taneous jerks, and there was a marked ankle clonus. The patient could not walk independently, and was able to move about only with the support of two sticks; at best, the furthest he could progress by himself did not exceed ten metres, and even then he occasionally had to be supported. When moving, the body was bent forward with the two arms stretched forward clutching the two walking sticks in front.

An operation was performed on the left side on June 25, 1936. On the first day after the operation he was unable to move his left leg, and incontinence was absolute. On the second day the spontaneous jerks in the left leg disappeared, though they were still present in the right leg. On the third day the patient was able to move his left leg. There was no change in the other symptoms.

The sympathectomy and ganglionectomy were performed on the right side eleven days after the first operation. On the following day the patient was no longer incontinent. The spontaneous jerks of the right leg were only slightly perceptible. Three days later they disappeared altogether. Paraesthesia of the extremities was no longer present. Two weeks later the patient tried to walk supported by a stick and a nurse. Twenty-four hours after the first attempt he was able to move about with a walking stick. For the first time in several months he was able to lift his legs independently. In about three weeks after the second operation the patient was able to walk without the help of the stick or nurse. The walking, though fairly strenuous, was successful, although the gait was shuffling. Romberg's sign was negative. There was no ataxia. On the twenty-third day the patient was discharged from the hospital. He returned for examination a month later. He moved about independently with apparent ease, though he collapsed some six weeks after the operation following a walk of a few hundred metres. The examining physician stated that the pulse frequency was normal. The collapse necessitated a rest of a few hours, after which the patient felt normal. Three months later he was able to resume his former occupation as an assistant in a grocery shop. He was able to walk about, though he preferred to be supported by a walking stick.

Fourteen months later the patient is still able to walk with the aid of a stick. There is no diplopia. He is able to read. Romberg's sign is negative, and he has no pain.

Conclusion

The case of multiple sclerosis just described was one with a definite downward course. The only transient improvement was in 1930, when the patient temporarily lost his right Babinski reflex. The operation has not only arrested the progress of the symptoms but has also re-established some of the functions.

We are presenting all our cases in tabulated form. Table A gives age of the patient, duration of the disease from the first observed symptom, number of remissions, duration of the final stage before operation; Table B gives the outline of principal symptoms and their changes. Space will not permit detailed consideration of each case. We have confined ourselves to the most distressing symptoms and to those common to most of the cases. Neither will the record of reflexes be given, since the surgical procedure only exceptionally modified the original findings.

The evaluation of the results in Cases 1, 2, 5, 10, and 12 is not included. No. 1 has already been discussed in detail. No. 2, because of a very unsatisfactory physical condition, could be operated only on one side, and died of uraemia eight months subsequently. Patients Nos. 5 and 12 died, one of pulmonary embolism and the other of a haemorrhage of the thyreo-cervical trunk. Patient No. 10, though showing progressive improvement in neurological symptoms, died of intercurrent infection eight months later.

This paper deals primarily with the technique of ganglionectomy and sympathectomy by the anterior approach. Our experience with this treatment in advanced multiple sclerosis suggests the desirability of further trial of this therapeutic measure.

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THE TREATMENT OF PLACENTA PRAEVI

A REVIEW OF 286 CASES

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During our respective terms of office at Queen Charlotte's Maternity Hospital we were much impressed by the results of a scheme in operation for the treatment of placenta praevia. The principle of this scheme was that all cases should be treated by a preconceived routine method. We found that its use greatly facilitated our work and, so far as we could judge, led to an improvement in the mortality rate of this grave condition.

A Standardized Method

Standardization is obviously a desirable feature in dealing with certain emergencies, as it affords an opportunity of assessing the value of the treatment, and those who have to carry this out are "forearmed" with a knowledge of the immediate steps to be taken for the relief of the disaster. It would seem of value to publish the results of a standardized treatment of a condition for which such a variety of methods are advocated. Since this scheme was put into operation 143 cases of placenta praevia have been treated over a period of approximately five years. These cases we shall refer to as Group A. For purposes of comparison we have taken an equal number of cases immediately preceding the start of the scheme. This series of 143 cases will be referred to as Group B. The principles governing the treatment of cases in Group A were laid down by Mr. Leonard Phillips, who assumed responsibility for all cases of placenta praevia. He has kindly allowed us to publish an account of his routine treatment. In order to clarify this account the following definitions are given:

1. A central placenta praevia was considered to be present if the internal os was completely covered by placental tissue

at the time of examination per vaginam, the examination being made under anaesthesia and the finger passed round the whole internal os.

2. A marginal position of the placenta was held to exist if the edge of the placenta partly covered the internal os and the presenting part could be felt covered by membranes on the other side of the internal os.

3. A lateral position of the placenta was considered to be present if the edge of the placenta could only be felt with difficulty in the lower segment by the examining finger and the placenta did not encroach upon the internal os.

Principles and Practical Aspects of the Treatment

The following account enumerates the principles and summarizes the practical aspects of the treatment.

1. In all cases of ante-partum haemorrhage a routine clinical examination was made in order to exclude toxæmia. If this was negative the cases were then regarded as instances of low insertion of the placenta until vaginal examination had excluded this complication.

