

VARIOLA, or SMALL-POX (As described by Dr. Robert Thomas in the Modern Practice of Physic)

Small-Pox is a disease of a very contagious nature, marked by a fever which is usually inflammatory, but now and then is of a typhoid nature, attended with vomiting, and upon pressure of the epigastrium, with pain; succeeded after a few days by an eruption of red pimples on different parts of the body, which in the course of time suppurate, and at length fall off, leaving frequently behind them little pits in the skin, and in severe cases, scars.

With regard to the history of small-pox, it appears from the researches of eminent writers, that this disease, as also the measles, had prevailed in China and Hindostan from remote antiquity, yet had not extended to the more western nations until the middle of the sixth century. About this period these maladies reached the southern coasts of Arabia, by vessels trading with India, and broke out near Mecca, during the war of the elephant, (as it has been termed) in the year 569, immediately before the birth of Mahomet.

During the latter parts of the sixth, and whole of the seventh century, they were spread by the Arabians over the remaining countries of Asia, and all that part of Africa which is washed by the Mediterranean Sea. In the eighth century Europe was contaminated in consequence of the Saracens invading Spain, Sicily, Italy, and France, and the above diseases gradually extended to the north. They had reached Saxony, Switzerland, and England, in the ninth or tenth century. And lastly, in the beginning of the sixteenth (sic) century, twelve years after the death of Columbus, the infections were transported by the Spaniards to Hispaniola, and soon afterwards to Mexico, and diffused speedily over that hemisphere also.

The small-pox attacks people of all ages, but the young of both sexes are more liable to it than those who are much advanced in life; and it may prevail at all the seasons of the year, but in general is most prevalent in the spring and summer.

It rarely happens that any person is attacked a second time with the disease, however he may be afterwards exposed to its infection, or even be repeatedly inoculated with variolous matter. A few instances to the contrary have now and then occurred however, and with a high degree of severity. Affirmations of this from the highest authorities are on record. Dr. Jenner is of opinion, I believe, that the susceptibility to receive variolous contagion always remains through life, but under various modifications or gradations, from that point where it passes silently through the constitution, up to that where it appears in a confluent state, and with such violence as to destroy life.

The small-pox is distinguished into the distinct and confluent, implying, that in the former the eruptions are perfectly separate from each other, and that in the latter they run much into one another. The distinct may often be distinguished from the confluent before the eruption appears, by the mildness of its attack, by the synochal type of the fever, the late appearance of the eruption, and the absence of typhoid symptoms.

Some anomalous varieties of small-pox occasionally occur in practice, viz. the crystalline, in which the fluid never becomes opaque (sic) or purulent; the vesicular, in which small vesicles appear in the

interstices of the pustules; and some others; but which are all merely different modifications of the same disease.

Both the distinct and confluent small-pox are produced either by breathing air impregnated with the effluvia arising from the bodies of those who labour under the disease, or by the introduction of a small quantity of variolous matter into the habit by inoculation; and it is probable that the variety of the small-pox is not owing to any difference in the contagion, but depends on the state of the person to whom it is applied, or on certain circumstances concurring with the application of it.

Many physicians of eminence are of opinion, that the variolous contagion is limited to a narrow sphere, and that it seldom, if ever is conveyed by the wind to a distance, as some have imagined it capable of being. Dr. Haygarth, in his Sketch of a Plan to exterminate the casual Small-pox from Great Britain, informs us, that certain facts appear to exhibit negative proofs that the open air is not contaminated to a great distance from the patient; not to one thousand five hundred feet, nor probably to one hundredth part of the space. He mentions, that very few cases have been adduced to by those who have corresponded with him on the subject, in which clothes exposed to variolous miasma have been even suspected of conveying infection, and that several have given a negative testimony against this mode of communication. He further notices, that innumerable instances are to be produced where medical men, after exposing themselves to the miasms of an infectious chamber, in a very short time nearly approach persons liable to the distemper, who are yet not infected by the interview; and that inoculators are daily in this situation without communicating the casual small-pox. The period during which infection remains latent in the body, he observes, is determined by the testimony of many to be, in the inoculated small-pox, from the fifth day to the sixteenth, seventeenth, and even the twenty-third: in the casual or natural small-pox, a little but not much longer than the common period in inoculation.

