The vomited matter was colourless but of the coffee ground type. It was not acid. The tongue was "clear, red moist, and steady" and as pain was now felt just below the xiphoid cartilage, the possibility of a gastric ulcer was thought of.

After a consultation, at which Dr. Hussey of Viper Island was present, it was decided to open the abdomen and be prepared for all eventualities, as doubt still existed as to the correct diagnosis.

Operation was performed under a general anæsthetic. An incision 3½ in. long was made in the middle line, 1 in. above the umbilicus and on entering the abdominal cavity the first thing noticed was that the vessels of the omentum and mesentery were found to be much engorged and in a condition of thrombosis, and the coils of small intestines immediately in view were congested. The omentum was thickened. The small intestines contained fæcal matter of semi-solid consistency. The duodenum was pulled upwards and to the left. The gall-bladder was next examined and found to be normal.

A search was then made for the stomach, and now for the first time it was noticed to be absent from the abdominal cavity.

This search occupied quite a long time because of the adhesions that had to be broken down all around, but finally, following up the duodenum, it was discovered to lead to the left thoracic cavity through an opening in the diaphragm.

The original incision was now enlarged upwards to the xiphoid, and from the lower end horizontally across the left of the abdomen to the level of the costal arch, thus forming a triangular flap, which, on being reflected upwards and outwards, exposed to view the whole of the herniated area.

The opening in the diaphragm was an inch to the left of the left crux and 2½ in. in front in the nipple line, and was a little bigger than a rupee in size. This wound was undoubtedly caused by the stab 7 years previous. The lower lobe of the left lung had completely collapsed, the result of pressure caused by the stomach. The stomach had prolapsed through this opening into the left thoracic cavity up to about an inch from the pyloric end. With gentle but firm traction it was at last got down. The gastro-epiploica dextra and senestra vessels and their branches were engorged, and the stomach itself was covered with dark subserous hæmorrhagic patches scattered all over. The pyloric end was darkly congested, there was a hæmorrhagic patch about 1½ in. in circumference at the fundus of the greater curvature, resection however was not called for. The rent in the diaphragm was now sutured, but before this was finished the patient began to sink, energetic restorative measures had to be adopted, with unfortunately futile results, and a fatal issue.

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## CLINICAL NOTES ON SOME INTERESTING CASES OF DIFFICULT LABOUR.

By A. G. TRESIDDER, M.D., B.S. (London), MAJOR, I.M.S.,

*Surgeon to His Excellency the Governor of Bombay.*

(Continued from *I. M. G.*, May 1924, p. 244.)

*Case III. Ventro-fixation necessitating Cæsarean Section.* R., a Hindu woman of 35, was admitted in labour at 10-15 p.m. on November 3rd, 1917. She was now pregnant for the tenth time. A complete history of all her previous pregnancies was difficult to obtain, but the salient points in these were as follows:—

Her first pregnancy ended in a premature labour at the seventh month; the second labour was normal and a live child was born. Then followed a series of four abortions at about the third month. These abortions appear to have been the result of a retroversion of the uterus, because after the fourth abortion an abdominal operation was performed and the uterus "stitched up." The pregnancy which followed this operation resulted in a live full-time child but it was complicated by some difficulty in the delivery of the placenta and there was considerable post-partum hæmorrhage. Then followed two more deliveries at term with no difficulty except with the afterbirth, the separation and expulsion of which was accompanied by severe hæmorrhage.

When admitted for the confinement now to be described, the patient's general condition was good. Her pulse rate was 80 per minute, the temperature was 97°F., there was a history of the membranes having ruptured six hours previously, and she was experiencing strong pains at intervals of about twenty minutes. Inspection of the abdomen revealed an operation scar extending from the umbilicus to just above the symphysis pubis. There was an ovoid swelling with its long axis oblique, the lower pole occupying the left iliac fossa and its upper extremity lying beneath the right lower ribs. The child was firmly embraced by the uterus so that its various parts could not be identified by palpation. The fœtal heart was heard a little below and to the right of the umbilicus and its rate was about 130 per minute.

On vaginal examination only the anterior edge of external os could be reached, it was situated high up and posteriorly on a level with the sacral promontory, so that the external os was directed almost directly backwards.

In front of the backwardly directed os uteri, the sensation imparted to the examining hand was that of a soft thick mass of tissue, but no portion of the fœtus could be identified. It was therefore obvious that one had to deal with a case of anterior sacculation of the uterus secondary to a previous ventrofixation operation, and since the cervix could not be reached, the condition constituted an absolute indication for Cæsarean section.

