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# FURTHER OBSERVATIONS ON PERINEAL RUPTURE 

IN 226 CASES

BY
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Pleased with what valuable information the measuring of the perineum in the course of the delivery of the head gives and conceiving the idea that all the three diameters that are involved in the process should be taken together into consideration, further observations were made on 226 cases, in addition to the previous 400 , the report of the latter having already appeared in the Journal of Obstetrics and Gynaecology of India, Vol. III, No. 2, December 1952. This work has proved to be of great use in arriving at more precise inferences.
In order that the paper may be easily followed, it is necessary that some of the data, which have been described in the previous report, may now be in short referred to. The three diameters are P.A.P. (the ari-

[^0]tero-posterior diameter of the perineum between the anus and the anterior edge of the perineum), V.V. (the vulvo-vertical between the anterior and posterior commissures), P.T. (the perineal transverse between the sides of the perineum when distended and taken at about its middle level). In the natural state these diameters are P.A.P. one inch and V.V. two inches. The third diameter P.T. becomes available for measuring when the perineum is so much distended by the advaucing head that its sides can be distinctly felt and between them the diameter measured. These diameters increase in their lengths as the head is being born, P.A.P. becoming 2 inches, V.V. 4 inches and P.T. also 4 inches.

There are certain factors which at that time operate and lead to rupture of the perineum. They are, (1) some of the attendants who conduct cases may be wanting in skill in effecting delivery of the head as well as of the
shoulders; (2) the patient herself may not co-operate with the attending midwife and may force out the head at the height of the pain just when it is crowned; (3) the tissues themselves may be unyielding as is usually found in a primigravida at an advanced age; (4) the genital tract itself may be poorly developed so that the vaginal orifice may be by nature small and inelastic. Under the circumstances tear of the tissues becomes inevitable.

The tear when spontaneous is usually irregular, ragged and therefore rather difficult to be stitched properly. On the other hand, if an artificial aid of the nature of what is called episiotomy is rendered in time, it becomes easier to repair the wound, and what is more the functions of the parts may be restored. So it is essential to know just when aid is to be offered. No means will suggest so assuredly that the time has approached to do so as the actual measurements of the parts can, they being by far the most reliable.

It is only when the head has-come down into the lower third of the vagina that it comes into relation with the perineum, for its posterior wall is in direct contact, with the upper surface of the $i_{2}$ perineum as the vagina curves forward to its orifice...When the propelling force of the uterus forces the head down, it is transmitted through the posterior wall of the vagina to the perineum, which is pushed down causing it: to bulge and ifs middle point on the projected part to come to lie 4 inches ( 10 cm .) below the pubo-coccygeal level. The result of it is to open the vaginal ori-
fice and the anus. When the headis being born the vaginal orifice is $4^{\prime \prime}$ from before backwards. As the perineum is bulging, it becomes possible to measure the perineum from side to side, which on full distension measures also 4 inches. Among 226 cases under investigation, there were 137 cases of which the antero-posterior diameter of the vulval slit (V.V.) was 4 inches, and in 138 the perineal transverse (P.T.) was also 4 inches. P.A.P. increased to 2 inches in 134 cases.

As mentioned in the previous report, a form having various columns is used for recording the results of measurements.

These columns are as follows:-

1. Serial numbers. 2: Age of the patient. 3. Parity. 4. Weight of the child. 5. Tear or no tear. If torn, the extent. 6. Perineal antero-posterior measurement. 7. Vulval vertical and perineal transverse. 8. Head mea surements.
Column (1) is reference column. C: Columns (2) of age and (3) of parity can be considered together. Among 226 cases the numbers of different paras are as follows.


Column (4) is of weight of the child. The average weight worked out comes to 6.5 lb .

Column (5) represents tears. Out of 226,40 suffered tear, which num ber includes 14 cases of spontaneous tear and 26 of episiotomy.

Column (6) gives measurements of the antero-posterior length of the perineum. It was found that the P:A.P. had increased to 2 inches in 134 cases, while above 2 inches up to 3 inches in 77, and under 2 inches up to $1 \frac{1}{2}$ inches in 15 cases. So the greatest number was reached in those patients whose P.A.P. rose to . 2 inches, it being 134, the percentage comes to 58.85. It is therefore right to hold 2 inches as the standard.
.. . Column (7) furnishes the measurements of the antero-posterior length of vulval slit named as vulvo-vertical (V.V.).

As the head is being born, the V.V. diameter was found to increase to 4 inches in 138. It rose to $4 \frac{1}{4}$ inches in 13 and $4 \frac{1}{2}$ inches in 3 cases, thus amounting to 16 only; while it remained under 4 inches in 72 cases of which $3^{\frac{3}{4}}$ inches embodied 50. l'aking together the cases above and below 4 inches, they show themselves to be only 88 as against 138 , being of the length of 4 inches. It is therefore justifiable to recognise 4 inches as the standard length of V.V. diameter at delivery.

Perineal - Transverse diameter (P.T.):-

It is not uncommon to find that in majority of cases the two diameters, the V.V. and the P.T., are at the same time almost equal in length and go on increasing at the same rate.

