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PLACENTA PRAEVIA

A REVIEW OF 286 CASES

BY

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The island colony of Singapore now has an estimated population of approximately 1.4 millions. This includes Chinese, Malaysians, Indians, Pakistanis, Europeans, and Eurasians, and is increasing rapidly: in 1931 there were 20,000 births as compared with 54,000 in 1953. The city becomes more crowded every day, and in the outskirts the expansion overruns the supply of urban amenities and leads to slum conditions. Even apart from this the older areas of the city are already badly overcrowded.

Since the end of the second world war the demands of this increasing population have been made more urgent by a growing confidence in Western medical techniques. During 1953, 156,984 patients attended the Kangar Kerbau Hospital and 23,807 cases were admitted. The number of deliveries in the hospital during the two years 1953 and 1954 was 38,259, so that it is inevitable that over this period a considerable number of cases of placenta praevia have occurred.

Incidence

The actual number of cases of placenta praevia met with during these two years was 286, an incidence of 1 in every 135 deliveries, or 0.7%. Other centres report incidences ranging from 0.32% to 2%. A series of 112 cases reported by Schmitz *et al.* (1954) represented an incidence of 0.6%; Paalman and Hunt (1949) record an incidence of 1.12% at the Mayo Clinic; and King and Chun (1945) one of 0.78%. This last figure, obtained in Hong Kong, is very close to that found in Singapore. In the present series the greatest incidence was in the age group 30–39 years (138 cases); in the age group up to 29 years there were 110 cases, and from the age of 40 years onwards 38 cases. Similar figures have been noted by other writers (Berkeley, 1936; Aldridge and Parks, 1938; Reycroft and Platz, 1942; Seeley, 1945).

Parity and Duration of Pregnancy

Only 19, or 6.6%, of the patients were in their first pregnancy, and 267, or 93.4%, were multigravidae. Berkeley

(1936) in an exhaustive investigation found that, of 4,406 cases of placenta praevia, 20.1% were in primigravidae.

In the present series 78.3% of the patients had their first haemorrhage between the 34th week of gestation and term. This would appear to indicate a high proportion of viable babies. Eadie and Randall (1954) noted that the first haemorrhage occurred after the 34th week in 42.6% of their cases. The figure 78.3% cited above seems high, but this may be explained in part by the inaccuracy of the history given by the patient or by failure to obtain a full history because of language difficulties. Hendry and Baird (1936–7) reported that, in a series of 258 cases, warning haemorrhages had preceded the patient's admission in 38% of cases "admitted in good condition" and 60% of those "admitted ill."

Clinical Grouping

The type of placenta praevia was noted, the classification used being that commended by Macafee (1945), as follows. Type 1: The greater part of the placenta is attached to the upper uterine segment, but the lower margin extends into the lower segment. Type 2: The lower edge of the placenta reaches down to the internal os. (This is further subdivided into Type 2 anterior and Type 2 posterior, according to whether the placenta is attached mainly to the anterior or posterior uterine wall.) Type 3: The placenta overlaps the internal os when closed, but only partially so when the os is fully dilated. Type 4: The placenta completely covers the os even when fully dilated. Of patients admitted with an antepartum haemorrhage, only those in whom the placenta was palpated in the lower uterine segment at vaginal examination, or seen to be attached to the lower segment at caesarean section, were classified as having placenta praevia.

The incidence of the four types is shown in Table I.

TABLE I.—Incidence according to Type

Type	Number of Cases	Incidence (%)
1	67	23.4
2	86	30
3	64	22.3
4	69	24.3

Treatment and Method of Delivery

Vaginal delivery was effected in 142 cases and abdominal delivery in 143 cases. One patient died undelivered. The method of treatment adopted depended on three major factors: (1) the severity of the blood loss; (2) the period of gestation; (3) the type of placenta praevia. The last consideration was important only in so far as it indicated the ultimate type of delivery in many cases. In general, conservative treatment was adopted where the patient was far from term, in order to reduce foetal mortality from prematurity. When the haemorrhage was so severe as to preclude further expectancy the patient was examined in the operating theatre, the diagnosis confirmed by vaginal examination, and the treatment necessary for the type of placenta praevia present carried out. Under conditions prevailing in Singapore many patients came into hospital bleeding severely, a vaginal examination having been made outside. The blood loss, added to the already anaemic state of the patient, in a large number of these cases made conservative treatment difficult. Apart from this, labour had started in 83 cases (29%) at the time of admission. Blood transfusion was required by 183 patients (64%).

