On Variola

by

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A great deal has been written and consequently many disputes have arisen concerning the early history of Small Pox. Mr. Moore has shown that it prevailed in China and Hindostan as early as 1000 years before the birth of Our Saviour. It seems to have been unknown to the Arabs before the 6th Century, but we have evidence of it being widely propagated by the wars of Mahomet and by the Arabs afterward. Dr. Gregory in his work on Eruptive Fevers says that the first mention made of a disease that looks like Small Pox occurs in the second book of Procopius, "De bello Persico," in which it is described as having commenced at Pelusium in Egypt about the year 544. Abul-Farag a Physician describes the malady as prevailing among the Saracens with fearful mortality about the year 640; and it seems to have followed them wherever they carried their Arms during the seventh Century. It is probable that it reached England at the beginning of the eighth Century brought over no doubt by the Crusaders. From
Europe the disease was carried to Mexico and from thence to America, where its ravages were something fearful and more especially amongst the dark skinned population. Indeed we have well authenticated instances of it carrying off whole tribes of Indians at one swoop. Iceland and Greenland were in turn visited by it, the latter country being almost depopulated by the pestilence. Although all men are prone to take the disease yet whole countries for centuries remained free from it until it was imported. Before the writings of Sydenham little mention is made of its progress, save that it was the most frequently epidemic, the most treated and the most fatal of all known diseases. Of the practice of inoculation of small pox, we have very little early historical account, but Voltaire writing in 1727 states that the females of Caracasia Georgia, were in the habit, from time immemorial, of opening the arms of their children & inserting in the wound a pustule taken from another child. The medical profession in England
were first made aware of it in the year 1714 but no attention was paid to it until Lady Mary
Montagu had her son inoculated successfully in 1717 and her daughter in 1721. It was not
however until the Small Pox Hospital was founded in 1746 that the practice became
general. This was perhaps owing to its having fallen into bad hands and in a great measure
also to the opposition it met with from the
pulpit. It seems to have been practiced
with a great deal of success until the year 1740
when it was prohibited by the English par-
liament to make way for the important discovery
of Dr Jenner which however was announced
42 years before. Having thus briefly given a
sketch of the history of variolae it is inoculation I will
now proceed to describe the different forms of the malady

Small Pox has been divided into two forms
the variolae discreta & the variolae Conflueca.
In the former the pustules have a distinctly
circumscribed form, whilst in the latter they
are not distinct, they Coalesce, & their outline
is irregular. Whatever form the malady
may assume it is marked by distinct stages.

The stages have been divided differently by various authors. I shall adopt the division generally followed & divide the stages into 1st the period of incubation, 2nd the primary fever, 3rd the period at which the eruption shows itself, 4th the period of desiccation & decline of the pusules, or Secondary Fever - variola discreta - benign or discrete small pox. Period of incubation or the time which elapses between the inhalation of the infecting poison & the appearance of the primary fever.

What are the limits of this stage? This has led to a great difference of opinion, but the time now generally allowed is 12 days varied of course by existing circumstances - thus for instance, if the patient have a great dread of the disease or if he or she be of a weak cachectic habit of body, if the miasma be concentrated of the atmosphere be warm & close, the period will be shortened. Whilst "an constance" of the patient be strong, has no dread of the disease is not susceptible, if the air be dry, straying & there is no concentration of the miasma, the period will be lengthened & even to 20 much as
21 days - at the commencement of this stage nothing more is felt than a slight indisposition, languid

giddiness &c. The primary fever follows the period of incubation & it may generally be detected by well
marked symptoms as aches, increase of pulse, increased heat of skin, pains in the back, loins, head, nausea
restlessness vomiting.

III. The period of eruption - The eruption generally appears on the third day of the fever
and is never less than 48 hours, but may extend to 72 hours owing to a weak constitution.
During this stage other symptoms show themselves as Stridor of teeth in children and in
the adult sleeplessness dry state of the fauces a peculiar putrid odour & a turbid state of
the urine. The pulse is also more frequent. The
Eruption in the form of minute papules comes out, first on the face, then on the neck, armpits,
then on the trunk & lastly on the lower limbs. The
eruption in Variola discrete generally assumes
a crescentic or a circular form & it very often affords sensible relief to the patient. The
fever abates, the sickness subsides and the
pains are usually not so bad. The
severity of the disease generally bears some relation to the number of the pustules. A small number of pustules, indicating a mild form of the disorder, & vice versa. Their number varies much—sometimes half a dozen being only visible, at other times thousands, the great majority of which are seen on the face. The face is much swollen & the spaces between the pustules are of a red colour. The absence of these signs indicates a serious form of the disease.