Among these 226 cases, as individual length is taken into consideration, it is astonishing to notice that even P.T. was observed to have increased to 4 inches in 137 as against the V.V. diameter in 138. But a striking difference is to be made out when the two diameters have reached $3 \frac{3}{4}$ inches. Then in case the vaginal orifice is by nature small and also inelastic the occipital part cannot easily advance further while the head during pain under the driving force of the uterus causes the perineum to bulge the more, thus giving 4 inches as its P.T. length, though the V.V. persists to be at $3 \frac{3}{3}$ inches. That is the reason why there is difference in the number of cases in the category of (V. V. $3^{3}-$ P.T. $3^{\frac{3}{4}}$ ), they being 50 and 35 respectively. This however does not deter us from arriving at the conclusion that the standard length of P. T. should be regarded as 4 inches. Total number of cases above 4 inches is 35 and those under 54 , thus amounting altogether to 89 , which number too is less than that of 4 in ches by 48 .

As there is much interrelation between the vulval-vertical and the perineal-transverse diameters, the vulval slit opening almost to the same extent as does the perineum in bulging, the two diameters may be taken together into consideration and various groups formed in accordance with their respective lengths at head delivery. It has been already mentioned that both the diameters increase to 4 inches each in most cases, it is then justifiable to have $4^{\prime \prime}+4^{\prime \prime}$ as the standard and to proceed with the process of comparison.

|  | $\begin{gathered} \text { Number } \\ \text { of } \\ \text { cases } \end{gathered}$ | Torn | Spon. Tear | Episiotomy | Not Torn |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Standard Group (V.v. $4^{\prime \prime}$ P.T. $4^{\prime \prime}$ ) | 116 | 6 | 6 | - | 110 |
| Above Standard (lengths varying from $4^{\prime \prime}$ to $42^{\prime \prime}$ ) | 35 | 1 | 1 | - | 34 |
| Below Standard (lengths varying from $38^{\prime \prime}$ to $22^{\prime \prime}$ ) | 75 | 33 | 7 | 26 | 42 |
| Total | 226 | 40 | 14 | 26 | 186 |

Since P.A.P. $2^{\prime \prime}$ and V.V. and P.T. 4 inches each have been taken as the standard, and as all the three diameters are involved when the head is being born, $2^{\prime \prime}\left(4^{\prime \prime}-4^{\prime \prime}\right)$ may be considered together, the P.A.P. being taken as the one component and V.V. and P.T.) as the second. At first P.A.P. may be supposed a constant factor while the second (V.V. and P.T.) factor is taken as a whole but at the same time ranging below the standard in order to find out what
number of cases have undergone tear in each group.
To appreciate the fate of all the remaining cases, which constitute a greater number, 123, we may first take those cases in which the first factor varies in length while the second factor is a constant.

In the following table P.A.P. is taken as the constant factor, while the second factor has its individual constituent rising variously above the standard.


In the following table P.A.P. $2^{\prime \prime}$ is regarded as the constant factor but the components of the second one vary in lengths. Groups are formed, first are those in which each constituent, though under $4^{\prime \prime}$, is taken as being equal in length, and then those which have the component unequal, though under the standard.

Groups with P.A.P. a constant factor while the second factor (V.V. and P.T.) has its constituents varying from $4^{\prime \prime}$ to $3 \frac{3}{4}^{\prime \prime}$ :

Remarks. When both V.V. and P.T. are under 4 inches but equal ins length, i.e. $3 \frac{3}{4}$ and $3 \frac{3}{4}$, of the 18 cases, 3 had to be subjected to episiotomy. But when one of the constituents, either V.V. or P.T. had reached 4 inches, there might be no definite in-
dication for episiotomy. Yet it cannot be denied that out of 20 cases, three sustained tears, a number equal to that of episiotomies.

Groups with P.A.P. a constant factor while each of the second factor is definitely under the standard and varying from one another:

Remarks. Cases with V.V. and P.T., each under $3 \frac{3}{4}$ inches, are few, being only 4 . Three of them had episiotomies done on them.

The following groups are formed with P.A.P. $2_{4}^{1 "}$ " while the components of the second factor are varying, either rising above or remaining under 4 inches.
(P.A.P.) $2 \frac{1}{4}^{\prime \prime}-(V . V$. and P.T.) rising above the standard.

