AN INAUGURAL DISSERTATION

ON

Scarlatina

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Scarlatina.

This is an epidemic, and contagious disease, characterized by continued fever; by a scarlet rash; and, by inflammation and ulceration of the throat. [except, in very mild cases] The scarlet rash usually appears in twenty-four hours after the attack, and terminates on the sixth, or seventh day; at the termination of which, desquamation of the cuticle commences.

The frequency of this disease, owing to its epidemic tendency, is very irregular. It is thought by a majority of authors, to be less frequent, but more fatal, than Rubela. This, I suppose, is a true conclusion; but, for the past two years, in my county, (Gile) it has been both, more frequent, and fatal, than Rubela, or any other eruptive disease; killing many, while the others were scarcely heard of at all.

Varieties— By most authors, it has been divided into three varieties; Scarlatina Simplex,
in which, there is a florid rash, and but little, or no affection of the throat; Scarlatina Anginosa, in which, both the skin, and throat, are decidedly implicated; and Scarlatina Maligna, in which the stress of the disease falls upon the throat.

These varieties have been made for convenience of description, and for a better direction of the treatment; and not, that they are different diseases, produced by different causes. It is true, that the simple, and malignant forms, scarcely resemble; but it is now a well established fact, that they are the same disease in different degrees of severity; for, the virus of the simple, will produce the malignant, and, vice versa.

Causes—The predisposing causes, are debility, sex, temperature (and according to Liebig's theory), a certain ingredient in the blood. When debility exist, the system has not the same power, to resist, or,
expel, any virus with which it may come in contact, in this disease, or any other; to the same extent, it would have, if the organs were vigorous, and active. Persons of all ages are susceptible to this disease, but it is eminently a disease of children, for they scarcely ever escape, when exposed to its virus; while adults frequently escape entirely, for their whole lifetime. Children are said to be more susceptible to it, from the age of one, to five years. Females, after the age of puberty, are more susceptible to it than males; for which, I can assign no plausible reason, unless it be, that the health and strength of most males continue to improve after puberty, and the health of many females is bad, which produces debility, and it is a predisposing cause, as I have above stated. Temperature certainly has some influence
for, Scarlatina, Typhus fever, and Rubeola, have rarely been known in the intertropical regions; and it appears just as plausible that heat, or cold, at certain temperatures, would have the power of modifying the activity of the virus of Scarlatina, as it does, that the virus of the plague, loses its contagiousness, when above 91, or, below 60°; and that the vaccine matter loses its power of producing the cow pox, if exposed to extreme cold, or a temperature of 95°, for a certain length of time.

According to Kielig's theory, there is an ingredient in the blood, and when the virus of Scarlatina comes in contact with this ingredient, it has the power of assimilating it, on the same principles, that yeast acts, when when it is put into any fluid, that contains gluten: and, that this change in the
blood creates a general derangement of the
system, and produces the consequences
that are common in this disease.
If this be correct, we can tell how the virus of the
simple, can produce the malignant; how some
persons will have the second attack; why it is
that some will not have it at all; and come very
nearly telling why children are more suscepti-
tible to it than adults. If the blood contains
a large quantity of this peculiar ingredient, the
virus of the simple, will produce the malignant;
if the case be mild, and all this ingredient is not
assimilated, they are liable to the second
attack; if none of this ingredient exists in the
blood, of course, they cannot have it at all;
and the most plausible reason, that I can assign
for adults, not being as susceptible to the virus,
as children; is, the generation of this substance,
(owing to the changes of life,) is stopped.
The exciting causes are: a poisonous effluvia floating in the air, producing the epidemics of this disease: and the actual virus, which is produced by the disease itself.

The first of these exciting causes, has been long since, well established, by close observers, who have noted the difference in the number of deaths, that have occurred in different years, at the same place; which difference is so great, that nothing but an epidemic tendency could have caused it.

The virus produced by scarlatina, being an exciting cause, is admitted by the most, if not by all authors.

Contagion.—The contagiousness of this disease, cannot be doubted, but it is not as active in its contagiousness, as Rubella, Variola, Varicella, or Pertusis. It has not yet been ascertained, how long the power of imparting the
contagion continues with patients; but it is probable, that they have this power till the termination of desquamation. This virus will cling to objects, that have been about patients, and impart the disease to others, for a considerable length of time, even, after some pains have been taken to cleanse them. The virus is caught by inhalation; and some have thought, by absorption through the skin also; and have used oil on the skin, to prevent its absorption.

It is generally, more contagious, and fatal, when the disease commences in a neighborhood. The second attack is not so frequent as in Rubeola, and Variola.