2. The blood group of all patients with a pulse rate of 100 per minute or over was determined prior to vaginal examination and preparations were made for transfusion.

3. Vaginal examination was performed under light general anaesthesia with the patient in the lithotomy position, such examination being performed only after full preparations had been made for packing the vagina. The examination was made very carefully, the state of the cervix being noted, and the lower uterine segments gently explored with the examining finger. Subsequent procedure varied according to the findings. If a central placenta praevia was diagnosed Caesarean section was the routine method of delivery, and if bleeding occurred at the examination the vagina and cervical canal were packed with gauze until it was effectively controlled by direct pressure. Counter-pressure was effected by a tight abdominal binder and a T-shaped perineo-abdominal bandage. The condition of the patient was as a rule adversely affected by a combination of haemorrhage and shock resulting from the operation of plugging. The next step was to restore the general condition of the patient by morphine and blood transfusion. When this was considered satisfactory Caesarean section was performed irrespective of the state of the foetus. When either marginal or lateral placenta praevia was diagnosed the membranes were artificially ruptured, whether the patient was in labour or not, and as much liquor as possible was allowed to escape. This usually led to satisfactory descent of the presenting part, and packing the vagina was employed only if bleeding was profuse or continuous.

4. In all cases replacement of blood loss by early and adequate transfusion was carried out.

5. The performance of external podalic version and pulling down a leg was regarded as unnecessary interference, but where a complete breech presentation was encountered and the os was sufficiently dilated a leg was pulled down to effect pressure by means of the half-breech. Willett's scalp forceps were employed in one or two isolated cases after the removal of the haemostatic packing.

6. Stress is laid on efficient packing of the vagina. The gauze employed was in the form of rolls 4 inches wide and 6 yards long. These were soaked in 5 per cent. dettol solution, and were packed tightly into the fornices. Each additional roll used was tied to the end of the

preceding one. The average number of rolls was three for primigravidae and five for multigravidae. The packing was left *in situ* for twenty-four hours or until it was expelled during labour by the presenting part. This latter desirable result was obtained in most cases. Catheterization of the bladder was usually necessary while packing was in position. The advantages claimed for efficient packing are: (a) bleeding can be completely arrested, and time is gained to restore the patient's general condition; (b) the vascular sinuses exposed by placental separation are compressed and clotting can occur; (c) while packing of the vagina in conjunction with artificial rupture of the membranes is a recognized stimulus to uterine contraction we have not found that unduly rapid delivery resulted. In a certain number of cases further bleeding occurred after removal of the packing, but this was effectively controlled by repacking.

The Case Results

We have arranged in tabular form the case results of Groups A and B. The stillbirth rate is included for the sake of completeness. Plugging the vagina is regarded by some authorities as a dangerous procedure owing to the increased incidence of sepsis. However, since plugging has been an essential feature we feel that our account would be incomplete without a consideration of the degree and site of infection occurring after all forms of treatment.

TABLE I

Group A

Method of Treatment	Central			Marginal			Lateral		
	No. of Cases	Morbid	Died	No. of Cases	Morbid	Died	No. of Cases	Morbid	Died
No treatment	—	—	—	—	—	—	16	—	7
*A.R.M. and binder ..	—	—	—	20	1	10	18	—	4
A.R.M., binder, and plugging ..	1	—	—	42	18	2	30	1	—
Caesarean section ..	5	—	—	†3	—	—	1	—	—
Plugging + Caesarean ..	5	1	—	1	—	1	—	—	—
Pulling down leg ..	1	—	—	13	1	—	12	1	—
Totals	12	1	—	79	20	2	53	1	20

* A.R.M. = Artificial rupture of membranes. † 2 for extended breech presentation, 1 for mild disproportion. ‡ Extended breech presentation.

Number of cases, 143; mortality rate, 1.4 per cent.; morbidity rate, 15.4 per cent.; stillbirth rate, 53.8 per cent.; number of transfusions, 37.

Group B

Method of Treatment	Central			Marginal			Lateral		
	No. of Cases	Morbid	Died	No. of Cases	Morbid	Died	No. of Cases	Morbid	Died
No treatment	*1	—	1	—	—	—	24	3	—
A.R.M. and binder ..	—	—	—	4	—	—	14	—	3
A.R.M. and Willett's forceps ..	5	3	—	5	12	1	8	14	2
A.R.M. and plugging ..	4	—	3	4	13	2	8	1	—
Caesarean section ..	11	3	1	3	3	—	2	1	—
Plugging + Caesarean ..	1	—	—	—	—	—	—	—	—
Pulling down leg ..	9	2	1	9	16	3	15	2	—
Totals	31	8	6	22	48	6	34	7	17

* Moribund on admission.

Number of cases, 143; mortality rate, 5.6 per cent.; morbidity rate, 14.7 per cent.; stillbirth rate, 50.05 per cent.; number of transfusions, 10.