|  | Constant P.A.P. | $\begin{aligned} & \text { Varying } \\ & \text { (V.v.-P.T.) } \end{aligned}$ | Number of cases | Torn | Spon. Tear | Episiotomy | Not Torn |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Group | $2^{\prime \prime}$ | $\left(33^{\prime \prime}-3^{3 \prime \prime}{ }^{\prime \prime}\right)$ | \% 18 | 3 | - | 3 | 15 |
| Group | $2^{\prime \prime}$ | $\left(3^{3 \prime \prime}-4^{\prime \prime}\right)$ | - 17 | 2 | 2 | - | 15 |
| Group | $2^{\prime \prime}$ | ( $4^{\prime \prime}-33^{\prime \prime}$ ) | 3 3 | 1 | 1 | - | 2 |
|  |  | Total | 38 | 6 | 3 | 3 | 32 |
|  | Constant P.A.P. | $\begin{aligned} & \text { Varying } \\ & \text { (V.v.-P.T.) } \end{aligned}$ | Number of cases | Torn | Spon. Tear | Episiotomy | Not torn |
| Group | $2^{\prime \prime \prime}$ | $\left(3 \frac{1}{2}{ }^{\prime \prime}-3 \frac{1}{2}{ }^{\prime \prime}\right)$ | $3$ | $2$ | - |  | 1 |
| Group | $2^{\prime \prime}$ | $\left(3^{\prime \prime}-3 x^{\prime \prime}\right)$ | $1$ | $1$ | - | $1$ |  |
|  |  | Total | 4 | 3 | -- | 3 | 1 |
|  | Constant P.A.P. | $\begin{aligned} & \text { Varying } \\ & \text { (V.v.-P.T.) } \end{aligned}$ | Number of cases* | Torn | Spon. Tear | Episiotomy | Not Torn |
| Group | $24^{\prime \prime}$ | $\left(4^{\prime \prime}-4 x^{\prime \prime}\right)$ | 9 | - | - | - | 9 |
| Group | $2$ | $\left(4^{\prime \prime}-4 \frac{1^{\prime \prime}}{\prime \prime}\right)$ | $1$ | - | - | - | $1$ |
| Group | $24^{\prime \prime}$ | $\left(44^{\prime \prime}-44^{\prime \prime}\right)$ | 5 | 1 | 1 | - | 4 |
| Group | $24^{\prime \prime}$ | $\left(44^{\prime \prime}-4 \frac{1}{2}^{\prime \prime}\right)$ | 3 | - | - | - | 3 |
| Group | 24 | $\left(4 \frac{1}{\prime \prime}^{\prime \prime}-4 \frac{1}{2}^{\prime \prime}\right)$ | 1 | - | - | - | 1 |
|  |  | Total | 19 | 1 | 1 | - | 18 |

$\left.\begin{array}{cccccccc}\hline & \begin{array}{c}\text { Constant } \\ \text { P.A.P. }\end{array} & \begin{array}{c}\text { (V.v.-P.T.) } \\ \text { Varying }\end{array} & \begin{array}{c}\text { Number } \\ \text { of cases }\end{array} & \text { Torn } & \begin{array}{c}\text { Spon. tear }\end{array} & \text { Episiotomy Not torn }\end{array}\right]$

Remarks. In the above two tables there is a marked contrast, there being in the first, in addition to P.A.P. being $2 \frac{1}{4}$ inches, the lengths measure above the standard in the V.V. and P.T. factor; and in the second table, they are under. In the first table there are 19 cases, of which only one is torn and that too slightly. In the second are included 8 cases of which only that group, which has the perineal transverse diameter risen to 4 inches, contains 3 cases of spontaneous tear and one of episiotomy; while the remaining three groups, embodying cases characterized by V.V. and P.T. diameters as under the standard contain 4 cases, equal to the
former number. They had to be subjected to episiotomy.
P.A.P. $2 \frac{1}{2}$ inches and V.V: and P.T. 4 inches and above. P.A.P. $2 \frac{1}{2}$ inches and V.V. and P.T. mostly under 4 inches except one.

Remarks. With P.A.P. as $2 \frac{1}{2}$ inches, V.V. and P.T. gave measurements above 4 inches in 6 cases; there was neither a spontaneous tear nor an episiotomy. Büt when the perineal measurements were under the standard, there were 5 cases all of which were torn, one having spontaneous tear while the rest, four in number, required episiotomy.

|  | Constant P.A.P. | $\begin{aligned} & \text { Varying } \\ & \text { (V.v.-P.T.) } \end{aligned}$ | Number of cases | Torn | Spon. Tear | Episiotomy | Not | Torn |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Group | $22^{\prime \prime}$ | ( $4^{\prime \prime}-44^{\prime \prime}$ ) | 3 | - | - | - |  | 3 |
| Group | $22^{\prime \prime}$ | ( $44^{\prime \prime \prime}-44^{\prime \prime}$ ) | 1. | - | - | - |  | 1 |
| Group | $22^{\prime \prime}$ | ( $42^{\prime \prime \prime}$ - $42^{\prime \prime}$ ) | 2 | - | - | - |  | 2 |
|  |  | Total | 6 | - | - | - |  | 6 |
|  | Constant P.A.P. | Varying (V.v.-P.T.) | Number of cases | Torn | Spon. Tear | Episiotomy | Not | Torn |
| Group | 21/ ${ }^{\prime \prime}$ | (3397 $-33^{\prime \prime}$ ) | 3 | 3 | 1 | 2 |  | - |
| Group. | 212 | ( $3^{3 \prime}{ }^{\prime \prime} 4^{\prime \prime}$ ) | - | - | - | - |  | - |
| Group | $21^{\prime \prime}$ | (31 $\left.{ }^{\prime \prime}{ }^{\prime \prime}-3 \frac{1}{2}^{\prime \prime}\right)$ | 1 | 1 | - | 1 |  | - |
| Group | 21" ${ }^{\prime \prime}$ | (3才 ${ }^{\prime \prime}$-31 ${ }^{\prime \prime}$ ") | 1 | 1 | - | 1 |  | - |
|  |  | Total | 5 | 5 | 1 | 4 |  | - |

Table with P.A.P. $2 \frac{3}{4}$ inches. No case was there with V.V. and P.T. rising above 4 inches; but all the 4 cases under the standard.

Remarks. There were only four cases. They were all with perineal measurements under 4 inches. They had to be subjected to episiotomy.
Table with P.A.P. 3 inches. These cases were only two. V.V. and P.T. under the usual.

Remarks. In these cases the perineum was greatly stretched anteroposteriorly but the vulval opening remained smaller. Episiotomy was inevitable.