On opening the abdomen a thick band was seen about 1 in. long stretching from the anterior surface of the uterus to the anterior abdominal wall and situated about 3 in. above the symphysis pubis. The uterus was opened and a full-time child, weighing 6½ lbs., was extracted without difficulty. In order to facilitate the suturing of the uterus, an attempt was made to bring the emptied organ outside the abdominal cavity; this, however, was found to be impossible and the uterine sutures had to be passed with the organ in situ. The impossibility of delivering the uterus outside the abdomen I attributed to the fact that only

a portion of the uterine wall had become stretched *pari passu* with the growth of the fœtus, viz., that portion of the anterior uterine wall situated above the ventro-fixation band, the fundus and its posterior wall, whilst that portion of the anterior wall of the uterus extending from below the fixation band to the internal os could only be capable of being stretched to a very limited extent. In other words, the posterior uterine wall was the segment of the uterus which had undergone most stretching in order to accommodate the child.

In the case under consideration the malpresentation must have added to the degree of stretching of the posterior uterine wall, and doubtless, had the case been left to nature. rupture of the posterior part of the lower uterine segment would have been the inevitable result.

Having realized that increase in the capacity of the uterus had taken place mostly at the expense of its posterior wall, it is easy to understand that as soon as the organ was emptied, its much over-stretched posterior wall retracted to such an extent as to prevent the organ from being delivered outside the abdomen.

The patient made an uninterrupted recovery, and both mother and infant were discharged from hospital quite well on December 1st, 1917.

Ventro-suspension properly performed very rarely leads to dystocia, and most women who have had this operation performed according to modern methods pass through their confinements in a perfectly normal manner. It is even questionable, I think, whether it is wise to warn such patients that there is a possibility of difficulty arising in a subsequent confinement. Not very long ago I attended an officer's wife on whom ventro-suspension had been performed by a well known gynæcologist; this lady had somehow acquired the knowledge that Cæsarean section is sometimes necessary after the uterus has been thus supported, and I cannot help thinking that this knowledge acted quite otherwise than as a tonic to her nervous system. Her confinement was uneventful in its normality, the only artificial aid given being chloroform during the latter part of the second stage. It is another matter when the uterus is firmly fixed to the anterior abdominal wall over a considerable area, and especially when this fixation is carried out too near the fundus uteri.

*Case IV. Placenta prævia and Cæsarean section.* One meets with only a few cases of placenta prævia in which the condition of both mother and child justifies the operation of Cæsarean section. This is more especially so in hospital practice where such patients are usually admitted in a more or less advanced stage of labour and only after there has been a considerable loss of blood, a state of affairs which would obviously contra-indicate a major operation when other means of delivery are open to us.

In recent years it has been recognised that the best treatment for certain cases of placenta prævia is Cæsarean section, and the results obtained among these carefully selected cases have been very satisfactory both as regards the maternal mortality and that of the infants. The maternal mortality of placenta prævia treated on the ordinary lines is 4 to 8 per cent., and the average fœtal mortality is 60 per cent. Munro Kerr says: "The best figures give 4 per cent., and 35 per cent. respectively, and they are as low as one can ever expect to reach with the present recognised methods of treatment." But in certain cases of placenta prævia, such as the one described below, Cæsarean section would, I think, justify us in expecting much better results.

As regards the mother, there seems no special reason why Cæsarean section performed in suitable cases of placenta prævia should not yield quite as good results as it does in cases of contracted pelvis, when the operation is performed under the best conditions, the maternal mortality then being 2.9 per cent. (Amand Routh). Berkeley and Bonney place the maternal death-rate of Cæsarean section, when this operation is performed under the best conditions, as "probably under 1 per cent." In well-selected cases of placenta prævia the maternal mortality should not, therefore, be greater than about 2 per cent., i.e., about half as great as we could expect from any other method of treatment. One other great advantage to the mother is a lesser risk of morbidity as compared with that which results from the necessary manipulations, often prolonged, which accompany delivery *per vias naturales.*

The fœtal mortality must obviously be very greatly reduced by Cæsarean section, and the rate of 35 per cent. at the best would be reduced to one of about 5 per cent. Further, in most cases the mother should be as well able to nurse her infant as after normal delivery, a result which, because of some slight sepsis or as the result of hæmorrhage before and during delivery, is often denied to the mother who has been otherwise delivered.