TABLE II
Group A (Total cases morbid = 22)

Method of Treatment	Site of Infection						
	Urinary	Mild Genital	Severe Genital	Femoral Phlebitis	Respiratory	Tonsillar	Totals
No treatment	—	—	—	—	—	—	—
A.R.M. and binder	1	—	—	—	—	—	1
A.R.M., binder, and plugging ..	3	11	1	1	2	1	19
Caesarean section	—	—	—	—	—	—	—
Plugging + Caesarean	—	—	—	1	—	—	1
Plugging down leg	—	1	—	—	—	—	1

Group B (Total cases morbid = 21)

Method of Treatment	Site of Infection						
	Urinary	Mild Genital	Severe Genital	Femoral Phlebitis	Respiratory	Tonsillar	Totals
No treatment	—	3	—	—	—	—	3
A.R.M. and Willett's forceps ..	—	5	1	—	—	—	6
A.R.M. and plugging	—	2	1	—	—	—	3
Caesarean section	—	1	—	1	2	—	4
Plugging + Caesarean	—	—	—	—	—	—	—
Pulling down leg	—	3	1	1	—	—	5

Consideration of Results

The 143 cases of Group A were treated according to the method outlined above, and from a study of the figures it is evident that:

1. Many cases (38 per cent.) required only artificial rupture of the membranes and the application of a tight binder. Such cases were lateral or marginal insertions occurring mostly in multiparae admitted in labour. Uniformly good results are to be expected in this type of case, and are obtained in this hospital and elsewhere.

2. Haemorrhage was profuse enough to require immediate steps to arrest it in about half the cases (47 per cent.).

3. Plugging the vagina has proved an extremely successful method of achieving haemostasis.

We therefore venture to conclude that the striking decrease in the mortality rate in Group A is due to : (a) the co-operation and team-work made possible by the standardization of treatment ; (b) the prompt arrest of severe haemorrhage by plugging the vagina ; (c) replacement of blood loss by transfusion ; (d) treatment of shock before delivery of the patient. A comparison of the total morbidity rates for the two groups—Group A, 15.4 per cent. ; Group B, 14.7 per cent.—reveals but little increase in the incidence of sepsis, and the difference in stillbirth rate is negligible.

Out of a total of 286 cases treated, 146 required active intervention per vaginam, excluding those treated by artificial rupture of the membranes only. Seventy-three of these cases were plugged and seventy-three were treated by either pulling down a leg with or without podalic version or the application of Willett's forceps. The plugged series showed two cases of severe and fourteen cases of mild genital infection, and the other series two cases of severe and ten of mild genital infection. The increase in sepsis rate is therefore very small. It is interesting to note that Caesarean section was performed on six occasions, from six to twenty-four hours after plugging, and that only one of these patients had a morbid tem-

perature, due to a femoral thrombosis occurring on the twelfth day. We feel that we are entitled to suggest that plugging the vagina for placenta praevia is not attended with an undue liability to sepsis when its morbidity rate is compared with that following other forms of treatment which involve intervention per vaginam.

Summary

1. The results of treatment of 286 cases of placenta praevia are reviewed.

2. The standard method of treatment at Queen Charlotte's Hospital is described. Emphasis is laid upon the value of a preconceived routine, which included plugging and replacement of blood loss.

3. We believe that the improvement in the mortality rate is due to this method.

4. Evidence is offered in support of the contention that vaginal plugging in cases of placenta praevia is not associated with a high rate of sepsis when compared with that of other forms of treatment.

In conclusion we should like to thank the members of the honorary staff of Queen Charlotte's Hospital for the use of the case records, and in particular Mr. Leonard Phillips for permission to publish an account of his routine treatment. We also wish to express our appreciation of the work of the labour ward staff, to whose co-operation much of the improvement in results is due.

CONCERNING THE BOX MASK FOR OXYGEN ADMINISTRATION

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The main outline of this method of oxygen administration was originally described in the *Journal* about two years ago (Campbell, 1936). Since then some additional information (Barach, 1937 ; Campbell, 1937a, 1937b) has been published. A number of the masks have been used on patients and further data have been obtained, while various criticisms have arisen. These are dealt with below.

Comfort of the Patient

With the earlier types of mask vision was rather restricted. In more recent types wider vision has been provided by removing the shoulders of the mask and shifting the inlet tube for oxygen from the front of the forehead to a horizontal position inside the mask as in some of the earlier experimental masks. Fig. 1 illustrates the transparent type made of celluloid acetate. This material is neat, but it is not durable and must be washed only in cold water, as warm water or exposure to the sun will warp it. This celluloid acetate is not very inflammable. More durable material is aluminium, which, although greater in cost, is perhaps more suitable for hospital patients. The oxygen enters the mask through perforations in the horizontal portion of tubing inside the mask. These perforations must be directed upwards so that the incoming oxygen strikes the middle of the top of the mask. A bobbin flow-meter records the rate of oxygen flow, and an automatic regulator is used for the cylinder.

Some patients have found the mask rather warm to the face. This was due in some cases to enclosing the cheeks within the mask. The opening at the back of the mask should be bent to include only the nose and mouth, while