathogenic organisms, which the
temporary abeyance of the protective
action of the tonsil has allowed to
As to rheumatism itself being a result of bacterial poisoning, there are some grounds in favour of that theory. Some years ago, Mantle directed his study to the examination of the bacterial aspects of blood and synovial fluids in acute rheumatism, and others followed his lead, and now many observers profess to recognize in rheumatic fever a condition induced by changes in the blood, due to the entrance of micro-organisms into the system.

If this be so, may not tonsillitis, when it occurs, as it undoubtedly often does, just before rheumatic fever, be due to a bacterial infection, coincident with that producing the other disease, the tonsillitic organisms producing their evil effects after a shorter incubation than those of rheumatism, or may not the weakening of the

A. Mantle - "The Etiology of Rheumatism Considered from a Bacterial Point of View" Lancet 1/04/1831.
system, due to tonsillitis, allow the entrance of the rheumatic virus more readily into the system.

Some cases of mine rather incline me to one or other of these views. I may take one where a boy was attacked with tonsillitis and detained six days in hospital. Three days after discharge he returned, shivering, and complaining of sore throat, and next day the rash of scarlatina appeared. During convalescence he had two attacks of subacute rheumatism.

Moreover, not alone in tonsillitis but in scarlatina too, where the tonsils usually participate in the characteristic inflammation of the throat, and in enteric fever, where the local changes affect structures more or less analogous to the tonsils in their functions, acute rheumatism and other rheumatic troubles are not infrequent, and occasionally of such a type that one is inclined to class them with puerperals, such as are observed in gonorrhoea and pyrexial
fear, and attribute their causation to the sudden cessation of the rapid production of leucocytes, and the consequent ingress of pathogenic organisms into the system, noxious of themselves, or by reason of the poisonous poisons to which they may give rise.

The Articular pains which are so frequent in Tonsillitis must, however, not be considered as being always of rheumatic origin, for they may occur in any acute fever, and are not at all rare in Typhoid and Scarlatina. Nor yet are the local appearances and symptoms of Acute follicular Tonsillitis such as could be confounded with those of the Rheumatic sore throat, described by Trousseau, Fernet, Lacque, and others. The latter is a pharyngitis rather than a Tonsillitis, and commences

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(1) Trencherin "Treatise of Contined Fever" Ed ii p. 534.
(3) Fernet - Oeuvres de Paris. 1865.
(4) Lacque - "Traité des Angines" Paris 1868.
suddenly, with acute pain, especially in swallowing. This pain is quite out of all proportion to the amount of inflammation present, and is apparently due to the implication of the pharyngeal muscles in that inflammation. It is marked by injection and swelling of the pharynx, uvula, and palate, and is distinguished by its ephemeral character, as it lasts only some thirty or forty hours, and disappears as suddenly as it arose.

Nevertheless, whether it be causal or merely accidental, the array of statistics brought forward, from time to time, in favour of the connection between these two diseases, proves beyond doubt that some close relation may at times exist between Tonsillitis and Rheumatism. Cheadle [2] has seen it occur along with nearly all of his "rheumatic phases," Kingston Fowler, in 1880,

published an account of its occurrence in twenty cases of Acute Rheumatism, and statements of Lennox Browne, Haig Brown, Stewart, Meattle, Carrod, others go far to confirm the view, that follicular tonsillitis is no infrequent precursor of the troubles considered as rheumatic.

c. Endocarditis. Haig Brown has observed three varieties of murmurs occurring in the course of, or shortly after, an attack of follicular tonsillitis:

1. A systolic blowing apical murmur, generally with some accentuation of the pulmonary second sound.
2. A systolic basic murmur in the second left intercostal space, also with accentuation of the pulmonary second sound.

(3) A murmur with the characteristics of a pericardial friction sound.

The first, he says, occurs in the course of the first two or three days, the second after two or three weeks, and the third during the first week.

Cheadle(1) records a case in which a soft apical murmur systolic in rhythm, was observed, most audible over the tricuspid area, but of its organic nature he was not certain, and Mauette(2) has detected apical murmurs, which, however, he always found disappeared under treatment. In one case of his a mitral systolic murmur persisted but there was the possible complication of rheumatism.

In my own cases I have several times noted a mitral systolic bruit, with accentuated pulmonary second sound, when the tonsillar inflammation was at its height; but, on strict rest

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(1) Cheadle—"On Rheumatism in Children" Lancet i/87.
(2) Mauette—see footnote p. 35.
being inured for some days, the normal condition was invariably regained. During convalescence it is not uncommon in my experience to find a basal murmur sometimes accompanied with a kasonic bruit. This is doubtless due to the anaemia so often resulting, and it always passes away under the appropriate treatment of that condition. In but one case have I ever noticed friction sounds, and that was in a boy, who had but lately come to the school, in whose case other rheumatic phenomena were present, and who gave a distinct history of a previous rheumatic attack.