20. The period of secondary fever.—The papules having gradually ripened into pustules burst about the 8th day or from that to the 11th. They emit a yellow discharge which concretes & forms scabs, which fall off in 4 or 5 days more, leaving the surface depilated of a pale lavender colour. With the swelling of the face, the fever which had remitted, returns & the secondary fever commences. This return is marked by increased frequency of the pulse, heat of skin, & by slight delirium. The swelling of the face & the secondary fever subside with the opening of the pustules. If the swelling does not make its appearance,
of the spaces between the Justice are pale & white instead of being red & inflamed, then we may prognose a fatal issue - When the above signs are noticed the secondary fever assumes an asthenic instead of an ethereal form. The tongue becomes brown & dry - the pulse being frequent - delirium soon appearing & generally passes into coma & death - Again, the opposite of the foregoing may be observed - There may be no perceptible change in the pulse, no increased heat of skin & no impairment of the mental faculties - Signs, which may lead the unwary physician to prognose a favourable termination to the case - Let such an one be on his guard these, for though these rapidly sinking forms are not often observed in variola minora, yet they may occur & are always followed by a fatal issue - In these severe forms of disease small red & white mucous membranes are often affected with a purpuric eruption, causing, if it appears in the throat hoarseness, difficulty in swallowing or even throat; if in the eyelids, often a permanent injury of the Cornea - During the 4th stage a peculiar emanates from the
patient, which if once experienced can never be forgotten. The eruption in v. discreta lasts 11 or 12 days & passes in its development from the papular to the vesicular, then to the punctular state & eventually scales & falls off. On the first day the eruption is papular, that is an inflammatory elevation of the papillary layer of the true skin. These papules are elevated distinct & accumulated, of a fluid red colour & impart a choty feeling to the hand. On the 3rd day the papule becomes a vesicle or rather a compound vesicle containing transparent lymph, but it has a depressed centre & a hard base of diffused fibrin which in v. discreta keeps each vessel distinct. On the fifth day the vesicle becomes a vesico-pustule & contains a straw coloured fluid, being a mixture of lymph & pus. It also assumes a more spherical form & the central depression disappears. On the 8th the pustules become maturated & from the 8th to the 11th day the pustule secretes the matter which concretes & forms the yellowish solid falls off from the 11th to the 14th day leaving a depressed spot of the pustule has caused elevation of the note mean.
But we have modifications of Varola diserta. Authors have divided these minutely into V. peruviana, V. diserta albiflora into varieties. V. sine eruptione, but this refinement seems to me unnecessary, and to be thoroughly acquainted with all the subdivisions of a disease, would be to make each disease a special study, which could lead to no possible good but only to confusion. Suffice it then to say that there is a variety called modified Small Fox. This is a milder form of the disease, sometimes occurring as a second attack, sometimes after successful vaccination. Formerly when inoculation was in use, after this had been practised. Modified Small Pox is ushered in by all the symptoms of V. diserta but in a much milder form. The papule comes out on the 3rd day gets its depressed centre (hard base), but it matures usually on the 6th day. There are seldom more than 60 pustules. The Fever in Small Pox is distinguished from all others by its permanence at the end of 4 days or by its return at the end of 4 days more; and yet we often meet with undoubted cases of Small Pox in which there is no secondary fever, no eruption; undoubted
from the fact that the disease is at the time
epidemic & from the fact of the body being con-
susceptible to another attack.