Generally speaking, the operation of Cæsarean section in a case of placenta prævia is indicated under the following conditions: (1) when the hæmorrhage has not been excessive and the maternal pulse is full and its rate not above 100 per minute; (2) when the cervix is undilated and appears to be unduly rigid, indicating that dilatation is likely to be slow and difficult, as is often the case in elderly

primiparæ; (3) when the surgeon can be confident that there is no risk of sepsis from previous frequent vaginal examinations, etc.; (4) the pregnancy should have reached full term or very nearly so, and the fœtal heart sounds must be good; (5) another factor which should influence the surgeon in deciding in favour of Cæsarean section is the co-existence of some disproportion between the size of the fœtal head and the maternal pelvis; and (6), as in the case here described, when the parents are especially desirous of a live child. The following case will serve to illustrate these points:—

The patient, an Anglo-Indian, aged 32, was admitted under my care to the maternity department of the Sassoon Hospital, Poona, on October 19th, 1915. She had been married 12 years and the present was her first pregnancy. The last period ended on January 11th, 1915; the probable date of confinement would be about October 16th, 1915. The patient stated that she had had slight pains for about 36 hours; bleeding began a few hours before she came to hospital. No vaginal examination had been made previous to her admission to hospital. When I saw her she was having feeble pains at about half-hourly intervals. Her general condition was excellent, the pulse being full and its rate 80 per minute; the face was placid and the tongue clean and moist. On abdominal examination the child was found to be in the first vertex position and the fœtal heart sounds were good. The pelvic measurements were normal.

On vaginal examination there was still a definite and fairly firm cervix, which admitted one finger only; at the internal os only placental tissue could be reached.

Both the patient and her husband were very desirous of having a live child, and considering all the points of her case, I felt justified in advising abdominal section. Cæsarean section was therefore performed and a full-time live child was delivered. The bleeding from the placental site was somewhat excessive and for a moment rather disconcerting; it was certainly more than I had noted in cases of Cæsarean section in which the placenta was normally implanted. During the first few days after the operation there was a good deal of trouble from after-pains; otherwise the patient made an uneventful recovery, and both mother and child were discharged quite well on November 27th.

*Case V. Eclampsia; Cæsarean section.* R., a Parsi, giving her age as 16, but who appeared to be 20, was admitted under my care at 7-50 a.m. on the 1st July, 1919.

She was unconscious, her face was cyanosed and puffy and her breathing was stertorous; the temperature was 100.6°F., the pulse-rate was 140 per minute, and occasionally a beat was missed. The history obtained from her relatives was to the effect that she had been married for 8 months, and that she had been quite well up to the day before admission. On that day at about 4 p.m. she complained of headache and this was followed by an attack of vomiting. At 7 p.m. there was a fit, and from that time up to her admission many other fits occurred, the exact number I could not obtain. Some of these convulsions were followed by unconsciousness for varying periods. Eight more convulsions followed from the time after admission to hospital until I was able to operate four hours later. There was no swelling of the feet or vulva, but the eyelids were œdematous and the face was a little puffy. The urine was smoky and on boiling was solid with albumen. An injection of morphia gr. ¼ with atropine gr. 1|150 was given at 8-30 a.m.; this suppressed the fits for a time, but then followed a very severe convulsion and others at intervals but not so severe. Abdominal examination showed the patient to be about 6½ months pregnant; the fœtal heart was not heard, but auscultation was difficult because of the stertorous breathing. *Per vaginam,* the cervix only admitted the tip of the finger.

As to whether the fœtus was alive or not was here of no moment; it was a question entirely of saving the mother's life. Her condition was obviously a desperate one, and one which fully justified the most radical treatment. My own opinion, after a not inconsiderable experience in this class of case, is that any dallying with morphia and saline treatment is waste of valuable time; the best treatment consists in the rapid emptying of the uterus by appropriate surgical measures, and when the cervix is not dilated the best operation is some form of Cæsarean section, either vaginal or abdominal.

In this case I selected the abdominal method, because the vagina was small and undilated. The anæsthetic used was $CE_2$; a recently dead male fœtus of about seven months' gestation was extracted without any difficulty, and after suturing the uterine incision, the abdominal wall was sewn up in layers. An injection of 1 c.c. of pituitrin was given during the operation.

As soon as the patient was returned to bed a pint of sodium bicarbonate solution, of a strength of one drachm to the pint, was administered per rectum; in smaller amounts this was repeated until recovery was well established. Six hours after the operation the patient was drowsy and semi-conscious, but no more convulsions had occurred; her pulse was now 110 per minute and much better than before the operation. Next day there was an obvious improvement in her general condition, although the urine was still solid with albumen on boiling. Sodium

bicarbonate solution was administered rectally every four hours, and as much water as possible was given by the mouth.

