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Clinical Observations on

Diphtheria.

By

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on
"Diphtheria"

by
Francis Hely-Hughes (of Mauritius)
Introduction

We shall use the term "Diphtheria" instead of "Diphtherite", which was originally given by Bretonneau, not that the former is more correct, but merely because it is more generally used in the various classes of Society...

For practical purposes, it matters little whether we call it "Diphtheria, Diphtherite or Diphtherites, "Pharyngite Gummoneuse", Angina Maligna, and lastly, Eulogynes. Diphtheria, sore throat, which are all synonymous terms more or less incorrect, ...

We shall illustrate by cases we have had under our care, whilst Resident Physician's Assistant at University College Hospital, London, the various shapes under which Diphtheria has presented itself to our observation, viz.: as it affects the throat and the air passages; and at the same time we shall briefly consider its various forms, and more fully its Pathology in general, its Diagnosis, Prognosis, and lastly its treatment. ...
2.

Part IV.

Symptoms (Illustrated)

The affection may be either 1° purely local, without much or any constitutional symptoms. 2° It may be attended by both local and constitutional lesions. 3° The symptoms may depend upon the extension of the inflammation and incision into the nasal cavity, larynx, trachea, down to bronchial tubes, seldom along esophagus to stomach.

Seats of the incisionation may be:
1° Walls of Pharynx. 2° one or both tonsils. 3° Uvula. 4° Palate. 5° Mucous Membrane of nasal posterior.

As secondary diphtheria, we shall regard any incisionation beginning primarily in either the "larynx" or "trachea" and extending upwards into the Pharynx.

P. (case Illustrating the Disease as being purely local).

Thomas Cox, aged 33, single, night railway porter, by occupation admitted into Westfield College Hospital, London, on Sunday, April 27th, 1853, at 1 pm.

History: been in good health for typhus, and on being the whole of Saturday night till next morning (Sunday) at 6 o'clock, when he left to go to bed. He had been in bed
Nearly four hours, when he suddenly awoke from a sense of suffocation in his throat, coughing, slight thirst, no pain about limbs or small of the back. Minor little hoarse, intense pain in throat when he attempts to swallow anything, or to lie down on his back. A surgeon was called in, who touched patient's throat with a caustic solution (Nitrate of Silver). Walked to Widk.

State on admission: Throat examined. Swollen three times its natural size, elongated, pendulous, and hanging down the throat, causing from time to time a sense of suffocation, obliging patient to lie on his face; pillar of left palate slightly inflamed, not oedematous, covered with solutions of Nitrate of Silver. Tongue not enlarged. Throat could not be seen (concealed by enlarged tongue). Tongue fur as no sign of aphthae. Bowels Confined.

The next day (Monday April 5th) the patient was more carefully examined by Professor Jenner.

Symptomatic glands swollen at angles of lower jaw, tender, swelled same size as on admission, but when turned up: a distinct transparent whitish membrane was seen, peeling off with little difficulty, with Breslin forceps. Bone on either pharynx or tonsils. No abscesses or pus. (false membrane). Examined under microscope. Presented nothing.
peculiar —

Patient left hospital cured on the 24th of April 1833 complaining of a slight constriction and dryness about Pernum adani.

Duration of the Disease: 20 Days.

We could adduce, among the other cases, several other cases in which the disease was also purely local, quickly yielding to treatment.

22 Cases Illustrating the Disease as being accompanied by "tracer constitutional and local lesions" spreading into larynx & trachea (sic).

Henry Morris, aged 17, Ducks Ponds, admitted into H. C. H. Sunday Feb 14th 1833.

History: delicate from a child; mother died of consumption; father alive in poor health — he been having daily Hydrophobia acid without any inconvenience.

Attack: patient sang a good deal on the Tuesday evening, Feb 12th went to bed in good health, the next morning (Saturday 13th) complained of sore throat and difficulty of swallowing; slight cough, was sick, cold shivered — back of few severe times, no headache. Left bed at about eleven o'clock a.m., asked for some tea, had (cold) breakfast, to bed to bed in the afternoon, and was a great deal worse at night.
when he was delirious, breathing became more difficult and breath offensive. The next morning (Sunday, Feb 24th), he spoke a little, and seemed himself a little better, but could neither swallow, nor get out of bed, and gradually became delirious until his admission on the same day at 3 p.m. - was carried to hospital. State on admission: found in a prostrate state, lying on his back, in a low muttering delirium; face rather puffy, lips dusky blue, breath very offensive (gangrenous smell), unable to protrude tongue, does not answer question. Decided fulness about neck & angle of jaw - submaxillary glands distended, when touched more or less as if painful. No rash anywhere. It was impossible to examine the throat, the buccal parts were quite stiff. Resisted all attempts at opening the mouth. No discharge from nostrils; breath profuse bacterization of yellowish colour, highly offensive.

Chill and a shiver prevented nothing abnormal. The skin cool, pulse frequent, small. Comprehensible. No anaemia of lower extremities.

At 3 p.m. was getting worse, passed stool and urine in bed, (the urine contained consequently a Starned during life)

Died at 3 p.m. on the same evening.

Duration of the disease 3 6 hours.

It was ascertained that there was another close-throat.
The Symptoms are also those of Scarletina M addresses, but the
pathological appearances to be described distinctly confirm
the Diagnosis.

Suffice it to adduce another Case presenting both constitutional
abortive Sickness, which ended in Recovery.

The following case and another we shall briefly allude to, have been
distinctly traced as a result of "Contagion."

Eliza Reynolds age 32 years- female- admitted into H. E. Sunday
Today March 19th 18-

History- enjoyed pretty good health previous
to present attack. Had Sycamore fever and Endocarditis 2 years ago when
in Scotland- Cataractia regular.

Attack: has been attending. Since Saturday March 15th, a friend a
medical gentleman, labouring under an attack of Diphtheria,
which he (the Medical gentleman) caught from a particular kid- he was
taking from the same complaint.

The bed up two consecutive nights (Tuesday 16th Wednesday 17th)- The
lungs left the room, from Saturday 12th to Thursday morning 15th,
when the first fell a general Lassitude, slight sore throat,

thick- feverish (with thin confined weals- 2000s) inclined
to be restless, very restless, slept less up to a diphtherin on the 15th. Feeling

Examination on the 19th feverish, tender in ear with chronic otitis,
Little swelling at left thigh of Arm, painful to touch—gland-like in character. Excoriation of painful on either side of neck, slight cough. Throat brand, can open mouth easily, deglutition painful. No throbbing sensation—no dyspnea—

Throat: on left tonsil which is not enlarged, there is seen an opaque exudation, which is removed with little difficulty with dissecting forceps, exposing a raw bleeding surface, exudation under microscope presented nothing peculiar.

Exudation has increased in size, since first seen by T kicker on the 18th, before her admission. Arch of palate very red, most ulcerated. Tongue white furred—no trace of aphthae—no albumen in Urine—

She was rapidly getting better under treatment, when on the 27th of March, she was seized with an attack of Rheumatic fever, which lasted a week, and was discharged cured at the beginning of the month of April—

The Rheumatic attack seems to have been the exciting cause of the Rheumatism—

Duration 8 days—with Rheumatism 16 days—

Symptoms depending upon "extension of the inflammation and exudation into the larynx and trachea," may be more properly regarded as "Complications," and may be complicated by the case of illness (page 14).
In almost all cases in which such complications occurred, death was the result, i.e., from exhaustion.