Table with P.A.P. under 2 inches and also V.V. and P.T. under the standard.

There was only one case in which P.A.P. was 13्3", while (V.v.-P.T.) was $4^{\prime \prime}-4^{\prime \prime}$ (constant). This case is described before.


|  | Constant P.A.P. | Varying (V.v.-P.T.) | Number of cases | Torn | Spon. Episiotomy | Not Torn |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Group | $12^{\prime \prime}$ | $\left(23^{\prime \prime}-23^{\prime \prime}\right)$ | 1 | 1 | 1 (Symphysiotomy) | - |
| Group | $12^{\prime \prime}$ | $\left(2 \frac{11}{\prime \prime}-2 \frac{1}{\prime \prime}^{\prime \prime}\right)$ | 1 | 1 | 1 (Forceps \& Episiotomy) | - |
|  |  | Total | 2 | 2 | 2 | - |
|  |  | Number of cases | Torn | Spon. <br> Tear | Episiotomy | Not torn |
| Gross total. |  | 226 | 40 | 14 | 26 | 186 |

Remarks. The cases which had P.A.P. under 2 inches, were 15 in all. Peculiarities of this class of case are the following:
I. Very few cases, only 15 out of 226, $6.63 \%$.
II. P.A.P., V.V. and P.T. diameters remained under the standard, with the exception of one case in which V.V. and P.T. rose to 4 inches each. This patient was a second para, 21 years old, child $6 \frac{3}{4} \mathrm{lb}$. No tear.
III. Of the remaining 14 cases, P.A.P. rose to $1 \frac{3}{4}$ inches in 12 and to $1 \frac{1}{2}$ inches in 2 cases.
IV. In 9 cases out of 12 with P.A.P. $1 \frac{3}{4}$ inches, V.V. and P.T. were above 3 inches, ranging between $3^{\frac{1}{4}}$ inches to $3 \frac{3}{4}$ inches. In these cases delivery was normal without tear, which can be accounted for by small size and weight of the children and the perineal tissues extensile.

V . In the remaining 5 cases, 3 with P.A.P. $1^{\frac{3}{4}}$ inches and 2 with $1 \frac{1}{2}$ inches, but at the same time V.V. and P.T. did not rise above $2 \frac{1}{2}$ or $2 \frac{3{ }^{\prime \prime}}{}$. In all these cases, artificial aid in the shape of episiotomy with forceps application had to be rendered. In one
case with P.A.P. $1 \frac{1}{2}$ inches, V.V. $2 \frac{3}{4}$ inches and P.T. $2 \frac{3}{4}$ inches, symphysiotomy had to be done because of outlet contraction. It was also associated with toxaemia and inertia.
VI. Other reasons for the lengths to persist under the standard are:
(a) Genital tract hypo-plastic. In almost all the cases which were admitted at the very onset of labour, P.A.P. measured $\frac{1^{\prime \prime}}{}{ }^{\prime \prime}$ to $\frac{3^{\prime \prime}}{\frac{1}{\prime \prime}}$, the standard length being 1 inch in the nonpregnant state.
(b) Smallness of foetuses. Out of 15 cases, in 13 the weight was under the average ( 6.53 lbs .), ranging between $3 \frac{1}{4}$ and 6 lbs . Small children have small heads, which become yet smaller by moulding during their descent through the hypoplastic narrow birth canal.
(c) Toxaemia of pregnaricy. Seven patients suffered from it. One of them had a stillborn chila, weighing $3 \frac{1}{4} \mathrm{lbs}$., two premature children, with $4 \frac{3}{4} \mathrm{lbs}$. as weight of each. All other children weighed $5 \frac{3}{4} \mathrm{lbs}$. and
under. One thing that may be mentioned here is that when a patient shows signs of toxaemia early in the last trimester, the fundus of the uterus does not show progressive rise in height in accordance with the age of pregnancy and may persist at 25 or 26 cm . even though she may be in the 8th
month, indicating that toxaemia affects the growth of the foetus.
(d) Inertia of the uterus. Inertia was present in all the five cases calling for forceps application to effect delivery. The measurements had remained small as shown in V.

(Continued on page 240)


It may be conceded that most of these cases could have been submitted to the operation and irregular and ragged tear avoided. Second paras had spontaneous tears in the first delivery and so also had the third paras. The union being weak they tore readily. Again, two of them had plastic operations done before.

On referring to the above, it may
be noticed that when the anteroposterior length of the perineum rises above 2 inches and at the same time the antero-posterior length of the vulval slit and the perineal transverse remain $3 \frac{3}{4}$ inches or under, there is greater probability of the rupture. It is more so in the case of vaginal orifice, if small and inelastic.