A variety of opinions have been entertained respecting the effect of the variolous infection on the foetus in utero; a sufficient number of instances, however, have been recorded, to ascertain that the disease may be communicated from the mother to the child. In some cases the body of the child at its birth has been covered with pustules, and the nature of the disease has been most satisfactorily ascertained by inoculating with matter taken from the pustules. In other cases there has been no appearance of the disease at the time of the birth, but an eruption and other symptoms of the malady have appeared so early, as to ascertain that the infection must have been received previously to the removal of the child from the uterus. Moreover, some cases reported in the first volume of the Medico-Chirurgical Transactions of London, by Dr. Jenner, point out the obvious infection of the foetus before birth, and communicated through the mother, she being already secure from any visible occurrence of the disorder, which is indeed a very extraordinary occurrence.

Four different states or stages are to be observed in the small-pox: -first, the febrile; second, the eruptive; third, the maturative; and fourth, that of declination or scabbing, which is usually known by the name of secondary fever.

When the disease has arisen naturally, and is of the distinct kind, the eruption is commonly preceded by a redness in the eyes, soreness in the throat, pains in the head, back, and loins, weariness and faintness, alternate fits of chilliness and heat, thirst, nausea, inclination to vomit, and a quick pulse.

In some instances these symptoms prevail in a high degree, and in others they are very moderate and trifling. In young children, startings and convulsions are apt to take place a short time previous to the appearance of eruption, always giving great alarm to those not conversant with the frequency of the occurrence.

About the third or fourth day from the first seizure, the eruption shows itself in little red spots (similar to flea-bites) on the face, neck, and breast; and these continue to increase in number and size for three or four days longer; at the end of which time they are to be observed dispersed over several parts of the body.

If the pustules are not very numerous, the febrile symptoms will generally go off on the appearance of the eruption, or they will become very moderate. It sometimes happens, that a number of little spots of an erysipelatous nature are interspersed among the pustules; but these generally go in again as soon as the suppuration commences, which is usually about the fifth or sixth day; at which period a small vesicle, containing an almost colourless fluid, may be observed upon the top of each pimple.

Should the pustules be perfectly distinct and separate from each other, the suppuration will probably be completed about the eighth or ninth day, and they will then be filled with a thick yellow matter; but should they run much into each other, it will not be completed till some days later.

When the pustules are very thick and numerous on the face, it is apt about this time to become much swelled, and the eyelids to be closed up; previous to which, there usually arises a hoarseness and difficulty of swallowing, accompanied with considerable discharge of viscid saliva.

About the eleventh day the swelling of the face usually subsides, together with the affection of the fauces, and is succeeded by the same in the hands and feet; after which the pustules break, and discharge their contents, and then becoming dry, they fall off in crusts, leaving the skin which they covered of a brown red colour, which appearance continues for many days. In those cases where the pustules are large, and are late in becoming dry and falling off, they are very apt to leave pits behind them; but where they are small, suppurate quickly, and are few in number, they neither leave any marks behind them nor do they occasion much affection of the system.

In the confluent small-pox the fever which precedes the eruption is much more violent than in the distinct, being attended usually with great anxiety, heat, thirst, nausea, vomiting, and a frequent and contracted pulse, and often with coma or delirium. In infants, convulsive fits are apt to occur, which either prove fatal before any eruption appears, or they usher in a malignant species of the disease.

The eruption usually makes its appearance about the third day, being frequently preceded or attended with a rosy efflorescence, similar to what takes place in the measles: but the fever, although it suffers some slight remission on the coming out of the eruption, does not go off as in the distinct kind; on the

contrary, it becomes increased after the fifth or sixth day, and continues considerable through the remainder of the disease.

As the eruption advances, the face being thickly beset with pustules, becomes very much swelled, the eyelids are closed up, so as to deprive the patient of sight, and a gentle salivation ensues, which towards the eleventh day is so viscid, as to be spit up with very great difficulty. In children, a diarrhoea usually attends this stage of the disease instead of a salivation, which is to be met with only in adults.

The vesicles on the top of the pimples are to be perceived sooner in the confluent small-pox than in the distinct; but they never rise to an eminence, being usually flattened in; neither do they arrive to a proper suppuration, as the fluid contained in them, instead of becoming yellow, turns to a brown colour.