Variola Confluenso or that variety of small pox
in which the pustules coalesce, are not distinct
or their outline irregular - This form generally begins
in much the same way as V. dissecta only that
the Symptoms are more severe - There is more
sickness & vomiting during the primary fever,
a greater degree of pain & more marked del-
erium - The fever is also of much shorter dura-
tion than in V. dissecta - The erosion comes
out sooner - Another marked symptom of this form
is intense salivation in adults, which generally
ceases about the 8th day - The fever, at first
inflammatory, becomes in the course of 2 or 3
days adynamico - The papules as they
come out have their peculiar chalky feel &
acquire their hard base, but this will be rapidly
absorbed under debility as the fever becomes
adynamico - They are much flatter than
those of V. dissecta & owing to their greater
number & antiquity run into each other &
become confluent - These proper maturation
will be suspended, they will assume a livid
The 8th or 11th day of the disease, life is seldom endangered, unless some complication such as pneumonia, pleurisy, or jaundice. The 11th, 14th, 17th, or 21st days are to be dreaded, for on these days distressing symptoms may come on which put the patient's life in great danger. The most dangerous symptoms to be noticed in the advanced stage of B. confluent, are, absence of the usual redness in the spaces between the pustules; absence of sthenic sensation of the face; the appearance of a black spot on the surface of the pustules; suppression of urine; congestion of the lungs; a brown or dry tongue; great restlessness; delirium; coma or stupor. There is a variety of B. confluent called Maligna Confluent, which commences at the very outset with a sharp bluish inflammatory fever, but adynamic symptoms soon come on with brown tongue, weak and frequent pulse, muttering delirium and under a low state of vitality we may soon get a putrescent state of the solids and liquids with all the symptoms of putrid fever. The skin never getting a hard base, becoming livid or very nearly black, con-
taking a somewhat uneven death generally taking place from asthenia, about the 4th or 5th day of the eruption.

Complications of smallpox.

The complications of variola with other diseases are very numerous & in most cases, accidents which are to be looked upon as pointing to fatal results. Of some of them we have the most frightful symptoms, that can come under the notice & treatment of the physician. The liability of the mucous membrane to become affected by the & eruption has been previously noticed, but besides those of the mouth & air passages, the mucous membranes of the oesophagus, stomach & intestines may become covered with the eruption, which is generally confluent. In the more severe forms of the disease when the trachea is affected, cough at first dry & tearing, but afterward loose & attended with profuse expectoration, may be present. When this affection increases & extends over a large surface of the tracheal & bronchial mucous surfaces, we have what is called laryngo-tracheal bronchitis. This is very liable to extend down into the
Bronchi of both lungs, superinducing Pneumonia which from its Acute nature, rapidly destroys life. Even if the complication does not reach the Bronchi of the lungs, we may have the same fatal result brought about by the submucous tissue swelling & preventing the free access of air into the lungs - Pleurisy also may suprervene between the 12th & 20th days & forms one of the most serious complications of Smallpox. It may occur in either form of the disease & it is remarkable for its sudden invasion, rapid progress & invariable termination by Emphysema. Its symptoms; are intense pain in the side, hard or dry pulse, shortness of breath, can never be mistaken. Death generally occurs on the 3rd or 4th day of the Pleurisy. The submucous cellular tissue is very liable to become affected in Confluent Varicola. The Sore may become swollen, thus simulating Syphilitic - The face almost always suffers severely in these cases & the parts subject to pressure as the hips, sacrum, back, etc. may become the seat of boils, Carbuncles etc. Ophthalmia is a common & most important complication of Varicola which is its severity.
that, Dr. Gregory remarks that, in 48 hours, the whole eyeball may be irrecoverably injured - he says "more usually the inflammation runs into some of its less violent and more familiar consequences - an ulcer forms at the outer edge of the Cornea, by which the aqueous humour escapes, or at which a staphylo-romatous protrusion of the Iris takes place; or the aqueous humour becomes clouded; or specks from on the Cornea from which blindness more or less complete results. Many things occur to render it almost certain that the affection of the eye in Small pox is connected with some altered condition of the blood - the retention of the vitriolated matter which ought to have been eliminated" - Sometimes the whole eye may be converted into one large abscess. The exuding fluids must be contaminated by the poison of Small pox, but in a greater or less degree according to the severity of the disease - The most frightful complication is, what was called by the older writers, variola nigra or black Small pox, and a more awful manifestation of disease it would be hard to conceive - It is characterized by an anxious
expression of countenance; by evolutions of blood from the mouth & nostrils, urinary & genital organs, &c. &c. &c. above all by a swollen & blackened face of the body. This blackening being so intense as to lead us to imagine that the patient is a native of Africa. The nervous system is not necessarily implicated in this form of the disease for Dr. Gregory, relates a case in which a lady conversed with him rationally only a few hours before she died - I believe him however is not common to the white races of man - The brain & nervous system may be affected severely in small pox at any age - Children are seized with convulsions & they grind their teeth, roll their heads, scream incessantly - Death generally takes place during the convulsions. In some adults we may have maniacal delirium or delirium ferox whilst in others there may be a depression of spirits & a desire to commit suicide -