## Episiotomies




| 11 | 22 | I | $7 \frac{1}{2}$ | $\left(2 \frac{1}{2}-3 \frac{1}{2}-3 \frac{1}{2}\right) 1 / 1$ | 5 one of them had symphisiotomy, forceps |  |
| ---: | ---: | ---: | ---: | :--- | :--- | :--- |
| 15 | 25 | I | $6 \frac{3}{4}$ | $\left(2 \frac{1}{2}-3 \frac{1}{4}-3 \frac{1}{2}\right) 1 / 1$ | and episiotomy. |  |
| 174 | 19 | I | $6 \frac{3}{4}$ | $\left(2 \frac{3}{4}-3 \frac{3}{4}-3 \frac{3}{4}\right.$ |  | 2(P.A.P.) |
| 217 | 20 | II | $6 \frac{3}{4}$ | $\left(2 \frac{3}{4}-3 \frac{3}{4}-3 \frac{3}{4}\right) 2 / 2$ |  |  |
| 166 | 20 | I | 64 | $\left(2 \frac{3}{4}-3 \frac{1}{2}-3 \frac{3}{4}\right) 1 / 1$ |  |  |
| 77 | 20 | II |  | $\left(2 \frac{3}{4}-3 \frac{1}{4}-3 \frac{1}{2}\right) 1 / 1$ | $3 / 18\left(33-3 \frac{3}{4}\right)$ | $1 / 1\left(3 \frac{1}{2}-3 \frac{3}{4}\right)$ |
| $2 / 3\left(3 \frac{1}{2}-3 \frac{1}{2}\right)$ |  |  |  |  |  |  |


| Reg. No. | Age | Para | Baby Wt. <br> lb. | Group |
| ---: | :---: | :---: | :---: | :--- |
| 87 | 30 | II | 6 | $\left(3-3 \frac{1}{2}-3 \frac{1}{2}\right) 1 / 1$ |
| 98 | 23 | III | $5 \frac{3}{4}$ | $(3-3-3) 1 / 1$ |
| 109 | 21 | I | $6 \frac{1}{2}$ | $\left(1 \frac{3}{4}-2 \frac{3}{4}-2 \frac{3}{4}\right) 1 / 1$ forceps |
| 101 | 33 | I | 6 | $\left(1 \frac{3}{4}-2 \frac{1}{2}-2 \frac{1}{2}\right)$ forceps |
| 120 | 20 | I | $5 \frac{3}{4}$ | $\left(1 \frac{3}{2}-2 \frac{3}{4}-2 \frac{3}{4}\right) 1 / 1$ forcepssymphisiotomy, forceps and <br> 32 |
| 12 | I | 6 | $\left(1 \frac{1}{2}-2 \frac{1}{2}-2 \frac{1}{2}\right) 1 / 1$ forceps. |  |





## Summary

(1) In majority of cases, in nonpregnant state as well as at the onset of labour, as a patient is admitted to the hospital with pains, P.A.P. (perin-ant-post) and V.V. (vulval vertical) diameters are found to be 1 inch and 2 inches respectively.
(2) Towards the end of the second stage, as the head is passing over the perineum, stretching the perineum from behind forwards, opening the anus and bulging perineum, and dilating the vaginal orifice, these diameters go on increasing so that as the head is being delivered, in most of the cases P.A.P. increases to 2 inches, V.V. 4 inches and P.T. 4 inches.
(3) Should P.A.P. tend to increase above 2 inches and V.V. and P.T. remain persistently under 4 inches, spontaneous tear is most likely to occur.
(4) Realising this, to prevent spontaneous tear, which is ordinarily wide, ragged and not easy to stitch up properly, episiotomy is suggested.
(5) In addition to the diameters calling for episiotomy, if blood begins to escape or the anterior part of the
perineum is found to become very thin, episiotomy becomes imperative.
(6) In case P.A.P. is seen to increase only by half or three-fourth of an inch becoming $1^{\frac{1}{2}}$ or $1^{\frac{3}{4}}$ inches, while the vaginal orifice does not dilate more than $2 \frac{1}{2}$ inches, and the anus at the same time appears not to open more than quarter of its full dilatation during the pain, and if the uterine contractions are gradually getting feebler and more infrequent, forceps with episiotomy is indicated.

Subsequent to the above report, as the observations were being carried on, two cases of unreduced occipitoposterior position were encountered. It was observed in them that though the vulvo-vertical diameter was found to increase by a quarter of an inch or slightly more during pains, perineal diameters did not show any increase. In both cases forceps had to be applied combined with episiotomy. The child was extracted with face to the front. It can be explained in this way that the sinciput could descend through pubo-cervical aperture, it being narrow, while the wider occipital part could not make any advance.

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Measurements
$\left.\begin{array}{llccccccc}\hline \begin{array}{c}\text { Reg. } \\ \text { No. }\end{array} & \text { Age } & \text { Para } & \text { Weight of } & \text { Tear } & \begin{array}{c}\text { Perineum } \\ \text { Antero- }\end{array} & \begin{array}{c}\text { Vulval- } \\ \text { Vertical }\end{array} & \begin{array}{c}\text { Perineal- } \\ \text { Transverse }\end{array} \\ \text { (Inches) }\end{array}\right]$ Remarks

Measurements

| Reg. | Age | Para | Weight of | Tear | Perineum | Vulval- | Perineal- Remarks |
| :--- | :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| No. |  |  |  | Antero- | Vertical | Transverse |  |
|  |  |  |  |  | Posterior | (Inches) | (Inches) |