In some a membranous tube has been brought up, apparently followed with great relief, but almost immediately followed by death.

The symptoms are similar to those in the case of Mories; of course, more intense when the trachea is involved, but the pathological conditions are the same everywhere.

From the observations of Broussonet, the disease is more apt to spread to the back divisions of the bronchi in adults than in children, because they reach more the larynx.

The inflammation may spread from the pharynx to the mucous membrane of the mouth, giving rise to a "Diphtheiotic stomatitis" with pathological appearances similar to those in the pharynx.

**Recapitulation of Symptoms**

1. That in most cases, the disease sets in with less premonitory symptoms, simulating those of scarlatina, malaria, quickly followed by great prostration of strength.

2. That the throat affection, in most cases, first attracts the patient's notice.

3. That in other, on the contrary, the throat affection is only noticed when encephal symptoms are predominating.

4. That the affection has a great tendency to spread into
IX. That the disease is never, accompanied with any "Rash" on the skin.

X. That the affection may be purely "Local," with little or no constitutional symptom.

XI. That it may commence during the course of some illness, upon a phthisic or non-phthisic base.

XII. That the disease "primarily" begins in the "Pharynx," and that we consider it as distinct from Lymph, which primarily begins in the Trachea.

The Redness of the throat is of the inflammatory kind, when the false membranes are torn off, which is done with little and sometimes with great difficulty. The exposed surface looks raw, sometimes bleeds, often connected with the mucous membranes by filaments, but never presents either "Irritation" or "Roughing."

XII. That, without doubting the possibility, we have not been able to trace any connection between the occurrence of the false membrane and the presence of the "Odium Albicans." 

IX. That we have not detected any "Albicans" in the urine of patients suffering under Diphtheria. (Note: That in the fatal case of Morris, the urine was examined (before the Post-mortem), and no albicans detected, and the kidney was subsequently proved to be healthy.)

IX. Such as in one case in which Diphtheria supervened upon an attack of Scarlet fever.
That the disease of our time, tends to become "Chronic", and
that as a rule - if the diphtheritic inflammation be mitigated
by topical applications, health is soon restored; but on the
other hand, (in majority of cases) we have not infrequently
suffering general Debility, paralysis, and some defect
in the Speech &...

Terminations 1° By Recovery. 2° By some Chronic throat
affection - general or partial Paralysis. 3° By Death from
Exhaustion or Suffocation.

Part IV
"Pathology"

The following were the pathological appearances observed in the
state of cancer.

"Section Cadaveris 17 hours after Death":

Pepa mitis very well marked, and equally so everywhere, considerable
fulness about upper part of neck - angle of jaw, a good deal of
inflation about each post tempo, also of abdomen laterally,
and of trunk post temporo, furnished in colour. Face pale.

"Depression of the Neck": Skin, cellular thence and sterno-mastoid
muscle being removed, the lymphatic gland in the sympathetic and
angle of jaw, along internal jugular vein, and other place
in neck, corresponding to the section of sternomastoid muscle, are very
much enlarged, some pale, and others dark. Partial capsule slightly vascular.

Pharynx laid open from behind: of dark crimson grey, concealed over its greater extent, with layers of granular lymph, whose colour is deepest grey, the lymph is most abundant. After scraping surface, one sees dark grey tissue, studded with points of ash-grey colour, which are limited to the Pharynx.

Above the low Epiglottis - tissue is pinkish pale.

The wall of the Pharynx, especially above, are delaminated with the mucous membrane congealed, to this congeation and thickening of submucous tissue, the narrowness of the Pharynx is due.

Mucous posterior surface is covered with lymph, whose pendulum palate very much thicken.

In side large - no sign of ulceration or of bloody - on pressure, some purulent matter escaped from minute orifices.

On section, the gland looks almost converted, into thin purulent-looking matter.

Epiglottis: Epiglottis fold cut off to, deep grey, upper surface of Epiglottis crimson, under surface crimson + dark grey. After scraping lymph from upper surface, one sees the mucous membrane studded with pale grey spots. From Epiglottis Epiglottis can fold down to lower part of trachea, the mucous surface is

Abdomen: Stomach very empty, mammary tail - Anterior surface redder than natural, studded with crimson points. Stomach, interior of: crimson red, but no deposits of lymph. Mesenteric glands very much enlarged - pale. Especially thin transition between ileum and intestine. - Peyer's patches and solitary glands unusually prominent; large intestine healthy.

History: Both healthy. On section: Oesophageal and Indolentary healthy. Under microscope - no fat cells. Weight of both 8 lbs.

Brain: Superior longitudinal sinus contains a good size black clot . . . . Vesels of pia mater large and small, filled with
dark fluid blood. Constitutions "slightly" flattened - very little fluid under arm; arm.

The skin: brain substance presents numbness and red points - (much more than natural.) Very little fluid in lateral ventricles. Please, Choroids dark.

Brain of good consistence.

We shall now pass to the study of the "False Membrane" and see how it is formed, trace out its various changes and modes of terminations, its microscopic characters, its cutaneous form, and lastly of the supposed causes of the "Exudation" and of "Diphtheria" in general.

"Development of the Pseudo-Membrane."

1st Stage: Let us suppose our tonsil to be inflamed, it is red, swollen, the winds is better circumscribed or punctiform; this stage may last sometimes two or three hours or more days.

2nd Stage: Then comes the second stage, or that of formation of a transparent membrane or pellicle, very much like coagulated mucous. The primary bulk of this pseudo-membrane is according to Stendal. between the epithelium and the mucous surface.

From the observations of M. M. Moulleau and Empies, it would appear that the formation of the false membrane, is preceded by the fixation of a thin mucous, transparent, somewhat a. Arch. Gen. de Med. 30. "Etude sur la Diphtherie."
Sputum Fluid.—This liquid, once seeded, quickly acquires more density and cohesion, adheres as it were, more intimately, to the surface which detaches it, and does not remain long before it presents minute drops or small points, of transparent, cloud-like, soon assuming a yellowish tint, and which points, or the first appearing, are scattered from each other, although ill-defined from the liquid from which they issue—two they tend after a certain time to coalesce, so as to form a round of Sputum, still very thin and little coherent, which may be considered as the pseudo-membrane “in its first stage.”

2nd Stage. The pseudo-membrane soon loses its transparency and assumes a greater consistence.—At the same time, it increases in size and thickens, from mere layers being formed beneath it, the inflammatory exudate of the mucous membrane and the exudation of a sero-mucous fluid, always precedes its formation.—Not infrequently, the inflammatory exudate spreads itself in force, upon which the exudation takes place.

The “colour” of the exudation varies from white, through yellow, to grey or even black.

When newly formed, the pseudo-membrane is not very adherent, and may be easily removed without producing the slightest bleeding; but after a time, it becomes firm and adherent to subjacent mucous membrane, and sometimes when removed, is found...
connected by small filaments to the follicles of the latter membrane. After removal, the impacted surface of the mucous membrane is then injected, rather dry than turgid, the mucous membrane elevating. Loughing.

General Characters of the "Inflammation" and of the "Pseudo-Membrane."

We believe the Inflammation to be "Specific" and different in nature to the pseudo-membrane, although they are intimately connected.

Reasons: 1. It is easy to irritate a simple inflammation; but not an inflammation with a deep fibrous character.