About the tenth or eleventh day the swelling of the face usually subsides, the hands and feet beginning then to puff up and swell, and about the same time the vesicles break, and pour out a liquor that forms into brown or black crusts, which upon falling off leave deep pits behind them that continue for life; and where the pustules have run much into each other, they disfigure and scar the face very considerably.

Sometimes it happens that a putrescency of the fluids takes place at an early period of the disease, and shows itself in livid spots interspersed among the pustules, and by a discharge of blood by urine, stool, and from various parts of the body.

In the confluent small-pox, the fever, which perhaps had suffered some slight remission from the time the eruption made its appearance to that of maturation, is often renewed with considerable violence at this last-mentioned period, which is what is called the secondary fever; and this is the most dangerous stage of the disease.

It has been observed, even among the vulgar, that the small-pox is apt to appear immediately before or after the prevalence of the measles. Another curious observation has been made relating to the symptoms of these complaints, namely, that if, while a patient labours under the small-pox, he is seized with the measles, the course of the former is generally retarded till the eruption of the measles is finished. The measles appear, for instance, on the second day of the eruption of small-pox; the progress of this ceases till the measles terminate by desquamation, and then it goes on in the usual way. Several cases are however recorded in the Medical and Physical Journal, as likewise in the third volume of the Medical Commentaries, in which a concurrence of the small-pox and measles took place without the progress of the former being retarded.

The only diagnosis that is necessary is between small-pox and chicken-pox. In the latter the pustules commonly go back without coming to proper suppuration. Their number, size, appearance, and course, differ very essentially. There is great reason to suppose, however, that the one disease is sometimes mistaken for the other, which may account for many of the supposed failures of the vaccine inoculation.

The distinction is sufficiently apparent between chicken-pox and the small-pox when each of these diseases appears in its proper colours; but when the latter is peculiarly mild, and the former extraordinarily violent, which is sometimes the case, then all the discriminating marks are obscured.

The distinct small-pox is not attended with danger, except when the eruptive fever is very violent, or when it attacks pregnant women, or approaches nearly in its nature to that of the confluent; but this last is always accompanied with considerable risk, the degree of which is ever in proportion to the violence and permanence of the fever, the number of pustules of the face, and the disposition to putrescence which prevails.

When there is a great tendency this way, the disease usually proves fatal between the eighth and eleventh day; but in some cases death is protracted till the fourteenth or sixteenth. The confluent small-pox, although it may not prove immediately mortal, is very apt to induce various morbid affections.

Both kinds of small-pox leave behind them a predisposition to inflammatory complaints, particularly to ophthalmia and pneumonia; and they not unfrequently excite scrofula into action which might otherwise have lain dormant in the system.

The regular swelling of the hands and feet upon that of the face subsiding, and its continuance for the due time, may be regarded in a favourable light. Violent eruptive fever, delirium, stupor, severe vomiting, dyspnoea, sudden disappearance of the eruption, subsidence of the swelling of the face or extremities, suppression of saliva, or depression of the pustules, followed by much prostration of strength, pallor of the skin, great anxiety, syncope, or convulsions, are appearances which denote the greatest danger. The disease in its progress assuming a malignant character and typhoid type, and the pustules becoming livid, or being interspersed with petechiæ, portend a fatal termination.

The dissections which have been made of confluent small-pox, have never discovered any pustules internally on the viscera. From them it also appears, that variolous pustules never attack the cavities of the body, except those to which the air has free access; as the nose, mouth, trachea, the larger branches of the bronchiæ, and the outermost part of the meatus auditorius. In cases of prolapses ani, they likewise frequently attack that part of the gut which is exposed to the air. They have usually shown the same morbid appearances inwardly as are met with in typhus gravior, where the disease has been of a very malignant nature. Where the febrile symptoms have run high, and the head has been much affected with coma or delirium, the vessels of the brain appear, on removing the cranium and dura mater, more turgid, and filled with a darker coloured blood than usual, and a greater quantity of serous fluid is found, particularly towards the base of the brain. Under similar circumstances the lungs have often a darker appearance, and their moisture is more copious than usual.