Measurements

| Reg. <br> No. | Age | Para | Weight of | Tear | Perineum <br> AnteroPosterior (Inches) | VulvalVertical (Inches) | Perineal- <br> Transverse (Inches) | Remarks |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 121 | . 28 | VII | $6 \frac{1}{4}$ | Nil | 114-24 | 24-4 | 21-4 |  |
| 122 | 37 | VIII | $6 \frac{1}{4}$ | " | 11-2 | 2-4 | 2-4 |  |
| 123 | 26 | IV | 8 | " | $1 \frac{1}{4}-2 \frac{1}{4}$ | $2 \frac{1}{2}-4 \frac{1}{4}$ | $2 \frac{1}{2}-4 \frac{1}{4}$ |  |
| 124 | 22 | I | 6 | " | 1-2 | 2-4 | 2-4 |  |
| 125 | 25 | III | 6 | " | 1-2 | 2-4 | 2-4 |  |
| 126 | 30 | II | $6 \frac{3}{6}$ | " | 1-2 | 2-4 | 2-4 |  |
| 127 | 36 | VI | 63 | ". | 14-2 | 24-4 | $2 \frac{1}{4}-4$ |  |
| 128 | 39 | V | 73 | " | 11 ${ }^{\frac{1}{2}}-2 \frac{1}{2}$ | $2 \frac{1}{2}-4$ | $2 \frac{1}{2}-4 \frac{1}{4}$ |  |
| 129 | 39 | VII | $6{ }^{4}$ | ", | 1-2 | 2-4 | $2-4$ |  |
| 130 | 28 | IV | 6 | , | 1-2 | 2-4 | 2-4 |  |
| 131 | 21 | II | 53 | " | 1-2 | 2-33 | 2-3 ${ }^{\frac{3}{4}}$ |  |
| 132 | 25 | III | $6{ }^{4}$ | Sp. tear | 1-24 | 2-33 | 2-4 |  |
| 133 | 23 | II | $6 \frac{3}{4}$ |  | 3-2 | 13-33 | 2-4 |  |
| 134 | 27 | III | $6{ }_{4}^{3}$ | Nil | 1-2 | 2-4 | 2-4 |  |
| 135 | 30 | 1 | 63 | Epis. | 1-2 | 2-33 | $2-3 \frac{3}{4}$ |  |
| 136 | 31 | VII | 5 | Nil | $1-2$ | 2-3 ${ }^{3}$ | 2-4 |  |
| 37 | 24 | II | $6_{4}^{3}$ | " | $1 \frac{1}{4}-2 \frac{1}{4}$ | 2-4 | 2-4 |  |
| 138 | 24 | I | 5 | Breech |  |  |  |  |
|  |  |  |  | Epis. | 1-2 | 2-3 ${ }^{\frac{3}{2}}$ | $2-3 \frac{3}{4}$ |  |
| 139 | 28 | III | $6{ }^{4}$ | Nil | $114-2 \frac{1}{4}$ | 24, 4 | 21-4 |  |
| 140 | 32 | VI | $7{ }^{4}$ | $\cdots$ | 13-24 | $2 \frac{1}{2}-4$ | $2 \frac{1}{2}-4 \frac{1}{4}$ |  |
| 141 | 24 | III | $6 \frac{1}{2}$ | - | 1-2 | 2-4 | 2-4 |  |
| 142 | 28 | v | $7{ }^{3}$ | - | $11-2 \frac{1}{4}$ | 2t - 4 | $21-44$ |  |
| 143 | 30 | III | 6 | " | 3-2 | $2-3 \frac{3}{4}$ | 2-4 |  |
| 144 | 25 | IV | $6 \frac{3}{6}$ | . | $1-2$ | $2{ }^{1} \frac{1}{4}-4$ | 24-4 |  |
| 145 | 26 | III | 6 | - | $1-2$ | 2-4 | 2-4 |  |
| 146 | 35 | IX | 712 | " | 11 $\frac{1}{2}-2 \frac{1}{4}$ | 21-4 | $2 \frac{1}{4}-4 \frac{1}{2}$ |  |
| 147 | 24 | II | $5{ }^{3}$ | " | $11-2$ | 13-33 | $1{ }^{3}-3 \frac{3}{4}$ |  |
| 148 | 25 | III | $7 \frac{7}{4}$ | " | 1-2 | 2-4 | 2-4 4 |  |
| 149 | 28 | III | $7 \frac{3}{4}$ | Sp. tear | 1-23 | 2-4 | 2-4 |  |
| 150 | 22 | I | 5 | Nil | 1-2 | 13 ${ }^{3}-3 \frac{3}{4}$ | 1爯-4 |  |
| 151 | 23 | II | 6 | Nil | 1-2 | 2-33 | 2-4 |  |
| 152 | 27 | V | 7 | " | 1-2 | 2-4 | 2-4 |  |
| 153 | 19 | I | 7 | Forceps Epis. | $1-1 \frac{1}{2}$ | $1{ }^{\frac{3}{4}}-2 \frac{1}{4}$ | 13 $-2 \frac{1}{2}$ |  |
| 154 | 24 | III | $7 \frac{1}{2}$ | Nil | 1-2 | 2-4 | $2-4$ |  |
| 155 | 23 | III | $6 \frac{1}{4}$ |  | 14-2 | 2-4 | $2-4$ |  |
| 156 | 23 | 1 | 7 | " | $1-2$ | 2-4 | 2-4 |  |
| 157 | 31 | II | 8 | " | $1-2 \frac{1}{2}$ | 2-4t | 2-41 |  |
| 158 | 28 | III | $6 \frac{1}{4}$ Twins | " | $1-2$ | 2-4 | 2-4 |  |
| 159 | 28 | II | 54-53 | " | $1-2$ | 2-3 ${ }^{3}$ | $2-3 \frac{3}{4}$ |  |
| 160 | 27 | III | 73 | " | $1 \frac{1}{4}-2 \frac{1}{4}$ | $2-4$ | $2-4 \frac{1}{4}$ |  |
| 161 | 30 | III | $5 \frac{3}{4}$. | " | 1-2 | $2-3 \frac{3}{4}$ | $2-4$ |  |
| 162 | 24 | II | 63 | " | $1 \frac{1}{4}-2 \frac{1}{4}$ | $2-4$ | 2-4 |  |
| 163 | 35 | v | $7 \frac{1}{4}$ | " | $1-2$ | $2 \frac{1}{2}-4$ | $2 \frac{1}{2}-4$ |  |
| 164 | 30 | I | 43 | " | 3 $-1{ }^{3}$ | 13 $-3 \frac{1}{2}$ | 13 ${ }^{\frac{3}{4}}-3 \frac{1}{2}$ |  |

