

VIII. *Account of a Woman who had the Small Pox during Pregnancy, and who seemed to have communicated the same Disease to the Fœtus.* By John Hunter, Esq. F. R. S.

Read January 17, 1780.

MR. GRANT'S ACCOUNT.

ON the 5th of December, 1776, Mrs. FORD had been seized with shivering and the other common symptoms of fever, to which were added great difficulty of breathing and a very hard cough. Mr. GRANT saw her on the 7th; and he took from her eight ounces of blood, and gave her a composition of the saline mixture with spermaceti and magnesia every six hours.

This had operated by the 8th two or three times very gently, when most of the complaints were relieved; but the cough still shaking her violently, bleeding seemed necessary to be repeated, more particularly as she looked upon herself to be in the sixth month of her pregnancy. The medicine was continued without the magnesia.

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In the evening (*viz.* the 8th) the small pox appeared, which proved of a mild kind, and moderate in quantity. Its progress was rather slower than might have been expected; but the woman passed through the disease in great spirits, sitting up the greatest part of the day during the whole time, and taking only a paregoric at night, and, as occasion required, a little magnesia: thus the symptoms were mitigated, and the cough at last became very little troublesome.

On the 25th she complained of a pain in her side. Eight ounces of blood were taken away. The next day she was quite free from pain, and thought herself as well on the 27th as her particular situation would admit of; after which she was not visited by Mr. GRANT till the 31st, when she was in labour.

Mr. WASTALL'S letter on the same subject.

December 30, 1776, I was sent for to Mrs. FORD, a healthy woman, about twenty-two years of age, who was pregnant with her first child. She had come out of the country about three months before. Soon after her arrival in town she was seized with the small pox, and had been under the care of Messieurs HAWKINS and GRANT, who have favoured me with the particulars here annexed.

I called upon her in the afternoon; she complained of violent griping pains in her bowels, darting down to the *pubes*. On examining I found the *os tinſe* a little dilated, with other ſymptoms of approaching labour. I ſent her an anodyne ſpermaceti emulſion, and deſired to be called if her pains increaſed. I was ſent for. The labour advanced very flowly; her pains were long and ſevere; ſhe was delivered of a dead child, with ſome difficulty.

Obſerving an eruption all over the body of the child, and ſeveral of the *pustules* filled with matter, I examined them more particularly; and recollecting, that Dr. LEAKE, in his Introductory Lecture to the Practice of Midwifry, had obſerved, that it might be neceſſary to inquire, whether thoſe adults who are ſaid totally to eſcape the ſmall pox have not been previously affected with it in the womb, I ſent a note to Dr. LEAKE, and likewiſe to Dr. HUNTER, in hopes of aſcertaining a fact hitherto much doubted. Dr. LEAKE came the ſame evening, and ſaw the child. Dr. HUNTER came afterwards, with Mr. CRUICKSHANKS, and examined it; alſo Mr. JOHN HUNTER and Mr. FALCONER; who all concurred with me, that the eruption on the child was the ſmall pox. Dr. HUNTER thought the eruption ſo like the ſmall pox that he could hardly doubt; but ſaid, that in all other caſes of the ſame kind,

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that he had met with, the child *in utero* had escaped the contagion.

From Mr. GRANT'S notes.

The eruption appeared on Mrs. FORD in the evening of the 8th of December, and she was delivered the 31st, that is, twenty-three days after the appearance of the eruptions.

Reflections by Mr. JOHN HUNTER.

The singularity of the above case, with all its circumstances, has inclined me to consider it with some attention.

There can be no doubt but that the mother had the small pox, and that the eruption began to appear on the 8th of December: also, that it went through its regular stages, and that on the 31st, *viz.* twenty-three days after the first appearance of the eruption, the woman was delivered of the child, who is the subject of this paper.

Secondly, The distance of time when she had the small pox before delivery, joined with the stage of the disease in the child when born, which probably was about the sixth or seventh day of the eruption, *viz.* about fifteen or sixteen days after the beginning of the eruption on the mother, perfectly agrees with the possibility of the infection's being caught from the mother.

Thirdly, The external appearance of the *pustules* in the child was perfectly that of the small pox, as must have appeared from the relation given in Mr. WASTALL'S

letter. Most of the *pustules* were distinct, but some were blended or united at their base. The face had the greatest number; and these were in general the most indistinct. They were somewhat flattened with a dent in the middle^(a).

So far were the leading circumstances and external appearances in favour of their being the variolous eruption; but although these leading circumstances and external appearances were incontrovertible, yet they were not an absolute proof of this being the genuine small pox; therefore I must be allowed to consider this subject a little further, and see how far all the circumstances correspond or are similar to the true small pox. In the small pox we have a previous fever, in place of which, in the present case, we have no information but that of the mother's having had the small pox within such a limited time as may favour the possibility of infection in the womb; yet we may presume, that the child must have had considerable fever preceding such an eruption, of whatsoever kind it was.