The period of incubation has not yet been determined with accuracy, nor probably ever will be, for, it varies considerably, according to different authors; but, is generally stated to be from four to six days.
Symptoms.
Scarlatina Simplex.—It generally commences with debility, fever, hot skin, considerable thirst, flushes of heat and cold alternately, and nausea and vomiting; in about 24 hours, little points, at first, of a light red, then becoming deeper and deeper, appear in great numbers; first, on the face, neck, and chest; these continue to get thicker, and to spread, till the whole body is covered, in most cases; in this time, the pulse become very full, and frequent; the tongue is covered with a cream-like coat, through which, the red and elevated papillae appear; the throat appears a little redder than in health, but scarcely any complaint of soreness. The eruption is deeper about the groins, and flexure of the joints than elsewhere; and in two or three days, it begins to fade, and is usually gone entirely, against the seventh, or eighth day; at which time desquamation
of the cuticle commences, usually in the same order that the eruption came out, and is generally completed in a short time. The onset of this form of the disease, is generally very sudden, but not very alarming.

Scarlatina Anginosa—Many of the symptoms in this variety, resemble those of the preceding; but are, in a more aggravated form; with the addition of stiffness of the neck, and inferior maxillary; severe sore throat, which is apt to inflame, and ulcerate, in a short time; which produces difficult deglutition; the pulse are quick, and vibrating; the eruption later in coming out than in the preceding variety, and of a more livid hue; it sometimes disappears, and then returns again in an uncertain length of time; the tongue, first, with a white coat, except at the edges, which are red, but, it soon cleans off, and the whole of it looks red; the eyes are slightly injected, the face swollen, a dry cough, and diarrhea or constipation of the bowels. The duration of this variety of Scarlatina, is usually
longer than the preceding variety, and its order of appearance, and that of desquamation, not so regular; it is also, more dangerous.

Scurlatina Maligna.—In this variety, patients are frequently attacked so severely, that they expire before any of the local symptoms have time to exhibit themselves; but they are most usually attacked with coldness, and shivering; languor and debility; nausea and vomiting; quick, small, and depressed pulse; extreme sore throat; brown, or black, incrustations soon appear on the teeth, tongue, and lips; the eyes injected, the face swollen, and purpule; the eruption is very late, and irregular, in its appearance, and of a livid hue; it may appear and disappear several times; in some cases, the whole inflammation seems to collect in the throat, eyes, and ears, preventing deglutition entirely, destroying hearing, and sight; The acid matter, which issues from the throat, runs out at the nose, excavating the upper lip, and down the alimentary
canal, the absorption of which, produces colloquial diarrhoea, and excavated anus, all of which, produces a depressed state, laborious respiration, delirium, coma; the consequence of which, is death.

The duration of malignant cases of scarlatina is very variable, sometimes lasting a few hours only, and, in others, several days.

Sequelae.

Dropsy is the most frequent, and important of the sequelae of scarlatina. It is more frequent after mild, than severe cases; owing, it is supposed, to patients exposing themselves to the open and damp air before the new skin is sufficiently hardened to resist the vicissitudes of the weather; therefore, patients (no matter how mild the case may be) should be confined to their rooms, for three or four weeks; or until desquamation is entirely completed, and the new cuticle sufficiently hardened. It is more frequent in winter than summer; also, after extensive
than moderate desquamation. The effusion may take
place in the cellular tissue, or, in any of the
serous sacs. It may take place in any of them,
or, all of them at once. Anasarca is the most
common form in which it appears; but not
the most fatal. The other forms of Drospy are
edema of the lung, "Hydrothorax," Ascites," "Hydro-
pericardium," and Hydrocephae, all of which
occur most frequently in the order in which
they are above named.

The symptoms which precede Anasarca, for a day or
two are languor, anoxia, feverishness, nausea and
vomiting; and, constiveness; at first the pulse are
not very frequent, but, are irregular, in a short
time they become more frequent, considerable
Thirst, and dry skin, the urine is altered and
scanty, or, entirely suppressed for a while, the
face becomes pale and looks chuffy. This form
of Dropsy is so very mild at time, that it is
with difficulty, that you can discover it.

Anasarca alone, is not dangerous, but the effusion may take place almost suddenly, in the subcutaneous cellular tissue, and in different other parts almost simultaneously, and cause death in a short time, for an effusion, to much extent, either in the head, lungs, or pericardium, is apt to produce death in a short time, if not remedied; and, if in all of them at once, it would be much worse.