Measurements

| Reg. <br> No. | Age | Para | Weight of | Tear | Perineum AnteroPosterior (Inches) | Vuival- <br> Vertical <br> (Inches) | Perineal- <br> Transverse (Inches) | Remarks |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 165 | 20 |  | (Premature) |  |  |  |  |  |
| 166 | 20 | I | 8 | Sp. tear | $1_{4}^{1}-2{ }^{1}$ | $2-4 \frac{1}{4}$ | 2-41 |  |
|  |  | I | $6{ }^{3}$ | Epis. | $1-24$ | 1柔-31 | 2-34 |  |
| 167 | 30 | IV | 73 | Nil | $1-2$ | $2-4$ | $2-4$ |  |
| 168 | 30 | II | $6{ }_{4}^{3}$ | Breech Nil | $1-2$ | $2-4 \frac{1}{4}$ | $2-4 \frac{1}{4}$ |  |
| 169 | 25 | II | 63 | Sp. tear | 1-2 | 2-4 | $2-4$ |  |
| 170 | 26 | IV | 6 | Nil | $1-2 \frac{1}{4}$ | $2-4$ | 2-4 |  |
| 171 | 26 | I | 6 | " | $1-2$ | $2-4$ | $2-4$ |  |
| 172 | 25 | II | 7 | " | $1-2$ | $2-4$ | 2-4 |  |
| 173 | 30 | II | $6{ }^{3}$ | " | $1-2$ | 2-4 | 2-4 |  |
| 174 | 19 | I | 64 | Epis. | $1 \frac{1}{4}-2 \frac{3}{4}$ | $2 \frac{1}{4}-3 \frac{3}{4}$ | $2 \frac{1}{4} \times 3 \frac{3}{4}$ |  |
| 175 | 28 | III | 6 | Nil | 1-2 | $2-4$ | $2-4$ |  |
| 176 | 30 | III | $5 \frac{3}{4}$ | " | $1-2$ | $2-3 \frac{3}{4}$ | $2-4$ |  |
| 177 | 25 | IV | $7 \frac{1}{4}$ | " | $1-2 \frac{1}{4}$ | 2-4 | 2-4 |  |
| 178 | 20 | I | 74 | " | $1-2$ | 2-4 | 2-4 ${ }^{\frac{1}{4}}$ |  |
| 179 | 19 | I | 6 | " | $1-2$ | 2-4 | $2-4$ |  |
| 180 | 30 | IV | 64 | " | 1-2 | 2-4 | 2-4 |  |
| 181 | 30 | VI | $7 \frac{1}{2}$ | Nil | $1-2$ | $2-4$ | $2-4$ |  |
| 182 | 26 | II | $6{ }_{4}^{1}$ | " | $1-2$ | $2-4$ | $2-4$ |  |
| 183 | 22 | II | $6 \frac{1}{4}$ | " | $1-2$ | 2-4 | $2-4$ |  |
| 184 | 22 | 1 | 51 | " | $1-1 \frac{3}{4}$ | $2-3 \frac{3}{4}$ | $2-3 \frac{3}{4}$ |  |
| 185 | 40 | IX | 8 | " | $1 \frac{1}{2}-2 \frac{1}{4}$ | 21-4 ${ }^{\frac{1}{2}}$ | $2 \frac{1}{2}-4 \frac{1}{4}$ |  |
| 186 | 24 | III | 54 | " | $1-2$ | $2-3{ }^{3}$ | $2-3{ }^{3}$ |  |
| 187 | 24 | I | $6{ }_{6}$ | Epis. | $1-2 \frac{1}{4}$ | $2-3 \frac{3}{4}$ | $2-3 \frac{3}{4}$ |  |
| 188 | 24 | II | 6 | Nil | $1-2$ | 2-4 | 2-4 |  |
| 189 | 21 | I | $6 \frac{3}{4}$ | Sp. tear | $1-2{ }^{1}$ | $2-33$ | $2-4$ |  |
| 190 | 35 | V | 74 | Nil | 14-2 | $2-4$ | 2-4 |  |
| 191 | 28 | II | 61 | Sp. tear | $1 \frac{1}{4}-2 \frac{1}{2}$ | $2-3 \frac{3}{4}$ | $2-33$ |  |
| 192 | 24 | III | 6 | Nil | $1-2$ | $2-3 \frac{3}{4}$ | $2-4$ |  |
| 193 | 22 | II | $5 \frac{1}{2}$ | " | $\frac{3}{4}-1 \frac{3}{4}$ | $2-3{ }^{3}$ | $2-3 \frac{3}{4}$ | , |
| 194 | 26 | IV | 7 | " | $1{ }_{4}^{1}-2 \frac{1}{2}$ | 27-4 | $2 \frac{1}{4}-4$ |  |
| 195 | 32 | IV | 61 | " | $1-2$ | 2-4 | $2-4$ |  |
| 196 | 24 | I | 6 | Epis | $1-2$ | 2-31 | $2-3 \frac{3}{4}$ |  |
| 197 | 35 | VI | 6 | Nil | $1-2$ | $2-4$ | $2-4$ |  |
| 198 | 25 | II | 67 | " | $1-2$ | $2-4$ | $2-4$ |  |
| 199 | 24 | III | $7 \frac{3}{4}$ | " | $1 \frac{1}{2}-2 \frac{1}{4}$ | $2 \frac{1}{2}-4$ | $2 \frac{1}{2}-4 \frac{1}{4}$ |  |
| 200 | 36 | VI | $5 \frac{3}{4}$ | " | 12-2 | $2-3^{3}$ | $2-4$ |  |
| 201 | 36 | VI | $6 \frac{1}{2}$ | , | $1-2$ | $2-4$ | $2-4$ |  |
| 202 | 25 | II | $7 \frac{1}{4}$ | Epis. | $1-2 \frac{1}{2}$ | $2-3 \frac{3}{4}$ | $2-3 \frac{3}{4}$ |  |
| 203 | 22 | II | 6 | Nil | $1-2$ | $2-4$ | $2-4$ |  |
| 204 | 33 | IV | 6 | " | $\frac{3}{4}-2$ | 2-4 | $2-4$ |  |
| 205 | 40 | X | $7 \frac{1}{2}$ | " | 112 $-2 \frac{1}{2}$ | $2 \frac{1}{2}-4$ | $2 \frac{1}{2}-4$ |  |
| 206 | 30 | III | 63 | " | $1-2$ | 2-4 | $2-4$ |  |
| 207 | 24 | I | 6 | Sp. tear | $1-2 \frac{1}{4}$ | 2-4 | $2-4$ |  |
| 208 | 30 | II | 6 | "̈ | 14-2 ${ }^{1}$ | $24-3 \frac{3}{1}$ | $2 \frac{1}{4}-4$ |  |
| 209 | 21 | I | 5 | Nil | $1-2$ | 2-3年 | $2-3 \frac{3}{4}$ |  |
| 210 | 28 | III | 7 | " | $1-2$ | $2-4$ | $2-4$ |  |