The methods of treatment used and the results obtained are shown in Table II.

In general, caesarean section was the treatment favoured in the major degrees of placenta praevia. The majority of cases with a Type 1 or Type 2 placenta praevia were dealt with by artificial rupture of the membranes. Willett's forceps were used on only two occasions—once for a Type 2 and once for a Type 3 placenta praevia. Version and breech pressure were employed on 27 occasions, mostly for a Type 2 condition.

TABLE II.—*Treatment and Results*

Method of Treatment or of Delivery	No. of Cases	% of Total	Result to Child						Result to Mother			
			Alive		Stillborn		N.N.D.		Alive		Dead	
			No.	%	No.	%	No.	%	No.	%	No.	%
Caesarean section ..	143	50.4	85	59.6	21	14.6	37	25.8	140	97.9	3	2.1
Rupture of membranes ..	68	23.8	43	62.2	15	22.2	10	14.6	67	98.5	1	1.5
Spontaneous delivery ..	45	15.7	32	71.1	6	13.3	7	15.6	45	100.0	0	0
Breech extraction ..	14	4.9	2	14.2	7	50.0	5	35.8	14	100.0	0	—
Version ..	13	4.5	0	—	11	84.7	2	15.3	12	92.4	1	7.6
Willet's forceps ..	2	0.7	0	—	2	100.0	0	—	2	100.0	0	—
Undelivered ..	1	—	—	—	—	—	—	—	0	—	1	—
Total ..	286	100.0	162	56.8	62	21.7	61	21.5	280	97.9	6	2.1

TABLE III.—*Analysis of Treatment and Results according to Type of Placenta Praevia*

Type of Placenta Praevia	Method of Treatment or of Delivery	No. of Cases	Result to Child			Result to Mother	
			Alive	Stillborn	N.N.D.	Alive	Dead
Type 1	Rupture of membranes ..	34	30	3	1	33	1
	Spontaneous delivery ..	28	20	3	5	28	0
	Breech extraction ..	4	0	1	3	4	0
	Version ..	1	1	0	0	1	0
Type 2	Rupture of membranes ..	32	14	10	8	32	0
	Caesarean section ..	25	17	2	6	25	0
	Spontaneous delivery ..	15	11	2	2	15	0
	Breech extraction ..	6	1	3	2	6	0
	Version ..	7	0	5	2	6	1
	Willet's forceps ..	1	0	1	—	1	0
Type 3	Caesarean section ..	52	31	6	15	51	1
	Breech extraction ..	4	0	4	0	4	0
	Version ..	3	0	3	0	3	0
	Rupture of membranes ..	2	0	2	0	2	0
	Willet's forceps ..	1	0	1	0	1	0
	Spontaneous delivery ..	1	0	1	0	1	0
Type 4	Caesarean section ..	66	37	12	17	64	2
	Version ..	2	0	2	0	2	0
	Spontaneous delivery ..	1	0	1	0	1	0

The relation between the type of placenta praevia and the treatment adopted is shown in Table III.

Results

The gross foetal loss in the series, including the foetus of the patient who died undelivered, was 124, giving a foetal mortality rate of 43%. In the cases delivered by caesarean section there were 21 stillbirths and 37 neonatal deaths; in the group delivered vaginally there were 41 stillbirths and 24 neonatal deaths. Five of the foetuses were abnormal, and if this number be excluded the foetal loss was 41.6%.

Johnson (1950), in a review of 201 cases of placenta praevia, gave a corrected foetal mortality rate of 22.2% and an uncorrected rate of 30.1%. In his opinion uncorrected figures are of more importance in this condition.