2. Because the pseudo-membrane cannot be formed without inflammation, are we to conclude that the former is distinct from the latter?

We believe with Dr. Simpson, that an inflammation may be the result of phimosis, and the most common continuity. The production of the pseudo-membrane without being the "Cause" of inflammation.

The Pseudo-membrane possesses a "Special marked property," attended by an inflammation which it imparts its special characters; but in itself is an altogether independent of the inflammation.

We further believe, that there is not generally, any great relation between the intensity, profusion, and rapidity of formation of the Pseudo-membrane; it is seen certain, that the former...
of the pseudo-membranous ulceration of Diphteric Catarrh, is in an
inverse ratio to the intensity of the inflammatory Catarrh, and
that the production of the false membranes, is the more easy, and
more abundant as the ulcera character is less manifest in
Diphteriea consists then, of a "Specific Inflammation", resulting
from the intimate association or fusion of two distinct elements (or
processes), capable of being ascertained by clinical analysis.

The swelling of the submaxillary glands always accompanies, and
not only

occasionally precedes, the appearance of the false membranes, and only

of the false membranes, but of the inflammation itself.

"Elimination of the False Membrane"

If the local affection does not extend beyond the Pharynx, the
following phenomena may be noticed in the false membrane, as they were
in the case of Cox & Reginald:

The web of the one, and the lobe of the other, were observed to
shrink in size, the false-membrane moistened with some mucous-melting
material, broke at certain points; gradually diminishing in
thickness, at the same time that they underwent absorption, and
the mucous membrane underneath ceased to be secreted any more, as
if after a process of "cicatrization" if we may so call it;

once or twice the membranes were ejected during a fit of coughing
and distinctly observed in the pharynx.

Exceptions: not unfrequently this is the case reproduced.)
Keratous, in still other cases, the pseudo-membrane very
abruptly is not detached, and is not till very late
little by little, reducing itself to a thin, "pellicle" disappearing at last
by slow absorption.

In the case of the tongue, the pseudo-membrane is carried
into the tongue, trodden down to the bronchial tubes,
slowly, along the throats of the Stomach or intestines.

In the case of the Stomach, each of these is not infrequently expelled.

Sometimes, when the pseudo-membranes are formed in
abundance, and are heaped on each other, they are apt to
undergo decomposition, and give rise to the smell of appearance
of gangrene. In such a case, the underlying mucous membrane
will be found untouched (case of Morris). Since this affection
has been mistaken for Gangrene of Pharynx in which is not very
common, and presents characters totally different to be hereafter
described, in speaking of the Diagnosis.

Lastly, the Inflammation, may end, in rare cases, in Gangrene.

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Of the Causes of the Eruption of the "Pseudo-Membrane."

The development of the Eruption with the presence of a Pelma's
plant "the United Abscess," the latterly attracting the attention of
professional men, we have not encountered it present in any of
our cases, although the false membranes were subjected to the usual
Vogel advances that in True Pseudo-diphtheritic membranes excised from the buccal oropharyngeal surface of the mouth or pharynx, there is found "sometimes" the Villi of the Fungi, even when they (the pseudo-membrane) still form thick, small points or small white spots. But Vogel's view has not been corroborated by other observers or even that the latter further states that:

"Evidemment, Vogel se trompe, sous la denomination de diphtherite, toute les excrétions pseudo-membraneuses, sans l'occuper de leurs caracteres et de leur nature, encore et en le rencontre que dans les Excitutions du Fungueil et non seulement dans les Excitutions pseudo-membranous diphtheritiques ou fimbriées..."

The excrétions, appear that in some cases, the formation of the false membrane, was connected with the presence of the "Villi inclus" similar to that found in the Fungi. E. P., P., O. (State) that when the field of the incision was examined under the microscope, there were found: an increased formation of epithelial scales and effusions of mucous secretion, corpuscles, or platelets, among these are the spores and the mycelium of the microscopie fungus..."
of the false membrane, is a subject for further investigation.—

"Microscopic Examinations of Various Exudations."

In the Microscopic Study of the Phthisic Exudation, we have thought proper to examine at the same time, the various and most common of the pathological Exudations—i.e.,
Exudation from blister—2d. Buffy coat of the blood—
3d. Pleuritic Effusion—4th Exudation of Syncytium Arginicae, same
lastly. Comp. Sanguineous Exudation— and Aeugueck.

Before proceeding further, we must acknowledge that our observations were based on those originally made by Mr. Simpson (a), whose description we shall give:

1. Characteristic common to all:

a. of small filaments of fibrin interwoven with each other in various directions, forming a more or less regular network.

b. of great number of small irregularly rounded corpuscles, coated round the network and in the interspaces, varying in number, according to the Exudation, a little to the molecular granules of blood, resisting for some time the action of acetic acid.

c. The Exudation when treated with a Drop of Solution of Alcohol, assumed almost immediately a very dark brown hue.

2. Special Characters

Buffy Coat of the Blood—beside the Common Character, filaments of fibrin are very distinct, and under the action
of Structure of Tissue, assumed a very dark hue. The Intervening
of the filaments is not so thick as in Diphtheria. Of molecular-
granules, but by abundant than in other pseudo-membranes.

"Special Characteristic": I. Presence of Coloured and
Cholesterol Blood corpuscles. II. Absence of Epithelial Scales and of
Pus Corpuscles.

IV. "Pleuritic Effusion": these characters are about
identical to those of the Blood.

"Special Characteristic" I. Abundance of Molecular granules
but especially of Pus corpuscles. II. Absence of blood corpuscles.
III. Absence of Epithelial scales.

VI. "Excudation from Blister": Common Characteristic very
close fibrinous network, on the addition of a drop of Tincture of
Toluidine, it also assumes a very dark hue. Absence of
molecular granules, and of Pus corpuscles sometimes.

"Special Characteristic": I. Common appearance of Epithelial
scales. II. Absence of Blood corpuscles.

IV. Diphtheritic Excudation from whatever part obtained,
prevented Characteristic very much like those of Excudation of Common
Blister.

As Common Characteristic: I. Abundance of fibrinous filament
forming intricate network. II. Abundance of molecular granules.
The few Pus corpuscles, perhaps kept a abundant than in Excudation.
from Victor — An abundance of epithelial scales, varying in shape and amount according to this. — If the diphtheritic exudation has been obtained from a blistered surface, it is much to impossible to distinguish the one from the other.

Exudation fradulenta etoforme present under the microscopic character similar to those of the Blushy Coat of the Blood, with the circular capsules — there also is a absence of epithelial scales, a few may be present — the exudation is much more like that produced by inflammation of serous membranes, and possibly besides one peculiar pathognomonic character, which serves to distinguish it from free Diphtheritic exudation, viz. from the observations of Guerard, Blache, Lemmery and Brodat, the "Crupal Exudation" is "organizable" — exhibiting formation of new blood vessels, this has been especially observed when the pseudo-membrane was very adherent to the subjacent mucous membrane of the trachea; whereas on the other hand, from the observations of Dr. Abbot (1), the diphtheritic exudation is non-organizalbe —

It is then of a plastic character, a little chemically labile, diffusing, and to the Blushy Coat of the Blood. — When treated with sulphuric acid, dilute nitric or hydrochloric acid, it becomes hard and CONTRACTED, and depoly in acetic acid, liquid ammonia, and alkaline solutions. — After calcination

(1) Right des Plais
Bill, March 147.
yields Sulphate of Lime and Carbonate of Soda.