On July 3rd, she was able to take milk and barley water every three hours. She was passing a large amount of pale urine, which now contained much less albumen. There was some distress from cough, the result of a bronchitis, which, however, did not last many days. By July 9th, she was well on the road to recovery. I had intended to remove the stitches on this day; in this I was almost forestalled by the patient, who feeling an itching sensation about the wound proceeded to remove the wool and gauze from beneath the binder and then dug her not very clean nails along the suture line. Accidents of this kind are not infrequent in surgical practice in the East and the most careful nursing can hardly cater for this. The sutures were removed and the wound, which luckily was only superficial, was cleaned with an antiseptic solution. On July 12th, there was still a very slight trace of albumen in the urine; and on August 3rd the abdominal wound having healed soundly, and there being no albuminuria, the patient was discharged.

*Case VI. Small round pelvis—Dystocia, Cæsarean section.* Mrs. I., an Englishwoman, aged 37, first consulted me on the 19th February, 1919; she was then pregnant for the second time. Her first confinement took place in March 1918; the history of this event shows it to have been a long and tedious process. According to the patient a period of 4 days elapsed from the commencement of labour pains until the birth of the child, which was accomplished without forceps or other assistance. The child was asphyxiated at birth, which it only survived a few hours; she remembered that there were marks on the baby's head and she also stated that it coughed up blood.

Abdominal palpation showed the patient to be about eight months pregnant and the child to be lying in the 4th vertex position. The fœtal head was freely movable above the brim of the pelvis. It was considered that March 12th, 1919, would be the probable date of her confinement.

The one thing which struck me about this patient was her small stature, her height being only 4 feet 8½ inches. Her pelvic measurements were as follows:—The interspinous measurement amounted to 8 in., the intercristal was 10 in., the external conjugate 7¼ in., whilst the diagonal conjugate measured 4 in. to 4¼ in.

On the 10th March, 1919, labour commenced with a "show" at 10-30 a.m. and pains began a little later. The child was lying with its long axis vertical with the vertex presenting in the first position; the os admitted 2 fingers. Considering the history of her first labour, the general smallness of the pelvic measurements, her small stature and the fact that the fœtal head was freely movable above the brim and could not be pressed into the brim, I advised Cæsarean section as being the safest measure not only for the child, but also for the mother. The patient however refused operation. Fourteen hours later the os was found to be three quarters dilated and the membranes bulging into the vagina. There had been strong pains throughout the day, but despite this the head was still movable above the brim and there had been no advance. Consent was now given to operate. Cæsarean section was performed and a live male child delivered. The patient was able to nurse her child and both did well. This case shows how important it is to carefully measure the pelvis in every first labour; had this been done in this case much suffering would have been prevented and possibly a life saved perhaps by the timely application of forceps or more certainly by Cæsarean section. If delivery by forceps was impracticable, craniotomy should have been performed in the interest of the mother.

## ON A NON-OPERATIVE TREATMENT FOR HERNIA.

By DR. S. MALLANNAH, M.D.,

*Chemical Examiner and Bacteriologist, H. E. H. the Nizam's Government, Hyderabad, Deccan.*

HERNIA being very common in India,—according to Dr. Mallannah's figures indeed it affects some 12 per cent. of adult males and some 25 per cent. of elderly Indian males,—and patients being in dread of operative procedures and anæsthetics, any successful non-operative form of treatment is of interest. A truss often fails to cure and is merely palliative; indeed in the long run it weakens the muscles and this may enlarge the ring, so that the hernia becomes larger with age. Of various medicinal treatments advocated, Heaton advocated applications of white oak bark, Pancoast an application of strong ammonia to produce local inflammation and adhesions. The mortality from operative procedures is about 3 per cent. (Coley), and the failure rate some 5 per cent.

Unsutured wounds of the skin heal by granulation tissue formation, and the author accordingly considered the possibility of inducing some similar process in the mouth of the hernial sac. A vaccine was prepared of *B. pyocyaneus*, of strength 1 c.c. = 100 millions; and a suitable case presented himself in the form of an adult Indian male with an inguinal hernia. The hernia was reduced and 1 c.c. of the vaccine injected into the internal abdominal ring. Cure followed.

*Technique.*—The author's technique is as follows:—

"After getting the lower part of the abdomen and the scrotum shaved, the skin is painted with tincture of iodine. After reducing the hernia I introduce my left forefinger, having painted it with tincture of iodine, into the internal abdominal ring after having passed the external abdominal ring and the canal. When I am satisfied that the finger is in the internal abdominal ring, I keep it there straight and not bent, and with my right hand I introduce the needle alongside my left forefinger which forms a guide, into the internal abdominal ring, keeping the needle quite parallel to the finger. I then inject the fluid just inside the internal abdominal ring and after withdrawing the