TABLE IV.—*Foetal Loss according to Type of Placenta Praevia*

Type	Stillbirths		Neonatal Deaths		Total Foetal Loss	
	No.	%	No.	%	No.	%
1	7	10.4	9	13.4	16	23.8
2	23	26.7	20	23.3	43	50.0
3	17	26.5	15	23.4	33	51.5
4	15	21.7	17	24.6	32	46.3

Table IV shows the uncorrected foetal loss associated with each type of placenta praevia. The figure for Type 3 placenta praevia includes the foetus of the patient who died undelivered.

There were six maternal deaths, giving a mortality rate of 2.1%. A brief extract from the record of each of these patients follows.

Fatal Cases

CASE 1.—A 42-year-old Chinese woman who had had seven previous normal deliveries; admitted following a profuse vaginal haemorrhage when approximately 36 weeks pregnant. Her general condition was critical. No pulse was palpable at the wrist and the blood pressure could not be recorded. She was given a transfusion of 6 pints (3.4 litres) of blood. Vaginal examination revealed a Type 3 placenta praevia. A classical caesarean section was performed. The baby was stillborn and the patient died on the table.

CASE 2.—A 40-year-old Chinese with a history of ten previous normal deliveries, admitted following two episodes of painless vaginal bleeding at 38 weeks. She had been examined vaginally before arriving at the hospital. Her condition on admission was fairly good. Vaginal examination revealed a Type 1 placenta praevia. The membranes were ruptured artificially, and 29 hours later she had a normal delivery of a living male child weighing 6 lb. (2.722 kg.). She had a severe post-partum haemorrhage and the placenta was removed manually. Despite blood transfusion she continued in a state of shock and died three hours after delivery.

CASE 3.—A 38-year-old Malay with a history of six previous normal deliveries, admitted when 32 weeks pregnant after a painless vaginal haemorrhage. Eight days after admission she had a further vaginal loss and complained of labour pains. Blood transfusion was started and she was examined vaginally. A Type 2 anterior placenta praevia was found and the cervix was three-quarters dilated. Internal version and breech extraction were performed. The foetus was stillborn and weighed 3 lb. (1.361 kg.). The placenta was manually removed. Five hours later there was a brisk post-partum haemorrhage. The uterus was explored, portions of placental debris being evacuated with a blunt curette. Her condition was then poor, and despite a further blood transfusion she died six hours after delivery.

CASE 4.—A 37-year-old Chinese who had had nine previous normal pregnancies, admitted at term following a brisk, painless vaginal haemorrhage. General condition satisfactory. Profuse bleeding started shortly after admission and a blood transfusion was given. Vaginal examination revealed a Type 4 placenta praevia. A lower-segment caesarean section was performed and a fresh stillborn male child 8 lb. 11 oz. (3.94 kg.) delivered. Blood loss from the uterus was profuse and the patient died on the table.

CASE 5.—A 30-year-old Malay with five previous normal pregnancies, admitted at 37 weeks following a painless vaginal haemorrhage. Three weeks later she had a second small haemorrhage, and vaginal examination revealed a Type 4 placenta praevia. A lower-segment caesarean section was performed and she was delivered of a living child weighing 7 lb. 6 oz. (3.345 kg.). A severe post-partum haemorrhage occurred two and a half hours after delivery, and despite blood transfusion she died.

CASE 6.—A 26-year-old Malay with six previous normal deliveries, admitted at term following a severe, painless vaginal haemorrhage. The uterus was contracting and her general condition poor. Despite blood transfusion she

rapidly became worse and died undelivered two hours after admission. Post-mortem vaginal examination revealed a cervix two fingerbreadths dilated and a Type 3 placenta praevia.

Discussion

A study of the literature on placenta praevia during the past ten years shows that there is now fair agreement as to the incidence, parity, classification, increased number of malpresentations, and other general factors associated with the condition. There has been a notable improvement in both maternal and, especially, foetal survival. Substantial credit for reducing these mortality rates must go to the wider application of expectant treatment as proposed by Macafee (1945) and Johnson (1945). In addition the advent of blood banks and of chemotherapy and antibiotics has played a considerable part in attaining the improved figures. A distressing finding from this study is that, despite the gradual acceptance of expectant treatment and the more frequent use of caesarean section, foetal and maternal mortality rates are high. A comparison of the results in the present series with those reported in the literature is made in Table V.