A Sedimentation of Scurviana Anginosa presents Characters alike to Diphtheritic Sedimentation, and can scarcely be distinguished from each other.

The Mequet, we have already adverted to the microscopic characters of the mequet, and shall here, in the Diagnostics, speak more fully of them.

**Essential Character:** 
*Viduum Albicans.*

**Conclusions:** That it is permissible to distinguish under the microscope:

1. Diphtheritic Sedimentation from the Sedimentation of Mequet.
   Exceptions will happen, if Mequet is found in connection with Diphtheria.

2. The Haemolytic Coat of the Blood.


4. Pleuritic Effusion.

That it is impermissible by the simple aid of the Microscope to decide whether we are dealing with Sedimentation from a Throat, Diphtheritic Sedimentation, a Lethy with Sedimentation from Scurviana Anginosa.

From the preceding observations, we see to admit, as we have already been inclined to do, that because the Microscope reveals no special difference in the diphtheritic Sedimentation...
from incursions produced by other diseases, that they must belong to one and the same disease.
We cannot admit it, for we are taught to believe that, the primary pustule of diphtheria, the pustule of variola, and pustule of vaccinia, &c., are lesions common to one and the same disease; hence under the microscope they all present characters identical in

Cutaneous Form of Diphtheria

Although our present observations are principally confined to the disease as it affects the throat, it would, however, be unphilosophical to keep unnoticed the phenomena presented by the cutaneous form of diphtheria.

We have already observed that whenever it prevails it is always characterized by the presence of a film membrane, which (until we become better acquainted with its true nature) are the pathognomonic sign.

Let us now pass to the consideration of its pathology and see whether it presents any peculiarity or difference from that from which we have already conceived, viz. such as affect the throat, and lastly remark under what circumstances it is more likely to take place.

From the observations we have been able to collect,
The cutaneous ulcers in no wise in its pathological characters from the disease which affects the throat.

24. That the essential condition for its development is the absence of the Epidermis, hence, it is always seen affecting an eroded and inflamed surface. No one point of the skin is predisposed to become the seat of the affection, unless already deprived of its Epidermis. Hence; if it is generally observed in children about the angles of the mouth, the superior lip, the ear, or behind the ear, it is because those parts are already associated from other causes or want of cleanliness.

There is one remarkable fact, and which serves to distinguish it from plastic incrustation, which was first pointed out by Mr. Robert that the nephritic incrustation can never be organized over the surface of a wound, and that it contributes to its cicatrization, which the plastic incrustation can.

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State of the Blood

Although much has been said as regards the pathology and causes of nephritis, yet, there is nothing known in regard to the state of the blood, we are, consequently, obliged to proceed with the consideration of such an important subject...
Etiology or Causes of Diphtheria

This affection sometimes spreads, often leaves itself as an epidemic, under circumstances difficult to understand. But, it has been ascribed to the influence of a very damp, moist, atmospheric, to atmosphere, reciprocities, and to unhealthy localities where the disease was raging.

But from the observations of Professor Droddeges, the conditions do not seem to influence materially the development of the disease, since he has shown it to prevail with great facility in some of the districts. The departments of Land in France, remarkable for their humidity and their good geographical position, at the same time that villages situated in the Centre of marshes remained free from it, and by contrast villages situated near marshes were observed to be alone affected, which others enjoyed a complete immunity caused by the ordinary humidity of the place.

Again, bad elements and social privations imposed by poverty cannot be ascribed as Causes without throwing some further blame on the Subject, and if admitting that unfilled, and worn out Constitutions have sometimes predisposed to this formidable affection, it is not likely that we often be the fifth healthy and vigorous individuals affected by its neo.
...To the Reader of Gaussborough... alludes to the coincidence of
the disease affecting horses, while Diphtheria prevailed
among mankind; and states that the disease among horses,
though generally amenable to treatment, in some cases proved
fatal from supposed phlegm..."

"Respecting Causes: It has been ascertained to be
"hereditary" in some families, but Trudoux and others give
different instances. - During an epidemic a common tnvolat
sphilitic habit. In Children measles and scarlatina often
precipitate it, and also typhus and typhoid fever.
Climate does not seem to have any influence..."

"Exciting Cause: Contagion... according to the popular
theory in France, where the Contagions are more favourable on the
whole, than they are in England, to diffusion of Rubella Ectatica
over the foci..."

"Is Diphtheria Contagious?"

writers of past centuries entertained no doubt of the
contagious character of the disease; but it was rare for it to have
properly recorded cases. Dr. Bucicchio... who paid special
attention to this point, confessed that Contagion is difficult
to be proved. Together with others, he inoculated animals
with Diphtheritic exudation without any result..."

Solly, Dr. Harley, of University College, London... inoculated
at a point of Rapid exudation...
dental doge and a snake, with diphtheritic infection without
infection. — (a) — Further, Professor Lister, once through
the use of science than of prudence, inoculated his tonsils with
diphtheritic matter without any result.

But can we admit these as proof against "Contagion,"
when almost daily we see and hear of inoculations with
Vaccine matter not succeeding? And moreover, how are we
to interpret the following statement of M. Flahaut, when he
says: "Chaque fois qu'elle (la Diphtérie) a été apportée
du dehors à l'Hôtel-Dieu Central, et qu'elle n'a pas propagé,
elle a été facile de connaître, dans le prinipe, le moment,
Le délai nécessaire à l'expansion, où elle a été communiquée."

Can the existence of Contagion be better proved? 

It must, however, be confessed that often it is impossible
to trace the origin of the Contagion, (as in the Cases of Dr. 
both), which, on the other hand, it may be traced from individual
individuals, as in the Cases of Eliza Reynolds, and the
Medical gentlemen upon whom she waited, caught the disease
from one of his patients. 

Nature of Diphtheria. — Are we to infer that
Diphtheria is a general disease allied to fever, and that the
Diphtheria or False membrane is the local affection, just
as the Eruption in Variola?
But we have facts conclusive enough to believe that a "Vegetable Fungus," may spring up on the buccal mucous surface during the course of various diseases, and give rise to the formation of a fellelike, felle-like membrane; but requiring probably, for a vestiges, some previously morbid condition. The question naturally suggests itself: Is the disease strictly speaking for its part, and the formation of a fellelike, an accident, or is the latter an essential part of the affection? We have adopted the local affection as the "Essential Product" or predominating part of the affection, resulting from some diseased condition of the blood, the nature of which is still doubtful.

Recapitulation of the Pathology.

1. That whereas the inflammation was indeed, it was followed by the formation of a felle membrane; and that during life, it was shewn to undergo certain changes, both in consistence and in appearance, at first transparent, it very much the mucus, but soon became opaque and adherent.

2. That the "felleation" is almost always preceded by inflammation, and that when formed, the exposed surface present us "Foliation" or "Funging."....

3. That in the "felleation," primary that, according to the observations of Lavoisier, is between the epithelium and the mucous...
V. That we have not observed in any of our cases, any relation between the extinction of the false membrane, and the presence of the "albicans"...

VI. That as against its "cause," are we to admit the inflammation to be its "essential cause," cannot be independent upon some special moral property with which the pseudo membranous is induced, which imparts its special characters to the inflammation.

VII. That the majority of observations are against it being connected with the "albicans"; instead denying them, the possibility...