In the small pox the eruption goes through pretty regular stages in its progress and declension, which circumstances we know nothing of in the present case; but

(a) I endeavoured to take some matter upon the point of two lancets; but not having an opportunity of making an experiment myself, I gave them to two gentlemen, who, I imagine, were afraid of inoculating with them.

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even this fever, the eruptions, and their progress, are not absolutely proofs that the disorder is the small pox when it is caught in the common and natural way: and in proof of this assertion it may be observed, that practitioners every now and then are mistaken.

It may be asked, what is the true characteristic of the small pox? That by which it differs from all other eruptions that we are acquainted with? The most certain character of the small pox, that I know, is the formation of a slough, or a part becoming dead by the variolous inflammation; a circumstance which hitherto, I believe, has not been taken notice of.

This was very evident in the arms of those who were inoculated in the old way, where the wounds were considerable, and were dressed every day; which mode of treatment kept them from scabbing, by which means this process was easily observed; but in the present method of inoculation it is hardly observable: the sore being allowed to scab, the slough and scab unite and drop off together. The same indistinctness attends the eruptions on the skin; and in those patients who die of, or die while in, the disease, where we have an opportunity of examining them while the part is distinct, this slough is very evident.

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This slough is the cause of the pitting after all is cicatrized; for it is a real loss of substance of the surface of the *cutis*: and in proportion to this slough is the remaining depression.

The chicken pox comes the nearest in external appearance to the small pox; but it does not commonly produce a slough.

As there is generally no loss of substance in this case, there can be no pitting. But it sometimes happens, although but rarely, that there is a pitting in consequence of a chicken pox; then ulceration has taken place on the surface of the *cutis*, a common thing in fores.

In the present case, besides the leading circumstances mentioned in the case of the mother, corresponding with the appearances on the child, and the external appearances themselves, we have in the fullest sense the third and real or principal character of the small pox, *viz.* the slough in every *pustule*; from all which, I think, we may conclude, that the child had caught the small pox in the womb; or at least a disease, the effects of which were similar to no other known disease.

In opening the bodies of those who had either died of, or died while under, the small pox, I always examined carefully to see whether any internal cavity, such as the *œsophagus*, *trachea*, stomach, intestines, *pleura*, *peritoneum*,

neum, &c. had eruptions upon them or not, and never finding any in any of those cavities, I began to suspect, that either the skin itself was the only part of the body susceptible of such a *stimulus*; or that the skin was subject to some influence to which the other parts of the body were not subject, and which made it alone susceptible of the *variolous stimulus*. If from the first cause, I then concluded it must be an original principle in the animal œconomy. If from the second, I then suspected, that external exposure was the cause; and I was the more led into this idea, from finding that these eruptions often attack the mouth and throat, two exposed parts; add to which, that we generally find the eruptions most on the exposed parts of the body, as the face, &c.

With these ideas in my mind, I thought I saw the most favourable opportunity of clearing up this point. I therefore very attentively examined most of the internal cavities of this child; such as the *peritoneum*, *pleura*, *trachea*, inside of the *œsophagus*, stomach, intestines, &c. but observed nothing uncommon. I have already observed, that in this child the face and extremities were the fullest, similar to what happens in common; from all which I may be allowed to draw this conclusion, that the skin is the principal part which is susceptible of the
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variolous *stimulus*, and is not affected by any external influence whatever.

The communication of the small pox to the child in the womb may be supposed to happen in two ways; one by infection from the mother, as is supposed in the above case; the other by the mother's having absorbed the small pox matter from some other person, and the matter being carried to the child from the connection between the two, which we may suppose done with or without first affecting the mother.

Testimonies and opinions are various with respect to these two facts. BOERHAAVE seems to have been led by his experience to think that such infection was not communicable: for we find that he attended a lady, who having, in the sixth month of her pregnancy, had the confluent small pox, brought forth at the regular period a child, who shewed not the least vestige of his mother's disease.

His commentator, however, VAN SWIETEN, supports a different opinion (see his Comment, vol. V.). He quotes a case from the Philosophical Transactions, vol. XXVIII. N° 337. p. 165. of a woman, who, having just gone through a mild sort of small pox, was, by means of a strong dose of purging physic, thrown into a miscarriage,

and brought forth a dead female child, whose whole body was covered with *variolous pustules* full of ripe matter; but this history is founded only on the relation of a midwife to a clergyman, and therefore not absolutely to be depended upon as accurately stated: however, it is more than probable, that there was a case as described; and that there were really eruptions on the skin of the child similar to the small pox.

VAN SWIETEN likewise mentions what MAURICEAU relates of himself. This author testifies, that he had often heard his father and mother say, that the latter, when big with him, and very near her time of delivery, had a painful attendance on one of her children, who died of the small pox on the seventh day of the eruption; and that on the day following the death of this child, MAURICEAU came into the world, bringing with him five or six true *pustules* of the small pox.