4

Measurements

| Reg. No. | Age | Para | Weight of | .Tear | Perineum <br> Antero- <br> Posterior <br> (Inches) | Vulval- <br> Vertical <br> (Inches) | Perineal- <br> Transverse (Inches) | Remarks |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 211 | 20 | I | 6 | NiI | 14-2 | 2-4 | $2-4$ |  |
| 212 | 22 | II | $6{ }^{1}$ | " | 1-21 | $2 \frac{1}{2}-4$ | $2 \frac{1}{2}-4$ |  |
| 213 | 28 | III | $6 \frac{1}{2}$ | " | 1-24 | $2 \frac{1}{4}-4$ | $2 \frac{1}{4}-4$ |  |
| 214 | 27 | I | 53 | Epis. | 3-2 | $1 \frac{3}{4}-3 \frac{1}{2}$ | $1 \frac{3}{4}-3 \frac{1}{2}$ |  |
| 215 | 19 | I | 7 | Nil | $1-2$ | $2 \frac{1}{4}-4$ | $21-4$ |  |
| 216 | 30 | V | 6 | " | $1 \frac{1}{4}-2$ | 2-4 | 2-4 |  |
| 217 | 20 | II | $6 \frac{3}{4}$ | Epis. | $1 \frac{1}{4}-2 \frac{3}{4}$ | $2 \frac{1}{4}-3 \frac{3}{4}$ | $2 \frac{1}{4}-3 \frac{3}{4}$ | - |
| 218 | 22 | I | $5 \frac{3}{4}$ | Nil | 1-2 | 2-4 | 2-4 | - |
| 219 | 18 | I | $6 \frac{3}{4}$ | " | 1-2 | 2-4 | 2-4 |  |
| 220 | 30 | V | $8 \frac{1}{4}$ | " | $1-2 \frac{1}{4}$ | $2-4 \frac{1}{4}$ | $2-4 \frac{1}{2}$ |  |
| 221 | 30 | V | $5 \frac{1}{4}$ | " | 1-2 | $2-3 \frac{3}{4}$ | $2-3 \frac{3}{4}$ |  |
| 222 | 30 | VI | 6 | " | 1-2 | $2-4$ | 2-4 |  |
| 223 | 20 | I | 7 | " | $1 \frac{1}{4}-2$ | 2-4 | 2-4 |  |
| 224 | 25 | I | 63 | Sp. tear | $1 \frac{1}{4}-2 \frac{1}{4}$ | $2 \frac{1}{4}-4$ | 24-4 |  |
| 225 | 30 | IV | 6 | Nil | $1-2$ | 2-33 | $2-4$ |  |
| 226 | 25 | I | 6 | " | $1 \frac{1}{4}-2$ | $2-4$ | 2-4 |  |


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