That the endocardium & pericardium are often affected is evident from the observation of Physicians of late years. The complication moves rapidly, fatal, unattended with any other symptoms than sudden sinking of tone -
times by pain & palpitation.
Abdominal Complications sometimes come under our notice, though they are much rarer than Thoracic - Diarrhoea & Dysentery are the most common forms, their sequelae often being very serious from the emaciation they cause. In Dysenteric affection, the loss of blood may be so great as to cause a rapid wasting of the patient. Whenever these complications do occur they must always be looked upon as untoward events from their liability to exhaust the already sufficiently diminished strength of the sufferer.
The Kidneys too are not exempt from disease during an attack of Small pox, for we often have symptoms of haematuria & congestion of these organs; symptoms which indicating an impairment of the secreting functions of the Kidneys, are always to be dreaded, for the increased irritation of the blood, caused by this loss of secretory action, may lead to disease in other vital organs.
Besides these Complications, above named, we may have Small pox coexisting with other uncommon contagious diseases such as Measles,
Scarlatina - both diseases running a determinate course do not influencing each other. I have seen a case in which a child had measles as the eruption died away it was succeeded by that of Small Pox, which was epidemic at the time. We have evidence also of Syphilis, Hooping Cough consisting with Vanola - Hooping Cough delays the eruption Baccinia may also be present with Vanola - Small Pox exercises peculiar influences upon the pregnant woman - when such a woman is seized with Vanola, abortion may be produced, or premature labour may come on, or the influence of the virus may be communicated from mother to foetus, but this depends a good deal upon the severity of the disease - although the mother may herself be insusceptible to an attack of Small Pox, yet, if she be exposed to the contagion the infant may broken of Small Pox a few days after birth - And indeed, there are well authenticated instances in which fetuses have been born covered with the pustules of Vanola although the mother herself was not suffering from the disease either before or at the time of delivery - It must be evident...
that an attack of Small Pox will place a
femalesal woman in great danger of in most
cases if she do not about The Child will be
born dead.

Diagnosis of Small Pox—This is a difficult matter
to do in the early stages of the Primary Fever which,
does not differ from that of the other exanthematic
in children; however the convulsions are more frequent
in adults. The pain in the epigastrium &c. is
generally more severe than in other fevers. In
the primary stages Varicela may be confounded
with other diseases by the inexperienced prac-
titioners. First then it may be mistaken for
Measles, but in Measles there is generally a
cough & watering of the eyes—symptoms which
sometimes occur in Varicela, though not nearly
so often as in Rubeola. The papules of
Measles are more superficial & are not so
firm or deeply seated as those of Varicela. More-
ever the former are flat whilst the latter give
a shotty feeling to the hand. Febrile Eczema
may be mistaken for Small Pox, but the eruption
in the former comes out uniformly on the
head or trunk, whilst we have seen that in
the latter it makes its first appearance on the
There is a form of secondary syphilis which, simulates varicella but the eruption is more tardy in its development & the pustules do not proceed simultaneously, but irregularly. The diagnosis of varicella from varicella has perhaps caused more confusion than any other. But we may sufficiently recognize the two diseases, by the character of their eruption. In varicella we find oozing on the lips of the pock on the first day of the eruption, which has a very irregular, often long form. The scab also appears on the 5th day, whilst the pustules of small pox do not reach the height of their suppuration until the 8th day. Varicella is not contagious so it is not possible to inoculate it.