VIII. That although the blood in this disorder, has not yet been carefully investigated, however, from the "sequelæ" often following upon an attack of Diphtheria, we are led to believe that it is a "blood disease." —

IX. That the development of this affection in some cases, may be ascribed to the incipient of the abortive phase, partial suffocation, previous lacer and purifying diseases, epidemic influence, and lastly to contagion, which in some cases may be traced from individual to individual, and in others inexplicable to account for...
Sequelea of Diphtheria

When the disease is somewhat less violent, and has yielded to early measures and early resort to, the convalescence is perfect, the tongue is healed, the phenomena of paralysis are extinguished at various points, and sometimes perfect for months, indicating the degree to which the functions of the nervous system have been influenced by this malady among.

We have observed in the cases in which the "loquax" was the chief and primary part affected, a decrease in loudness, complaining of, described as being "long unpleased," and giving rise to dysphonia of the throat. Another case in which the affection extends from the larynx to the soft palate, the disease besides being followed by general debility, was also followed by a remarkable alteration of the voice, which became "bony and nasal," and particularly at times with intense dysphonia of the throat. These were several six weeks after the patient had "recovered" from every severe attack of diphtheria.

Partial Dysphonia during Convalescence is not uncommon.

From the Observations of J. Steele (2) In certain cases, after the false membrane has entirely disappeared, and some time elapsed, without any apparent reason, the intelligibility (3)
become dismembered, mild, the parts painful, the limbs deprived of all power, and the patient falls into a state of utter prostration. Generally, the lower extremities refuse to support the body, and the arms no longer respond to motion; the movements are peculiar, the lower palate completely paralyzed; is flabby and floats about so as to be an obstacle both to deglutition and to articulation. All the muscles of mastication and those of the neck and chest are more or less paralyzed; hence the food often lies in the mouth undigested, or causes copious salivation or respiratory symptoms.

Then also becomes impaired, and the sensibility of the skin is much diminished. At times there is mental derangement. There is no reaction, few, if any, occur; the prostration becomes extreme, and death ensues.

The issue is not, however, necessarily fatal. Thackeray himself being attacked by Diphtheria, but by contact with the corpse of a child whom he was cauterizing, and stated that he had been very terrifying. He admits himself to be ignorant of the exact nature of the paralytic symptoms above described, but seems to incline to the view that they may be caused by a Diphtheritic exudation within the ventricles.
"Causes of the Paralyses" [sic] Dr. Lejay \(\text{...}\) believes that loss of power and sensibility is the direct consequence of the peculiar tetanitic poison acting generally on the system, and strangely modifying the blood.\text{...}

Complete anaphrodisia with general Paralyses has been observed in a young man under Professor Durand...\text{...}

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**Part IV.**

**A. Diagnosis.**

The diagnosis of this affection is in some and perhaps most cases very easy, as when it occurs as a mere local affection unaccompanied with any marked febrile symptoms, but in the other hands during epidemic of scarlatina, it is not always easy from the first to distinguish the one from the other... Again, it is not uncommon during such Epidemics first to see the eruption well marked, and it may even be altogether absent; in such cases we should watch the progress of the fever, and look for the desquamation...

The following is a Case of Erysipelas, supervening upon Scarlatina.

Charles Savory, aged 21, admitted into H.C. Hospital, London, March 2nd 18... History: was taken ill on Wednesday Dec 21st 18... with fever on the Thursday 22nd (2nd day of illness) complained of sore throat...
difficulty of swallowing. Slight cough, hoarseness, and general debility. No rash was observed.

On his admission - March 25th (7th day of illness) - presented no rash, was much cold - could swallow pretty well. When the throat was examined, the arch of the soft palate and pharynx, together with the uvula which was somewhat swollen, was found with opaque patches of false membrane, which when removed, exposed a red, inflamed surface; the posterior wall of the pharynx was covered with mucous pseudemembrane, different in aspect and in consistence from the patches removed from the arches of the soft palate, evidently derived from the posterior raees - as they did not disappear after removal - and their brownish character, were also different. There was no throat or elevation to be found, and the inflammation was pretty diffuse. Tongue somewhat reddish, papillae very little enlarged.

He was kept in bed. The third day, March 31st (8th day of illness), a slight suction was observed on the leg, and a trail of albumen deposited in the urine.

On the 11th (16th day of illness), desquamation began on the back of the neck - little mucus albumen in urine - throat affection improving under treatment.

This case further illustrates - 1st. the late appearance of the suction: 2nd. that in some cases cases of
Scarlatina, diphtheria, when supervening with mild local character, may be diagnosed from the former by the appearance of the Desquamation. But as Desquamation does not appear until a late period, it is necessary both for the safety of the patient, and for our own responsibility, to look for more characteristic signs, that we might be able, in most cases, to diagnose diphtheria from scarlatina, angin lana, etc.

Differential Diagnosis Between Diphtheria and Scarlatina. Angin Lana.

Diphtheria

Scarlatina. Angin Lana.

The diagnosis must be made in the early stage, before the Desquamation appears. The characteristic signs and symptoms of diphtheria may be: opisthotonos, signs of inflammation, and pain in head and neck.

Vomiting of blood and other substances, followed by jaundice and jaundice of the urine.

Presence of rash—Sometimes irregularly, or in patches.

Presence of albumen in the urine.

Course (General)

If not early treated, it becomes acute, and passes through various stages.
- Syphilis. (Contd.)
  chronic, but assumed very acute
  character, if inflammation has
  extended into the air-passages...
  may end in sudden death.

  Course (Local) : Throat

  At first purely local, and spread
  with more or less rapidity from
  one point. - The lining of the
  mucous membrane upon which is
  exuded the false membrane, is
  simply "inflammation;" the
  false membrane is grayish white,
  tenacious, and adherent...

  There is no general elevation or
  thickening of the mucous membrane.
  The particles may with some difficulty
  be removed in largest, as they are
  generally pretty adherent. - The
  affection does not so often spread
  into the nostrils - At times
  spread into the mouth...

  scarlatina anginosa (contd.)
  within limited time...

  Often acute character - may
  also end in sudden death.

  Structure: patient surface
  of the mucous membrane,
  in some cases it can affect
  the whole at once - The character
  of the inflammation is peculiar,
  of a very thick, and "the sticky
  juice." - At first, the exudate
  consists pretty small whitish dots
  very much like those of bilious
  exude and form a false
  membrane, early spreading to
  surrounding parts, and not
  very adherent, it is not always
  possible to remove it in largest,
  from the want of cohesion
  between the white portions of
  which it is formed. The false
An injection from the beginning, an injection profound, an injection all
throughout the body. As a result, feverishness, a headache, an
inflammation in the skin. The patient's temperature rises, they feel
ill and have difficulty breathing. The injection has led to an
inflammation of the skin, and the patient feels ill. The injection
has led to an inflammation of the skin, and the patient feels ill.

For the treatment, apply water to the skin and wrap a
compress around the affected area. For the treatment, apply
water to the skin and wrap a compress around the affected area.
Siphilitis (cont.)
but without any marked tendency to suppurate.

"In sudden Death."

There always is lesion enough to account for the sudden death. If patient dies within the first week of illness, no important pathological lesions demonstrated; the clear cause of death.

"Effects of Typical Applications in."

If typical application the Euphoretic inflammation is modified, health as Rule is inflammation is established; only the has lapsed manner, neither spread into the air passages, when the case is almost hopeless. Protects the disease, can diminish during convalescence from fever and inflammation, and period of empowerment. From mild attacks, we have noted convalescence, to an attack of infrequently supervening general acute dyspepsy. Complications Debility, and paralysis of various kinds, and relapses are very common.