When a person who has never had the small-pox is attacked with febrile symptoms after having been exposed to infection, or in consequence of the disease prevailing epidemically, we ought immediately to advise a strict pursuance of the antiphlogistic plan, debarring him from animal food, impregnating his drink with cooling acids, keeping his body open with gentle laxatives, and above all, exposing him freely to cool air, as, beyond all doubt, there is not a more effectual remedy for moderating the febrile heat produced by this disease than the application of cool air; and the more urgent the symptoms, the more will the patient stand in need of it; for where the ventilation is free, it is inconceivable how refreshing it proves, and how suddenly it is capable of reducing the pulse, and of moderating all the symptoms. The proper treatment of the patient from the very first attack of the disease will have great influence on the

form which it assumes: if he be kept in a warm room, be loaded with bedclothes, and get warm drink, the fever will be severe and the eruption copious; while by an opposite treatment the disease may be broken at the beginning.

In the early stage of small-pox, and during the eruptive fever, when the symptoms run high, we may, in addition to exposing the patient freely to cool air, recommend washing the body partially or generally with cold water. As the quantity, as well perhaps as the quality of the pustules depends greatly on the violence and duration of the eruptive fever, and as by mitigating the one we render the other more favourable, it would seem really advisable, as soon as a person is seized with variolous fever, wherein the febrile symptoms are any way high, to have cold water thrown over the body every four or six hours; which plan may be continued until the eruption is completed. The safety and utility of the remedy are recorded in the thirteenth number of the Edinburgh Medical Journal, and are confirmed by my own experience. When had recourse to on the attack of variolous fever, it usually mitigates the headach (sic), pain in the back, and other febrile symptoms; a slow and gentle perspiration succeeds, and a mild eruption takes place. Where it is resorted to after the small-pox have made their appearance, and by their quantity and the duration of the fever a confluent pock is expected, the cold bath seems not only to moderate the febrile symptoms, but likewise to diminish the number of the pustules, and in doing so, greatly to lessen the danger of the disease.

The temperature of the patient's chamber should always be such that he may experience no disagreeable degree of heat, but rather a sensation of cold; and except he complains of being chilly, we need not be afraid of carrying the cool regimen too far.

He should lie on a mattress covered only with a few bedclothes, a feather-bed being apt to occasion too great an accumulation of heat. If convenient, he should have an apartment to himself, as the heat of a crowded room would be sure to prove injurious; and his body-linen, as well as that of the bed, should be shifted frequently.

In many instances, little more will be requisite than to pursue the steps which have been advised; but sometimes the fever and general inflammation run so high (particularly in adults of a plethoric and robust habit) as to be accompanied with great heat and dryness of the skin, redness of the face and eyes, considerable difficulty of breathing, acute pain in the head, stupor, or delirium; in which case it may be necessary to take away a little blood; but in resorting to this operation, great prudence is necessary; for should a fever of a malignant nature, or putrid tendency, accompany the disease, bleeding might prove highly injurious. Indeed it might perhaps be best practice to recommend it only in those cases where the effects expected from it cannot be procured by other remedies; and even in these local blood-letting by scarification of the temples, or the application of leeches, ought to be preferred. Where the eyes look red and fiery, or coma prevails, topical bleeding may prove a valuable remedy.

The same caution should be observed with respect to a use of purgatives. For the purpose of diminishing excitement in the distinct small-pox, they may prove serviceable if administered in moderation; but if the accompanying fever is of the typhoid kind instead of synocha, then these and

other antiphlogistic remedies are by no means warrantable. To dislodge the contents of the intestinal tube in such cases where costiveness prevails, we should only employ the most gentle laxatives, such as the neutral salts, with the occasional use of emollient clysters.

On the coming on of the fever, the stomach in some cases is much disordered, and a constant nausea, or frequent vomiting, is apt to arise: to obviate which, it will be proper to give a gentle emetic, working it off with a few draughts of chamomile-tea.

It is no uncommon occurrence for convulsive fits to attack children some short time previous to the appearance of the eruption, which are apt to alarm those who are not conversant with the disease. In this instance little more will be requisite, in general, than to admit cool air freely to the child; but should they occur at a very early period of the disorder, and be repeated frequently with any violence, they then are attended with considerable danger, and ought to be removed, if possible, but giving opium in doses proportioned to the age of the child. About five drops of the tinctura opii will be sufficient for a child of a year old, about eight drops for one of two years old, and so on in a regular gradation.