Still I have seen several persons presenting evidence of chronic valvular lesions, generally mitral systolic, sometime aortic diastolic or mitral presystolic murmur, and none of pericardial inflammation, none of whom could give any history of past rheumatic, but all of whom had been frequently subject to tonsilitis.
G. Ovaritis, Orchitis, Pleurisy, and Peritonitis I have never yet encountered, nor yet any paralytic sequelae, and rural complications which might naturally be thought probable, are, with the frequent exception of a few days, partial deafness, surprisingly rare, and are generally such as may be caused by the slight enlargement of the tonsils, which remains a few days after the acuteness of the inflammation is gone. Where, however, tonsillitis is frequent and acute, instead of the enlargement disappearing, it may persist and a condition of chronic hypertrophy may ensue. This result, though common after quinsy, where the interstitial elements of the gland are mainly concerned, is comparatively rare in follicular tonsillitis, where the inflammation is confined to the lacunae, and their immediate neighbourhood.

Relapses are in my experience
rare. Still I have noticed a few cases where the whole illness has been enacted over again, before the final establishment of complete convalescence.

**Diagnosis**

Briefly within the first few hours, the diagnosis of a typical case of acute follicular tonsillitis presents no difficulty. The rapid onset of severe constitutional derangement, the characteristic complaint, the overloaded tongue, foul breath, and the singular appearance of the enlarged, tender, and reddened tonsil, with its scattered yellow beads of exudation, are too obvious and unmistakable evidences to allow of this condition being easily overlooked.

If, however, the patient be not seen till twenty-four or forty-eight hours have elapsed since the onset of the attack, and the small circular deposits have united to form a more or less continuous layer, or if there
be present some pathological condition of the tonsil, in addition to follicular inflammation, difficulties in diagnosis may arise; or it may be that the presence in the neighbourhood of diphtheria, scarlatina, or some other of those contagious fevers whose local manifestations early affect the faucesal regions, may require special care in the formation of an accurate and differential diagnosis.

From diphtheria it is distinguished both by general and local signs and symptoms. The onset of diphtheria is, in general, much more insidious and the temperature is more gradual in its rise, and rarely so regular, or so high, as in tonsillitis, while, with the comparatively low state of fever, more than a trace of albumen is apt to soon appear in the urine, and the pulse as a rule is febler and more frequent.

The pain in swallowing, though it
may be present, is not so severe in Diphtheria, and the local inflammation, instead of being confined almost entirely

to the tonsil, is more diffuse and tends to spread rapidly, and in every
direction, so that the uvula, palate, and posterior wall of the pharynx
become all more or less swollen, and of a characteristic darker, reddish-
purple, or violet hue.

The exudation, too, of follicular ton-
sillitis is yellowish in colour, appears
primarily over the cryptic orifices,
and rarely spreads beyond the tonsillar
mucous membrane, while the diphtheric
spots are less symmetrical, of a whitish
grey, appear irregularly on tonsil,
uvula, or pharynx, run rapidly together,
extend in every direction and are sur-
rounded by a red, angry, edge of in-
flammation; and, if the exudation
in tonsillitis should even cover the
whole tonsil, elevated and thicker
patches appear over their orifices, through
which a probe may be passed down
into the crypts, and the membrane is readily, and permanently, removable from the subjacent mucous membrane, while in diphtheria, on the other hand, the membrane is with difficulty separable, and, if removed, leaves a raw, bloddy, ulcerated surface, over which it tends to reform as before.

The glands of the neck in tonsillitis are not so extensively enlarged as in diphtheria, and there is never the occurrence of extensive infiltration of the cervical connective tissues.

The temperature in diphtheria remains longer relatively high, and marked albuminuria persists, while soon the membrane begins to soften, and decompose, becoming darker and more brownish in colour, and here and there separating into shreds, and the horrible foetor of the breath, siberous discharge, and muffled nasal voice appear, to stumps the character of the disease with too fearful plainness.

Later still may come the charac-
In scarlatina, Röthelz, and measles the facial appearances are quite different from those seen in follicular tonsillitis.

In scarlatina vomiting, or a convulsive seizure, marks the onset more frequently than is the case in tonsillitis, the temperature rises rapidly, but, with it, there is a corresponding rapid increase in the frequency of the pulse rate, often to 120 or 140 beats per minute. The redness of the throat is more widely diffused and more vivid, while over the soft palate it may assume a purplish-tinted character. The rash, in typical cases, appears on the second day, and the temperature remains high for a much longer time, and, when it descends, almost invariably does so by gradual stages.

In Röthelz too the facial redness, though fainter, is not confined to the
tours, the temperature is rarely high, and the glandular enlargement is generally restricted to the posterior border of the sternomastoide muscle.

In measles and in laceropharyngeal cataract, there are calcarval symptoms present from the first, and the tonsil may, or may not, partake in the slight diffused redness, which is generally almost entirely confined to the back of the pharynx.