It does not appear, however, from this recital, whether or not MAURICEAU passed through life free from any posterior infection; but admitting that this eruption of MAURICEAU'S was truly the small pox, yet I should very much doubt his having caught it from the child who died of it: as it should seem that the *pustules* of MAURICEAU were of the same date with those of the child who

died. VAN SWIETEN appeals to a more recent case, which had been reported to him by persons of great credit, and is recorded in the *Phil. Transf.* vol. XLVI. p. 235.

“ A woman, big with child, having herself long ago
 “ had the small pox, very assiduously nursed a maid ser-
 “ vant during the whole process of this disease. At the
 “ proper time she brought forth a healthy female child,
 “ in whose skin Dr. WATSON asserted, that he discovered
 “ evident marks of the small pox, which she must have
 “ gone through in the womb; and the same physician
 “ pronounced, that this child would be free from future
 “ infection. After four years her brother was inoculated;
 “ and Dr. WATSON obtained permission of the parents to
 “ try the same experiment on the girl. The operation
 “ was performed on both children in the same manner;
 “ and the *pus* used in both cases was taken from the
 “ same patient. The event, however, was different; for
 “ the boy had the regular eruption, and got well; but
 “ the girl's arm did not inflame nor suppurate. On the
 “ tenth day from the insertion of the matter, she turned
 “ pale suddenly, was languid for two days, and after-
 “ wards was very well. In the neighbourhood of the
 “ incision there appeared a *pustule* like those *pustules* that
 “ we sometimes observe in persons who, having had the
 “ disease, attend patients ill of the small pox.

In the epistles of T. BARTHOLINUS, cent. II. p. 682. there is the following history. “ A poor woman, aged “ thirty-eight years, pregnant, and now near the time of “ delivery, was seized with the symptoms of the small “ pox, and had a very numerous eruption. In this state “ she was delivered of a child, as full of *variolous pustules* “ as herself. The child died soon after birth; the mo- “ ther three days afterwards.” VAN SWIETEN infers, that the mother and the child were in this case infected at the same time; therefore, the child not infected by the mother.

Dr. MEAD asserts, that when a woman in the small pox suffers an abortion, the *fœtus* is generally full of the contagion; but that this does not happen always. This variety, he says, depends on the state of the mother’s *pustules* when the child is born; that is, whether they are or are not in a state of purulence. Whence he has observed it sometimes to happen, that on the second day from the birth, or the third, or any day before the eighth, the disease caught from the mother shews itself in eruptions on the child.

Dr. MEAD here relates the history of a lady of quality, of which this is the substance. A lady, in the seventh month of her pregnancy, had the confluent small pox, and on the eleventh day of the disease brought forth a son, having no signs of the disease on his body; and she

died on the fourteenth day. The infant having lived four days, was seized with convulsions, and, the small pox appearing, died. The doctor infers from hence, that the suppuration being in some measure completed on the eleventh day, the mother's disease was communicated then to the *fœtus*, and made its appearance on the child after eight days.

If there be no abortion, Dr. MEAD pronounces, that the child will ever be free from the disease, unless the birth should happen before the maturation of the *pustules*. He brings a case to prove, that the *fœtus* in the womb may be infected by the contagion of which the mother does not partake. "A woman, who had long before suffered the small pox, nursed her husband, under that disease, towards the end of her pregnancy; and was brought to bed at the due time. The child was dead, and covered all over with *variolous pustules*."

With respect to the case quoted from MAURICEAU, it has been proved by Sir GEORGE BAKER (Med. Transact. vol. II. p. 275.) that Dr. MEAD drew a conclusion from it directly contrary to the author's meaning. The negative opinion appears evidently to be supported by that history.

Sir GEORGE BAKER mentions in the same paper the case of two pregnant women who were inoculated at Hertford. They both had the small pox favourably, and

afterwards brought forth their children perfectly healthy at the usual time. Both these children, at the age of three years, were inoculated with effect.

SIR GEORGE BAKER likewise mentions a case which fell under the observation of Dr. CLARKE of Epfom. “ A woman towards the end of her pregnancy had the small pox, from which she narrowly escaped. Five weeks after the crisis she was delivered of an healthy female child, who having numerous marks on her skin was judged by all who saw her to have undergone the same distemper before her birth. However, at the end of twelve months she had the small pox in a very severe manner. Both the mother and child were lately living at Epfom.”

Since then we see that it is very probable, that the small pox may be caught from the mother when she is infected, it may be asked, why does not this happen oftener? In answer to this we may suppose, that this is not so ready a way as when the child is exposed to catch it after the birth, as we find too that a difference can be produced after birth; *viz.* inoculation is a much readier way of catching it than what is called the natural way. It may likewise be said, that many women who are with child, and have the small pox during pregnancy, do not recover; therefore both mother and child die before the disease can have time to produce eruptions upon the child.

child. Finally in many of those cases, where the mother recovers, there is sometimes produced a miscarriage, which also hinders the infection from taking place in the child. However, many women go through the whole disease, and the child shews no marks of the small pox.

Thus have I stated facts relative to the present subject, with some of the best authorities on both sides of the question; and shall now leave the reader to form his own judgement.