Blisters are sometimes used in cases of this nature; but from the great length of time which elapses previous to their producing any effect, they seldom prove serviceable.

In those instances where the eruption does not come out kindly, it has been advised to immerse the whole body for a short time in a warm bath; but perhaps it may be more proper only to put the feet and legs into warm water at first, using at the same time a more generous diet; and should these means fail, the other mode of proceeding may then be adopted.

If there be great irritability and restlessness, opium in small quantities, either with the saline mixture, or a grain or two of antimonial powder, will be serviceable.

Where the febrile symptoms run high after the appearance of the eruption, we should give small and frequently repeated doses of antimonials, as advised under the head of Simple Continued Fever.

With the same view of lessening febrile heat and excitement, we may employ refrigerant medicines, such as nitre and saline draughts, administering the latter in the act of effervescence. Cold dilutents, such as lemonade, imperial, &c., may be taken freely to allay thirst.

It will likewise be proper to avoid heat, and to expose the body to cool air. The cool regimen, in its fullest extent, is however by no means so necessary after the completion of the eruption, or where the fever has almost or wholly disappeared, as before. At the same time we must be careful to avoid the opposite and more dangerous extreme of relaxing too suddenly in the employment of the cool regimen. The use of laxative medicines, or clysters, as far as is necessary to prevent costiveness, is to be continued; and with regard to the application of cold, it should at this period be regulated by the patient's feelings.

If, on the other hand, the febrile symptoms continue considerable, notwithstanding the appearance of the eruption, the plan of treatment must not be relaxed. The continued use of gentle cathartics and the

cool regimen is then necessary' at an early period they are the best means of moderating the eruptive fever; they are now the most effectual for preventing the appearance of the secondary, which is always to be feared where the remission on the completion of the eruption is inconsiderable.

When a degree of cynanche is present, gargles and the inhalation of warm steam may be used.

In those case where the pustules contain a thin watery fluid, and are accompanied with great soreness, uneasiness, loss of strength, and lowness of the pulse, the cinchona bark should be given in large doses, and be frequently repeated; and although it may perhaps increase the difficulty of breathing, and render the expectoration a little more difficult, still its good effects in obviating the symptoms of irritation, and the tendency to putrescency, will greatly overbalance the former. To assist the effects of this bark, a free use of wine whey ought to be allowed.

In the confluent small-pox, particularly where there is a putrid tendency, where the pustules are filled with a bloody water, or where petechiæ are interspersed among them, we must also have recourse to the bark of cinchona joined with wine, together with acids, all kinds of which have been employed in this form of the disease, but more particularly the muriatic and sulphuric, as noticed under the head of Typhus Gravior. Where hemorrhages arise, we may give alum in addition to these remedies.

If the eruptions, after having made their appearance, strike in suddenly, or if the disease has arisen in a person of lax fibres, and is attended with a weak low pulse, and a sinking in of the pustules, then, besides allowing a liberal use of wine-whey, we should apply cataplasms to the soles of the feet, and blisters successively to different parts of the body, paying no regard to their being covered with pustules. Camphor, ammonia, musk, and aromatics, will likewise be advisable medicines. The warm bath will also be proper.

Where the suppuration in the pustules does not go on kindly, owing to the want of rest, it will be proper to give opiates. About forty drops of the tincture opii may be administered to an adult every night at bedtime, and one or two teaspoonsful of the syrupuspapaverissomniferi to young children. If opiates are given when the excitement is considerable, or if they are found to induce coma, their use will certainly be improper; but in all other cases, more particularly during the maturing stage, in the confluent small-pox, a quantity of opium, sufficient to allay restlessness, provided care be taken, by administering gentle laxatives, to prevent its constipating effects, will be sure to prove beneficial.

The secretion from the glands of the mouth and throat in the confluent small-pox, usually goes on without the help of medicines until near the time of the completion of the suppuration, so that it is only necessary to defend the parts from the matter secreted by giving mucilaginous drinks, such as barley-water, linseed-tea, or a solution of gum. acacia; but towards the time of its being completed, the secretion is apt to become so thick and viscid, as to be expectorated with the greatest difficulty, and often even to endanger suffocation. In this case we should give an emetic, after which the mouth and throat must be washed out very frequently with some proper gargle as below, or as advised under the

head of Inflammatory Quinsy. If the emetic does not afford a permanent relief, we may then apply a blister to the external fauces with some prospect of advantage.