Partial asphyxia is a symptom of "hydropericardium; dyspnoea is a prominent symptom of oedema of the lung, and "hydrothorax; violent headache, dilatation of the pupils, convulsions, or palsy, are symptoms of "hydrocephalus.

The pathological cause of scarlatinous dropsy has created considerable discussion; some contend that the disease of the kidneys, which is produced by scarlatina, is Bright's disease; while others contend that this is not plausible, for Brights
disease of the kidneys is almost incurable by any means; and that the kidneys are only in a highly congested state, which produces this result, and is generally, easily managed. The urine is more scanty than in health, but the patient says it often; it is supposed, because it is hotter and more irritating than usual, which causes the bladder to contract, and expel its contents, even, when the quantity is very small. In mild cases of dropsy, the appearance of the urine is not greatly changed; but, in severe ones, it is frequently of a brownish or blackish color, which is caused by blood being in it. Mr. Legrande states, that in many cases, he analyzed the urine; and, that it was always coagulable by heat and nitric acid; though the precipitate varied in quantity and appearance, according to the color of the urine, and the length of time from the invasion of the chansara. The color of the precipitate, is said not to be of a fine
white color, as in Bright's disease, but of a dirty brown, or ash gray tint. Several authors state that they have, undoubtedly, traced the origin of Bright's disease to scarlatinaceous dropsy, and, that in many post mortem examinations, they have discovered the characteristic renal lesions, that are in it; but others, to abut this argument, could argue that the predisposition already existed (like in Pthirius Pulmonalis), and that the excitement produced in the kidneys by the scarlatinaceous Dropsy, caused it to develop itself at that particular period.

Diagnosis.—It is usually very difficult to distinguish Scarlatina from some of the other eruptive fevers, by the symptoms, which precede the eruption. The most reliable symptoms, before the appearance of the eruption, are high fever, very frequent pulse, some redness and soreness of the fauces, and a knowledge that the disease is prevalent at that
time in the community; but, even these will not
do to depend on, and consequently, no opinion should
be given, till the eruption comes forth, which is
so very characteristic of the disease, that it will
scarcely ever be mistaken for any other.
The characteristics to distinguish Scarlatina from
Rubeola are the following. 1st. The absence of cough,
watery eyes, running from the nose, and sneezing,
all of which are the most predominant symptoms
in the early stages of Rubeola, but scarcely ever
attend in a very high degree in Scarlatina; by the
eruption appearing in 24 hours in Scarlatina, and
in Rubeola, not till about 72 hours; by the difference
of eruption, themselves, for that in Scarlatina usually
appears suddenly, and, is often completed during the
first day; in Rubeola, it appears slowly, so much
so, that it is not apt to be completed under two
days; in Scarlatina the eruption commences in
minute points, or dots, which speedily become so
numinous, and crowded, that the surface appears unusually red, like that produced by a blushing; in Rubèola, the eruption is elevated above the surface, and collected into semicircular clusters, leaving insticacies of healthylooking skin between them; in Scarlatina, it is of a bright scarlet tint, in Rubèola of a darker color; by the absence of sore throat in Rubèola, and its severity in Scarlatina, in addition to the extreme high fever, and quick pulse. Even after such distinct, characteristic differences, it is strange to tell that these two diseases were not distinguished till about two centuries ago. Morton speaks of it under the name of Morbilli Confluentes, and Hoffman calls it, by a similar mistake, Rubèola Rossalia; and the malignant form was called by Sullivan, Syphæda Maligina. Dr. Withering was the first to point out the characteristic difference, clearly and distinctly.
The distinctions between Scarlata, and Roseola, are not always well marked; some say, the difference of the eruptions is not sufficient in many cases to distinguish them. In Roseola, the eruption is rose colored, the patches more regular in shape, and of a much smaller size, than in Scarlata; the absence or very slight degree of the anginose inflammation in Roseola; but the most important characteristics of all, are, the very slight degree of febrile reaction, and the pulse, instead of being double in frequency, (as they are in Scarlata,) are scarcely above the natural rate; and, the skin is but little hotter, than in health. Roseola is not contagious, and of a more chronic form. Dr. S. A. Thompson, says, that the eruption, in Roseola, commences first on the extremities.