Diagnosis.

During an epidemic, if there occurred. On the other hand, only one patient, both health, constitutional symptoms third or one fifth of those who help themselves, death has been unexpected death, invariably the result. (Retomeus.)
Diphtheria - cont'd

Scarlet Fever, (cont'd)

"Cutaneous Tom.

When it attacks the thin, sickly, and emaciated, it produces vesicles containing a thick, yellowish fluid, and often a pseudomembrane. The eruption disappears in a few days after death.

The exception consists of little vesicles containing a thick, yellowish fluid, and often a pseudomembrane. The eruption disappears in a few days after death.

Gangrenous Pharyngitis.

The pseudomembrane of a grayish, dirty-looking, exuding gangrenous character, "only" at an advanced period of the disease, and leaves after removal the subjacent mucous membrane entire or nearly so, associated in

Gangrenous Pharyngitis.

The pseudomembrane of a grayish, dirty-looking, exuding gangrenous character, "only" at an advanced period of the disease, and leaves after removal the subjacent mucous membrane entire or nearly so, associated in...
Acute Tonsillitis. (Stinky)
Acute tonsillitis syphilitis; symptoms, sore throat, pains in the throat and ear. The throat produces a diffuse inflammation, redness, swelling, and white. The tonsils are red, swollen, and covered with white "circumvallated" spots. These gradually coalesce together, but have no tendency to spread into the upper passage.
When removed, they are found to be connected with the follicles of the tonsils, characterized by appearance and the feel, exhaling a foul odor.

Terminations

Never, as a rule, terminated into either suppuration, ulceration, or chronic enlargement of tonsils. The contrary often breaks into chronic enlargement of one or both tonsils.
Diphtheria and Measles, or Afflach Infanticis, has been observed at all ages, but more especially during infancy.

Causes (general)

Hereditary in some, common

Stomach, any disease which tends to lower the system, and thereby affecting the "Blood" in a manner still unlearned.

Seasons.

Have not yet been mentioned - Warm the season to favour its development. That frequently obtained at the "Depot" in the Mauritius; in London and in Paris, during her first summer months, especially among the children of the poor.

Exciting Causes.

Epidemic Influence - Specific anything which tended to cause cause; i.e., Blood Poison (nature unknown). "Acidity" of the Bacterial decision.

Occasional Causes: Petit OFFICIOS, and thereby favouring the development of contagion, but not always which is the special cause of...
Diphtheria and Measles (p. 1)

of the Excitation... peculiar to artificial fever. Epidemic influence... Contagion denied by Vallici; on the other hand, M. M. Bouchier and Mayer recorded cases of "transmission" of the Measles from the Child to the sick nurse, and Mr. Empis has equally observed the same thing. It is not always easy to trace the Contagiousness of the affection...

Symptoms.

due wholly different, although in few cases the Thymic symptoms attract attention only after having reached the Lungs; the Proximal Peak of the disease is also different.

From the Observations of Vallici (a) which we shall here quote:

In the great majority of Cases, there supervened few days prior to the formation of the feverish Mumps in the mouth:

1. An erythema of the buttocks spreading to the thighs; which has been termed prevaccination of the diarrhoea...

(a) Vide seu Und: Pautrier.
Anaemia (continued)

2. Diarrhoea more or less abundant liquid motion at first yellow, then green, or may be green from the beginning. It is doubtful whether the presence of the melaena may be detected in the stools.

3. Pelvic disturbance.

4. Lastly appear the first local symptoms.

In some and perhaps in most cases, the disease does not follow such a regular course.

In adults, it appears generally during the course of some chronic, acute, or chronic, when the disease has made manifest progress and the patient already very weak.

Anaemia (of heart & mouth)

The disease is circumscribed affecting primarily either the heart or the spleen, or any other part; a marked case of anemia, the papillae are enlarged and red...
Diphtheria

Pseudo-membrane which are preceded by serous exudation in

August (continued)

A day or two after, the pseudo-membrane formation appears, chiefly in small points upon the summits of the enlarged papillæ, next in the form of small maps on the inner surface of the lips, gum, cheeks, and seldom palata.

Three or four days later, the small maps and points (above described) increase in size, and coalesce to form but a single layer; but it is chiefly on the Tongue that the pseudo-membrane itself is considerably layered.

When the exudation is removed from the tongue, the exposed surface assumes a bright red colour.

The primary seat of the exudation is between the epithelium & mucous layer (laminæ).

According to Dr. Clark, the primary seat of the exudation, is beneath the epithelium; but according to Perry, and others, the primary seat is "over" the epithelium.
Pleuritis and Mucous (continued)

"Causes of Exudation"

May be either dependent upon a "Specific Inflammation," viz. some special marked property of the false membrane itself, imparting its characteristic to the inflammation; or upon peculiar diphtheritic diathesis. It remains, lastly, to be proved to be dependent upon the presence of the "vibrum albumen." (Character of Exudation)

False membrane was at first thin, but may in some cases be removed in layer—opaque, tough, often attached to subjacent fluid laminae by filaments to subjacent parts. We have already spoken of their Microscopic Characters.

Ulcers

Total absence of Ulcer—

The presence of one or more Ulcer of various shape, whitish, yellowish, or red with elevated margins, located on either soft palate, or the uvula, which may be noticed even before the formation of the false membrane.
(Diphtheria and Measles (Concluded))

The Cutaneous Form

The cutaneous form of diphtheria, financially presents the same pathological appearances as that in the throat.

Then are some phenomena connected with the "erythema" which deserve attention, namely, it spreads and gives rise to excoriations, but rarely to "true ulcerations" with the characters already described.

Post-Mortem Appearances

Presence of false membrane about pharynx, and other parts affected being more prominent; seldom affecting the stomach; occasionally the intestines. Absence of Measles.

The stomach presents "ropes of meagre," scattered or confluent ulcerations are rare. The coats of the stomach and of the intestines are defiled, and sometimes the mucous membrane of the latter presents some reddish-tinged ulceration. 

Conclusions:

1. That diphtheria is a distinct disease, presenting generally under circumstances and with symptoms different from those of measles.
That it is still uncertain whether Diphtheria is connected with the presence of the pharyngeal albuginea; but that from the majority of authenticated observations, it is not connected with the pharyngeal albuginea (Robert Kemp).—

That the pharyngeal albuginea may be developed upon the mucous surface of the mouth, tongue, or elsewhere, as an impending sign of death, during the course of severe or chronic diseases, such as fever, Rheumatic Pain, &c., and also upon Diphtheria, when its development is favoured by a peculiar acid condition of the buccal secretion in.

That the pharynx may be transmitted either experimentally, or by mere contact to a mucous surface, or other membranes presenting the necessary condition (of salt) for its development.

And that, on the other hand, dogs have been inoculated with "true Diphtheritic" matter without success.

We have purposely dwelled on the Differential Diagnosis and Nature of Diphtheria and Alligators, because the presence of the "pharyngeal albuginea" ha-battred seen carefully observed and recorded in casual cases of Diphtheria, and has, as a matter of course, given rise to many speculations and discussions in the medical circle,—

In deducing these conclusions, we have been guided chiefly by our own observations, at the same time that we have
avoided, partly, by the experience of scientific observers.