**Treatment.**

Believing as I do Acute Follicular Tonsillitis to be an acute specific fever of eight or four days duration, my treatment is mostly of an expectant kind. Morine, quinine, quinacrin, salol, salicylate of soda, chlorate of potash, sulphate of calcium, bicarbonate, and other drugs have been from time to time recommended as tending to cause the condition to abort, but, in my experience, whatever be the course of treat-
ment employed, crisis is never hastened but invariably occurs, unless in exceptional cases, about the third or fourth day.

The first indication is generally afforded by the state of the bowels, and, as soon as possible, a sharp saline aperient should be administered. In slighter cases the constitutional symptoms fall for only a mild febrifuge, containing chlorate of potash and dilute hydrochloric acid, or some other mixture of diaphoretics and aperients, but, in more acute cases, I have adopted, as an almost routine practice, the administration of salicylate of soda combined with a few drops of the Spirits Ammoniac Aromatic every two or three hours.

Antipirin and Alonite I have avoided on account of the great after-depression sometimes following their use, and gainine too, on account of the frequency with which one meets with intolerance of that drug, as well as because of the possible congestion, or other change of the inner ear, which its continued dosage
may cause. In small - 3-5 grains - doses
pariyutos are rarely badly borne, and,
besides their generally affording marked
relief to the headache, pain, and accom-
fort, relapses, in cases so treated, are
most infrequent, and the possible sequence
of rheumatic regularae may, by their
use, be ward off.

Astringent gargles in the early stage
I never give, but hot mucilaginous fluids,
linseed tea, barley water, blackcurrant tea,
and hot milk, either sipped frequently,
or used as gargles, appear to diminish
the disagreeable feeling in the throat, as
well as the tendency to hark and spit.
Guaiacum and phatary lozenges seem to
have a similar effect. Probably they
all act similarly, by preventing the dry-
ing and hardening of the mucous re-
duction in the pharynx.

Locally I find much relief ensuing
from the external application of warm
linseed poultices, or wet compresses to
the throat, or simply by its envelopment
in dry flannel, or cotton wool.
Becaine is also of benefit, but it may produce toxic effects, if too freely used, such as paresis of the pharynx and palate. In some instances local discomfort is much diminished by frequently painting the tonsil with a mixture of equal parts of glycerine and boroglycride, and where catarrhal complications are present inhalations should be employed, every two or three hours, of warm water, pure and simple, or containing eucalyptol, eucal, or some other antiseptic. In complex inhalers is required, as a large basin of very hot water placed near the patient's head, and a loose sheet thrown loosely over all to form a sort of tent, is all that will be found necessary. By this means, too, aphasia is markedly relieved, and the risk of contagion is minimised.

Of massage, as advocated by Kellgren.  

and of continuous cold, applied by Leiter's boll, as recommended by Le moy Browne, I have no experience, and I have yet to see any marked benefit accruing from early external painting with iodine.

After crisis is past, I am accustomed to substitute a mixture of cinchona and dilute acids for the palatinate, and, if there be much depression, to give stimulants, generally in the form of port wine, for a few days, the patient being still kept under observation in a warm room.

If the throat remains congested and the tonsil enlarged, some astrin- gent application, either in the form of gauze or paint, such as the glycerides of alum, of carbolic, or of tannic acid may be frequently made, and, instead of the vegetable bitter, a mixture of iron and strychnine should in a few days be given, and, especially when the so often consequent anaemia shows itself,
continued for some weeks.

Fresh air and gentle walking exercise are great aids in convalescence, 
and, if no complications have arisen, complete restoration to normal health, within ten days or 
a fortnight, may be confidently pre-
dicted.

What is the exact nature of this complaint has been for 
long, and still remains, a sub-
ject of debate.

Some authorities hold it to 
be a modified form of diphtheria, 
a theory which, though it be 
supported by the pathology which 
I have quoted, the results of close 
clinical observation rather tend 
to refute; others consider it a 
disease of rheumatic origin; 
and others again, with whom I 
am inclined to agree, believe
that it is a specific fever, probably owing its origin primarily to
defective sanitation and ventilation, and secondarily to cold and other
atmospheric causes.

Its definite course of illness, its undoubted contagiousness, its
period of incubation, its sudden invasion, the occasional grave and
severe character of its accompanying symptoms and complications,
its local faccial affection, its frequent epidemic type, its apparent-
ly hereditary predisposition, and other phenomena, resembling those
of other diseases whose pathogenic microorganisms are known, are
such as to lead one, from analogy, to conclude, that Acute Fol-
cicular tonsillitis is due to some similar specific germ, which, as
yet, the means of research employed have not been able to
isolate.

Ere long, however, we may
venture to hope, the efforts of bacteriologists and pathologists may meet with a full measure of success, and a final solution may be arrived at of the mystery, which at present surrounds the precise nature, and definite causation, of this prevalent disease.