Prognosis.—The fatality of this disease is very variable during different years, and in different places; owing, it is supposed to the favorable, or unfavorable tendency of the predisposing, and exciting causes of this disease;
Therefore, the prognosis must be based in part on the variety of the case, and the character of the prevailing epidemic at that time, and place. Scarlatina Simplic, generally terminates favorably, unless it assume one of the other varieties. Scarlatina Maligna is always dangerous to some extent. If the attack commences with very high fever, quick and vibrating pulse, the eruption very late in coming out; and severity, when it does appear, and of a livid appearance; the throat very highly inflamed, colligative diarrhoea, great irritability, and delirium; a fatal termination may be expected; but on the other hand, if the general symptoms are mild, the eruption comes forth in due time, and the brain is not affected, a favorable prognosis may be given. Scarlatina Maligna, as the name itself shows, cannot be considered in any other light, than very unfavorable termination, to the consequence.
Treatment.— If it can be so, the patient should be in a room, that can be well ventilated, the temperature of which, should be regulated according to the nature of the case. The clothing, in most cases should be thin, and light. The diet should be of the antiphlogistic nature, easily of digestion, and the quantity small. Cleanliness should be closely observed in every particular. Scarletina Simplex requires but very mild treatment. The antiphlogistic treatment in respect to diet; if inclined to be constive, use mild laxative, such as Magnesia, Alum; if the skin be very dry, and they are annoyed with itching, oil it. Keep them confined to their rooms for three or four weeks, or, until desquamation is entirely completed, in order to prevent Dropsy.

Scarlatina Anginosa and Maligna, being much severer than the preceding, should be treated more actively, and more promptly than the preceding.
but, this disease, being a self-limited one, we can, at our best, do no more than to keep it in its proper boundaries. Treat the bowels, and skin, as in the simple variety; and, be certain, and avoid, all drastic purgatives; for the bowels, in this disease, frequently have a choleric tendency, any how; therefore, any remedy that would be calculated to excite them much, should be avoided; keep the skin cool, and the fever reduced, as much as possible; by sponging with water and vinegar, often; in connection with thin clothing, and ventilated room; if delirium occurs, apply cold to the head; and some say, apply leeches to the throat; for in some cases, it is thought, the tuberculation of the throat, prevents a free flow of blood from the head, which causes the delirium; if depletion is actually necessary in any case, cups or leeches are much the safest to the part.
for resuscitation might create too much debility; therefore, avoid it, if possible, in all cases; if the throat be highly inflamed, and ulcerating, cleanse it, with a solution of salt; but, a solution of the nitrate of silver (about 20 gr. to the ounce of distilled water) is more highly recommended than any other preparation; apply warm poultices externally, the best of which is made of pepper, tea, and meal; but if the patient be small, and you cannot keep the poultices on, fry the pepper in grease, and anoint with this several times during the day; some say, apply leeches, or blisters to the throat, but the internal and external inflammation may meet, and cause death; if gangrene is about to, or has commenced, the preparations containing pepper, and the salts containing chlorine, have both been very highly recommended, used either as gargles, or with mops.
during the whole course, mild diaphoretics should
be occasionally administered, unless the skin keeps
Some recommend the acid preparations to be used
during the whole course of the disease.
Scarlatina Maligna, as has already been stated,
is very fatal, frequently beyond the reach of all
remedies, but we must try to do something, as
long as life lasts; administer stimulants, such
as Ammonia, Brandy, Wine, Quinacrine; till
you get them out of the depressed state, that
it usually commences in, and then use
the treatment for Scarlatina Anginosus.
Dropsy.— In mild cases, the treatment should be
mild purgatives, and diaphoretics, such as Biterbate
of Potash, warm baths, etc.; the diet well regulated,
and close confinement to the bed; but, in severe
cases where there is danger of effusion taking
place in some vital part, active treatment is
very essential; the inflammation, if there be much, should be arrested; and if we suspect any effusion, we should promote the removal of it, by bleeding copiously, administering drastic cathartics (such as jalap and cream of tartar), and, by administering mercury, till the gums are slightly touched; this, in all common cases, will suffice; cathartics and diaphoretics should be persisted in, until entire recovery ensues. Professor Bowling, uses the cream of tartar and jalap; and the carbonate or acetate of iron, on alternate days, for this disease.

Prophylactic.—I believe, that Belladona, is the only medicine, that has yet been discovered, that is thought to act as a prophylactic, in Scarlatina, and this, is doubted by many, yet. "Hahnemann was the first, who asserted that it possessed this property. The administration of it has to be persisted in for some ten days, before it will have the
desired effect, and, if it entirely abates, and then commences anew, you should resume its use with renewed energy. It is generally administered thus: 3 grs. to an ounce of distilled water; dose 3 grts. twice a day, to a child one year old; and an additional drop for every additional year. I could adduce many statements, both for and against, the prophylactic property of this medicine, but more, I think, in favor than against it; but I deem it unnecessary. There could be no impropriety in giving it a fair trial, for it may do good, and can do no harm, if properly administered.