Prognosis - In this we must always be guided by existing circumstances. It will be more or less favourable according as we notice a greater quantity or confluency of the eruption than usual, the presence of complications, especially such as affect the respiratory organs. The season of the year, age, habit of body, & the temperament of the patient & the fact of the diseases being epidemic, the reason being concentrated.
circumstances in which the patient is placed. The contamination of the circulating fluids — the mitigation or exaggeration of these circumstances all pointing to a more or less favourable prognosis. Death may occur during the first week from the influence of the poisonous exuement on the blood — during the second week death usually takes place from apoplexy, caused by the irritation of the blood and its consequent non-oxidation in the lungs. In the third week, death may be the consequence of effusions into the brain, pleura or pericardium attending the complications with these organs and during the fourth week by erysipelas or some sequelae of the distemper. Small pox as was proved by Boerhaave is in all cases the product of a specific exuement or poison derived from the same malady. But it was constituted and generated to man and have no other ground to go upon than that it came to us from the lower animals, as it has been proved that contagious or contagious diseases can and do originate in the lower animals and are generated from them to man. The causes predisposing to small pox are numerous and not unimportant. An early age is a
great predisposing cause & we find that a
large proportion of cases occur in infants.
The fact of a person not having been vaccinated;
or a length of time having elapsed since the
operation was performed; a susceptible tem-
perament; a great dread of the disease; a
weak & irritable habit of body; the disease being
epidemic at the time, are all predisposing
causes of Smallpox. But the fact of a
person having been vaccinated or of having
had the disease before, does not exempt him
from the disease, for many do we see many
fatal cases of Smallpox in those who
have undergone the successful operation of
vaccination; or who have had the malady before.
But, as a rule we may expect the symptoms
to be mitigated, in one who has had the ma-
lady previously, or who has been successfully
vaccinated.

Treatment. — In the more benign cases
the physician is seldom called upon to inter-
fere, but, as in all cases he is expected to
do something, it is necessary that he should
know what is right & what not right. In the
more severe cases however, much depends on
the competence of the medical attendant; a little
conscience can that man have, who would
willingly undertake the conduct of a serious malady
without a previous knowledge of such a disease or
a present recognition of existing morbid states.
It may appear strange to us in modern times
when we look back and read the treatment of
Small pox adopted by our forefathers; so we
should not be surprised that this was the most
generally fatal of all known diseases, when
we see how nature was thwarted in her every
effort. The same treatment applies to all
the enanthemata during the onset of the
primary fever. Our first aim then should
be to moderate febrile phenomena—how
shall we accomplish this? Emetics may
be given to assist in clearing the deck as it
were—restoring the equilibrium of the circu-
lation—gentle emunctuaries purgatives should
be given to keep the intestinal passages clean.
The necessity of keeping the bowels open must be
evident to everyone—But we must be
careful of not falling into the opposite ex-
treme of purge too much—Such an error might
may, probably, would, lead to dangerous
Abdominal Complications as Diarrhoea & Dysentery. The best form of aperient is Sulphate of Magnesia, with a little Antimony to prevent griping, and it should not be given in too large doses. If Small Pox be epidemic at the time we have good reason for supposing the primary fever to be that of Small Pox, then the patient should be removed to a large, airy, well ventilated bedroom, which at the same time ought to be darkened. Strict quiet must be enjoined to all causes tending to excitement be avoided - a mattoon should be the patient's couch and a superfluity of bed clothes ought in no case to be allowed -

Our common saline fever medicines should be given to act as refrigerants - Decinetics & Diaphoretics, such as Citrate of Potash draughts & Citrate of Potash mixture - Liquor Ammoniac Acetatis & – If reaction runs very high, to this latter drug may be added Tartar Emetic, as it assists, by nauseating, in depressing the heart's action in relaxing the capillaries of the skin mucous membranes. Applying cold to the body often gives relief - When the eruption has made its
appearance, we can do little more than assist nature by gently keeping the secretion regular, but without irritation, by light drinks, saline, barley water, churn milk (I have found this latter very agreeable to the patients of which he can drink any quantity) a weak farina, a kind of food as arrow root &c. Excitement must be guarded against. During the secondary fever, if uncomplicated, we can do little else than attend to the state of the secretion, diet &c. On the decline of the disease, we must alter our treatment & assist nature in her efforts to restore the strength of the patient by a system of tonic medicine, as gentian with rubric or nitro-ammoniac acid or by Quinine & sulphuric acid. The diet should be increased. Beef tea, broths &c. afterward followed, when the state of the digestive function will allow. By Chicken, Game tea or Wine, bitter beer &c. may also be given with advantage. The return to health will be slow but steady, if there has been no complication to interfere with internal organs.