When the swelling of the face begins to subside, if we should find that the extremities do not become puffy and swelled, as they ought to do, cataplasms and blisters may be applied to them, to excite inflammation.

Determination to the head or chest, or other viscera, requires blister, pediluvium, and sinapisms to the feet.

If a strangury or suppression of urine should ensue in the course of the disease, as sometimes happens, it possibly may be relieved by making the patient walk barefooted several times across the floor, and by giving him small doses of nitre at the same time. Dashing cold water on the legs, as is sometimes practiced to solicit the alvine discharge, may also be tried. Should these means fail in affording relief, we ought to resort to the other remedies recommended under these particular heads.

Obstinate vomiting, which in this disease often proves a very troublesome as well as dangerous symptom, is most effectually allayed by saline medicines, taken in the act of effervescence, and joined with opium.

Profuse diarrhœa is a troublesome occurrence in the confluent small-pox, particularly in children: but unless this symptom produces a dangerous degree of debility, we should be cautious in checking it; and even when it does occasion considerable debility, the safest plan will be to endeavor to moderate it by very gentle astringents and tonics. There is perhaps no instance, except towards the termination of the disorder, in which the diarrhœa can be safely stopped by astringents, and then it is to be done cautiously; and when these medicines, either conjoined with opium, or of themselves, produce too sudden an effect, it must be counteracted by gentle laxatives.

In all cases where there is a propensity to sweating, after the eruptive fever has passed, a cool regimen will be particularly necessary.

In the distinct small-pox there ensues little or no secondary fever; but it regularly attends on the confluent, and is always in proportion to the number of pustules, proceeding probably from an absorption of the matter. This being the case, it may be advisable to open every pustule as soon as the suppuration in it is completed; and in order to moderate the fever, as well as to prevent hectic symptoms, and after-suppurations from arising, we ought to employ mild cathartics, so as to keep the bowels regularly open.

If at the approach of the secondary fever the pulse is quick, hard, and strong, the heat very great, the head much affected, and the breathing laborious, a quantity of blood, proportioned to the urgency of the symptoms, may probably be taken with safety, by means of scarifications or leeches applied to the part most affected; but a use of gentle cathartics, and other antiphlogistic means, seems much more

advisable. If, on the contrary, the patient is faint, the pustules look pale and much indented, and the extremities feel cold, with other symptoms of irritation, the fever is then to be considered as of the typhoid kind; and the proper remedies to be employed are cinchona bark, in whatever form it is found to sit easiest on the stomach, conjoined with wine and aromatics, together with mineral acids, opium, and artificially prepared pure air, or oxygen gas.

To prevent the face from being marked after the confluent small-pox, it has been recommended to bathe it three or four times a day with warm milk and water, and on the seventh or eighth day, to apply over its whole surface a mask made of fine cambric, thinly spread with a soft liniment, composed of olive oil, white wax, and prepared lard, or with the unguentumcetacei, so as to exclude the external air; which application is to be renewed twice or thrice a day.

When the pustules are numerous on the face, it sometimes happens that the eyes become much affected, and that a loss of sight is the consequence. In those cases, therefore, where the face is much beset with pustules, the use of mild and gently astringent collyria, as advised under the head of Ophthalmia, should never be neglected. To prevent the eyelids from adhering together in such cases, it may be necessary to bathe them from time to time with warm milk, and to besmear them frequently with a little emollient ointment of any kind.

The small-pox, particularly when it proves severe, is apt, in habits disposed to scrofula, to excite that disorder into action, when it otherwise might not have shown itself. Frequent instances of this nature occur in practice, and prove obstinate to the practitioner, as well as distressing to the patient. In all such cases we must resort to the means advised under that particular head.

In the confluent small-pox, as well as the distinct, the patient's strength must be supported by food of a light nutritive nature, such as panado, bread-pudding, preparations of sago, arrow-root, roasted apples, &c.; and for common drink he may take thin gruel or barley-water gently acidulated, together with a little wine-whey now and then when the febrile symptoms do not run high. If the accompanying fever is of a typhoid nature, a liberal use of wine will be proper.