We now pass to the "Differential Diagnosis" of Diphtheritic
vulgaris. I allude, from that of ordinary aphthosis to which we
have several times adverted.

(1) Do the Diphtheritic pustules present characters distinct
from those of ordinary aphthosis?

The results of various observers have led, as a matter of course,
the authors to different and perplexing conclusions. Some have failed
to discover any difference between the two, on the other hand,
among whom is Professor Laycock, who maintains an opposite view
namely, that the Diagnosis of Diphtheritic vulgaris from
ordinary aphthosis is founded, first, on the character of the
notes of appearance, for in ordinary aphthosis the disease is vesicular, and
the white specks or patches are almost white, while in Diphtheria
are vesicular, and not vesicular, while the colour is much
deepen than in aphthosis. Besides, the microscope may reveal
the Spaces and Unguiculums of the Tungus. The Development of
Unguiculum is, however, by no means a necessary result of the
demonstration of the fungous. This seems to be peculiar to the more
advanced stage, at first there is not even a scab, only
characteristic redden of the affected surface. Further,
it is probable that, besides the stage of Diphtheric, the condition
of the "habit" may make a considerable difference as to the
(1) See: Cib.
m układ produkcyjnych. Wartości znamienne są niezbędne dla produkcji
of the mycelium... 79

Awere of the negative results from inoculation with the
Diphtheritic matter, we were anxious to ascertain by experiments
whether we could, by mere inoculation of an inflamed tonsil with
diphtheroid matter, produce any thing like a false membrane.

Accordingly, I availed myself of the opportunity last summer,
while "acting President of Medical Officer."

I scratched one healthy tonsil with a sharp quill pen
previously dipped into diphtheroid matter without any result.

Failing after several trials, I became affected with
the

\textbf{reaction} with some aphthous of the gumma tongue, which I was
deciding to try the effect of one upon the other; with a sharp quill
pen I scraped off the matter from the aphthous (first examined at
microscopically) to ascertain that I was not dealing with
true gumma, then roughly scratching the inflamed tonsil with
the quill-pen to loaded, until I could no longer bear the pain.

Hour and days elapsed without the desired result.

I afterwards wanted to apply the diphtheroid matter to an
inflamed tonsil, but could find another friend, or patient to submit
to it.

I had no opportunity within in London or Paris to observe
the Diphtheritic ulcera, or to hear of any experiment being made with it, to ascertain whether it not it is transmissible by inoculation.

From the foregoing experiments we can deduce little or nothing, until, in the course of time, we come to prescribe to the presence of the ulcers all over, the inoculation of the false members in Diphtheria; then, it will be worth our while to ascertain both by inoculation and by microscopic observations, whether there really exists any difference between the ulcers of the Common aphthæ, and that of Diphtheritic aphthæ.

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**Differential Diagnosis between**

<table>
<thead>
<tr>
<th>Aphthæsia</th>
<th>Couch (Rachætæs)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>at all ages indiscriminately</td>
<td>chiefly children, comparatively rarer in adults</td>
</tr>
<tr>
<td><strong>Irritation</strong></td>
<td></td>
</tr>
<tr>
<td>absence of cutaneous symptoms as a rule.</td>
<td>severe cutaneous symptoms of an inflammatory character</td>
</tr>
<tr>
<td></td>
<td>if fever be present, it is of an adenopemic type, soon followed by prostration of strength</td>
</tr>
<tr>
<td><strong>Site</strong></td>
<td></td>
</tr>
<tr>
<td>chiefly begin in the &quot;Nasal&quot;</td>
<td>primarily begin in the &quot;Trachea&quot;</td>
</tr>
</tbody>
</table>
Diphtheria

It has also been described, as beginning in rare cases in the Pharynx, but more frequently it begins in the smaller bronchial tubes.

Voice

Hoarse - or Nasal - in some cases not altered -

Deeply altered, changed into a whisper - at first accompanied by a peculiar thrill of breathing.

Cough

Slight, nothing peculiar until a slight cough accompanied by a peculiar thrill of breathing,

Depends upon part affected - pretty constant - accompanied by a peculiar thrill.

Throat

When examined shortly after the disease has set in, there is always a hoarseness sufficiently to account for the hoarseness, but not necessarily of the disease, and very frequently
Diphtheria and Croup [continued]

...as on the other hand, patients we have been quiet, meaning attention maybe drawn only after the disease has assumed Hoopel symptoms...

"Pula Membrane"

Generally pretty adherent, if not very adherent, and sometimes relax slowly, unless specially in the Trachea, when it becomes organized.

"Expecoration"

False membranes as a rule... At first viscid, but soon appears in the pharynx as the mucus contains false membranes of the application of strong caustic, which are detached and expelled during a fit of cough or vomiting.

"Cervical glands" (swelling of) are beaten from the very beginning. Sometimes they are not beaten, which often proves not only the formation of the false membrane, but the Trachea...
Diphtheria (concluded)

Sept. 8

Diphtheria, acute and chronic, are considered as distinct diseases, and by others, as Dr. West as a variety of Syphilis. Without pretending to refute either view, we have adopted the results of our clinical and pathological observations:

That we consider Diphtheria as a distinct disease from Syphilis, except that Diphtheria may occasionally exist with Syphilitic symptoms, from the infection of both the
inflammation and secretion of false membranes into the back of the
throat and larynx.

As regards the diagnosis between Diphtheria and Acute
Laryngitis, the history of the case, the inflammatory character,
and the presence of false membranes may enable us to discern
with which we are dealing.

There are besides many other affections of the Throat,
Larynx and Mouth, which may be diagnosed; such as Cancer of the Tongue, Cancer of the Throat,
Laryngismus Stridulus. &c.

B. Prognosis.

A "Favourable": when the strength of the patient is
preserved, and the local affection of the throat, under early
caustic applications, and other appropriate treatment,
becomes "Mitigated", and the exudation of false membranes
gradually diminishing.

It is a rule, if the disease be limited to the Throat,
and that there is no tendency to spread into the air-passages,
or nasal cavity, together with the absence of organic debility
such as Bright's disease of the Kidney, we may expect a
fair recovery.
Exceptions: a. Sometimes without reaching the air passages, although mild at first,death has followed.

b. In the other hand, the local affection may be very severe, and the urine albuminious without causing death.

c. We must always bear in mind, that the disease acute or chronic may be followed by great debility, and by various kinds of Paralysis.

If Unfavourable: When in spite of all typical applications to the throat, the disease has reached the air passages, the Prognosis is most unfavourable, and if given, it should be with much discretion; death in such cases, being almost the Rule. Epidemic influence, locality, want of hygiene, and previous treatment to which patient has been submitted, will influence the Prognosis.

Albuminious urine with loss of | the disease almost always fatal except from Thera's observations. (a)

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**Part IV. Treatment**

into Local and General.

1. Local Treatment

Indications: a. To prevent the spreading of the inflammation and supuration into the air passages in nasal cavity.

"Wade on Diptheria"/3
b. to mitigate the inflammation of the submaxillary glands or
other parts locally affected ...

Van Swieten first had the notion of cantonizing the
Marrow, but Dietomene proved from practical observation,
the importance of such treatment, which is to say almost
universally adopted ...