In treating the Constitutional variety of Small pox we must be guided by the symptoms; but
in no case must the powers of life be reduced. and this will appear the more necessary when we notice a pulse very rapid, deficient in tone, compressible. If the face assumes an adynamic form, of the neck becomes luid, if there are hemorrhages from the mucous canals, then we must have recourse to tonics such as quina, ammonia, wine, brandy, and beef tea must also be given. In the petechial form or variola nigra it would appear that little or nothing can be done to save the life of the patient, we must content ourselves by alleviating the more urgent symptoms. But we have seen that smallpox may be complicated with other diseases. It is often the case that the patient will complain most of his throat or great difficulty in swallowing. In these cases then we must apply fomentations or leeches to the throat or mild gargles will also give some relief. But when the affection is very severe, in confluent cases, astringent gargles must be had recourse to, or a strong solution of nitrate of silver (40 grains to an ounce of water) applied pretty freely by means of a sponge attached
to a piece of whalebone. When the Drachna itself is affected, sometimes, expectorants must be administered to clear it of its voracious secretion — as has been before stated. Ophthalmia is one of the most common complications of Smallpox, in such a case we must, in addition to the general treatment required for the febrile symptoms, adopt some local treatment— a solution of alun (gr. 1 or 2 to the 3) may be injected under the eyelids every hour or a solution of nitrate of silver (gr. 1 to the 3) applied in the same way every eight hours. Warm narcotic fomentations may be applied to the eye & opium may be given to relieve the pain (unless the more general symptoms of the variola counter-indicate its use) or the edge of the eyelids should be smeared with a little lard every night to prevent them adhering. When Scrofula & Hypertrophy are present the usual astringent remedies, green in those diseases, should be exhibited. But the activity of these will depend a great deal upon the appearance of the evacuations — the state of the urine should always be attended to, for we very often find that it is voided
at long intervals or in very small quantities—a state of things to be dreaded, as everything that determines to the skin or increases its bascularity will render the pox confluent. Durance, demulcent, diluent; there should be given—but hemorrhage may be present. We may rely on astringents such as gallic acid, tannin, desquamation, with dilution are complicated with small pox we do little else; than treat for small pox, as the exact thermometer very little in the character of their fevers. In affections of the pleura, endocardium, pleura—being to we must be guided by circumstances, or where the symptom by the means generally adopted in each disease. We can give but poor consolation when any of these affections are present.

One great aim of the physician for years has been to prevent the itching of the skin in small pox—and it would appear that in the present day more attention is paid to the means for affecting this than to the treatment of the disease itself. It certainly
is very desirable, or more especially amongst females. Place moving in the higher ranks of society, that we should use every means to prevent the horrible disfiguration caused by this disease. The number of plans adopted both formerly and in the present day may be said to be legion, but without enumerating all these, which would be tedious, discussing their merits or demerits, I will simply mention the plan I have always adopted—this is nothing more or less than "black cloth" made a laid over the face or the exposed parts—From its simplicity and the invariable success attending its use I have come to the conclusion that it is as good, if not better, than any other plan at present in use. I have not come to this conclusion from the success attending only a few cases, but from that of hundreds which have occurred in my father's practice in the Colliery and manufacturing districts of Northumberland and Durham where Small Pox is very frequently epidemic. It is cheap, easily applied, and effectual in its operation, facts which are of great importance to the poor man who generally cannot afford to buy Chloroform.
Such is a brief sketch of the different causes of smallpox and their treatment. I am fully aware that I have not done justice to so important a disease as smallpox, but I have suffered so much from bad health that I have not had the time to devote to this Thesis that I could have wished.