2. Emetic Applications: The following is the local
treatment employed in the cases already detailed - Part E.

a. Equal parts of strong Hydrochloric Acid and Water,
applied to the throat by means of a camel hair brush or jut
being the patient and repeated every evening or twice a day
of the disease was not mitigated ...

b. Application of Solid Nitrate of Silver, care being
taken that it is properly fitted, and not too long, as it generally
requires to be "gently rubbed" against the diseased surface.

As it may be used in a Concentrated Solution (Nitrate of
Silver 34 parts to 39 of distilled water) ...

c. Calomel: Simultaneously with other Yeast
application, instillation of Calomel to the throat has been
employed in many cases with Success (Hôpital Necker Paris);
at the same time, it was given internally. Typically it seems to
have modified the vomiting tendency, caused salivation, and
checked the eruption of the false membranes.
2. Album in form of 10% Paste has obtained much respect in the hands of practitioners. Simpson and others—Album with lemon kaurin.

Scurification has been recommended by Hearld, Jennings to the application of powdered Album or Carbon, so as to facilitate the action of the Carotin.

5. Perchloride of Iron has been lately used as an admirable to pie to the false-membranes on the throat. For Sigs found that the Perchloride diminished and in some took on the membranous the false membranes and caused their desquamation.

6. Debriso of Soda when Diphtheria was dependent upon the presence of the virulent action, various parasites have been used with equal success.

"The saturated solution of the Debriso of Soda is the best efficient and the safest. The alkalies generally are parasiticidal. Poison may also be administered internally, as the virulent is able to attack the mucous membrane especially in children." (Laycock).

Local Bleeding—Leeches were employed in one case, that of Thomas; suffocation was impending from the time he was admitted till his death.

As a rule, they are better avoided, unless ordered (as it is in this case) for the satisfaction of the patient's relatives.

Warm fomentations continuously applied have
been attended by more satisfactory results than application of breeches.

Inhalation of steam, at the same time patient were made to inhale steam from boiling water mixed with some vinegar. This mode of treatment was followed by the separation of the lymph, and the dissolution of congestion.

In private practice, the steam from a kettle kept boiling in the bedroom has proved beneficial.

The inflamed and enlarged submaxillary and cervical glands are often very painful, warm fomentations have proved very serviceable. Dr. B. M. Beswicke has applied to the throat fomentations of vinegar with equal benefit. (Med. Times for 7.24, 59.)

Sitapism of Phlegm. The throat is sometimes so sore and deputitation so painful, that the patient relation himself have applied bitter sitapism or fritter.

Experience teaches that we must, as a rule, avoid the application of fritter, but especially of phlegm, as it is very apt to be followed by the cutaneous form of phlegmosis.

Removal of the False Membranes.

So long as the affection seems to progress, it is more than advisable to attempt the removal of the false membranes, as they will invariably be replaced by others. But, if on the other hand, the disease tends to limit itself, and the
the false membranes becoming loose, we might with glee induce
in some cases—after their exposure by various simple means,
notably such as by acidulated gargle, combined in some cases when
there is no irritation, with some attempt at the application of
physicians' medicines.

Injection of tepid water may be attended with some benefit
under the influence of the patient object to any kind of injection.
Lastly, they may be removed with the "Drying forceps"—if
necessary if not.

By general treatment.

Indications: Peragitis, especially, Alteration, Morbus
Del, Stimulants, proper ventilation of the chest—Isolation
is possible.

Here again we shall first mention the treatment we
followed. The throat having been touched with Caustic,
the patient, of a few grains of Calomel followed by a
Black Brought were alone received, and seldom had to
be repeated several times.

2. (Milk of Potash ¼ drachm to ½ drachm of Distilled
water) taken as a dose, and as often as the patient felt
thirsty, combined with the (one of Strychnia) with the injection
of a trace of ammonia.

3. Diet—nutritious, but not too stimulating.
Strong beef tea... 

Some was not required in any of the Hospital patients, but in several private cases, it was given with much benefit.

If isolation was had recourse to only in two cases, the others remained in the general ward. It should be enforced as a general rule.

5. Fresh air or good ventilation is of vital importance.

We shall now consider more in "Details: the General Treatment."

1. Emetics have been praised by Ernie (Bochut, Paris). I believe it should be had recourse to early; during an epidemic even prior to the formation of the false membranous.

As a "prevention" to the reformation of the false membranous, Bochut recommended diluted doses of anthrax —

2. (Colonel administered in small repeated doses has proved successful W. Conolly of Cheltenham). - Hector, experience, together with that of Ernie, attribute the success of the Colonel to the topical effects.

It has also been used in the shape of ointment, rubbed in the axilla, round the neck - points to produce salivation - we might employ it in small repeated doses, at the same time that it is locally applied by "insufflation." Colonel is neither possible...
3. General Bleeding. Already we have learned that the disease commonly assumes an asthmatic type, and consequently requires little or properly no bleeding.

a. Bleeding has been employed to the extent of producing anaemia, and thereby favouring instead of retarding the formation of the false membranes (Bretomneu & Trousseau).

Complications: 1. Suffocation. In seven cases when the disease has reached the air passages, absolute should be given in repeated doses, until stagnation is produced. Patient's strength should be supported by line, strong beef-tea, and by other illuminating means. Each death is done to prominent, as to lead to the performance of Tracheotomy.

2. Tracheotomy justifiable and certainly not of the disease has reached the bronchial tubes and very questionable even when the predominating symptoms are referred to the lungs. The blood done too much altered that Souereau states that many children who have been subjected to the operation of Tracheotomy fall victims to paralysis of the Epiglottis and larynx.

2. Hypothesis. may sometimes overdone, or maybe simulated as we have already said from the accumulation of
the false membranes undergoing decomposition, which is favoured by the contact with air, and moisture of the throat. In such cases, immediate application of concentrated solution of strong hydrochloric acid may prove useful. (Metomecan)

3. Papilloma and Synechiae:

a. Papilloma should be combated by stimulants, i.e. Saline Carbonate of Ammonia, Wine, and Nutritious foods.

b. Synechiae has proved fatal in the practice of B. Bownston (10th Jan 1759) who recommends to "keep patient fast", especially after the eighth day of the disease.

Recapitulation of Treatment:

Locally, 1. alone apply caustic solution to the throat and repeat application according to circumstances.

Steam - hot for the time.

Caustic employed are: Concentrated solution of Hydrochloric acid, Vitriol of Silver, Salpeor in solution, Album, Lumin, Calomel, Perchloride of Iron, Chlorate of Iron (found to be dependent upon presence of salvia, albumin).

To avoid convulsion, "keep actually depurating" of the false membranes.

Generally: to prevent, concentrated solution of Chlorate of Potash; Calomel - emetic at the onset.

Proper Ventilation, Isolation if possible, Nutrition, etc.
Stimulants......

V. Bloodletting Injurious.

VII. Paralysis: General and Partial - Sulphate of Lime, Auric acid, boric acid or other tonics, with a nutritious diet and stimulant.

VIII. Treatment of Sequela:

v. Debility, General and Partial - Sulphate of Lime, Auric acid, boric acid or other tonics, with a nutritious diet and stimulant.

v. Removal to the Country - Watering places...

vii. Paralytic, Partial, Tonics, Nutritious Diet - Galvanism general. Quinine or iron may be first tried - if failed, small dose of strychnine (fourth) - or immersion of feet in hot water has secured his recovery (further).

Post-phlebitis - Isolation, removal to the country, or from the infected place, proper ventilation.

No specific remedy against it.

End.

Edinburgh February 1857.