TABLE V.—*Comparison of Present Series with Reports in the Literature*

Authors and Years Covered	No. of Cases	Maternal Mortality (%)	Foetal Mortality (%)
Seeley, 1933-42	250	2.8	34.6
Davis and Campbell, 1931-45	325	0.6	31.6
Morgan, 1937-44	130	0	36.0
Johnson, 1939-44	79	0	30.1
Daichman and Pomerance, 1935-46	165	0.6	25.8
Paalman and Hunt, 1919-45	134	1.5	23.0
Schmitz, O'Dea, and Isaacs, 1941-51	112	0.89	22.3
Bender, 1946-52	112	0	16.8
Macafee, 1937-44	177	0.57	23.5
Grant, 1946-53	200	0	12.0
Present author, 1953-4	286	2.1	43.0

In my own series the stillbirth and neonatal-death rates were 21.7% and 21.5% respectively, and it is interesting to note that the lowest foetal loss occurred in the group delivered spontaneously. In these cases, of course, the degree of placenta praevia is seldom severe and the haemorrhage often not extreme. The high foetal loss from podalic version and bringing down a foot, or bringing down a foot if the breech presented, is evident from the figures in Table II. The same is true of cases treated by Willett's forceps. The foetal loss in the group delivered by caesarean section is high, with stillbirth and neonatal-death rates of 14.6% and 25.8% respectively. There is no doubt that the inception of caesarean section as a method of treatment for placenta praevia has reduced both the maternal and foetal mortality rates. While it is agreed that caesarean section is the best method of treatment for the major degrees of placenta praevia when the foetus is full-term or relatively mature, it is doubtful if the same applies where the baby is premature. It is suggested, in the light of these figures, that in some cases with a marked degree of placenta praevia the judicious employment of vaginal delivery should be considered when the child's condition is hopeless. As many of the patients delivered in hospital in Singapore may not return when pregnant again the saving of a uterine scar might be a matter of great consequence.

Stallworthy (1951) maintains that his aim in the treatment of placenta praevia is "no maternal deaths and a foetal wastage of less than 10%." This ideal can be achieved. The results published by Grant (1955) in a series of 200 cases treated at the Royal Maternity Hospital, Belfast, proves this: the maternal loss was nil and the foetal loss 12%.

However, there are many problems facing the obstetrician in Singapore in his attempt to obtain comparable figures for this condition. Some of these basic problems are social. Poverty and ignorance are common among the hospital

class. For many women pregnancy is of such frequent occurrence that they cannot regard it as a condition meriting special consideration. One uncomplicated delivery may lead a woman falsely to suppose that subsequent pregnancies will be without hazard instead of potentially, perhaps, more hazardous. Education is necessary to instil the knowledge that with proper care during pregnancy and labour much of the discomfort and many, if not most, of the dangers of child-bearing can be removed. The medical profession itself must accept responsibility for educating the public to a better understanding of the aims of obstetrics and the methods by which these may be realized. However, before this is possible the profession itself needs further education so that it in turn may wisely inform the public. Such education must start with the medical student. His training should enable him to conduct normal labours and to recognize and evaluate abnormalities requiring the services of a specially qualified obstetrician. The dangers of performing vaginal examination on a patient who has had an antepartum haemorrhage must be realized. These dangers cannot be overemphasized; in Qureshi's (1953) series of 200 cases, with a maternal mortality of 15%, four-fifths of the deaths occurred in patients examined vaginally before admission to hospital.

There must be co-operation between the hospitals and the local practitioners, who see the patient first. The latter should be made aware that they have only to report that a patient has had an antepartum haemorrhage to secure her admission to hospital. Following admission it will be the responsibility of the hospital to decide whether the patient needs immediate treatment or whether a conservative policy can be safely pursued.

What is meant by conservative treatment? It means withholding active treatment and allowing the pregnancy to continue until the foetus is mature enough to have a good chance of independent survival. Provided the patient has not been examined vaginally this applies to the majority of cases of placenta praevia. Where the period of gestation is greater than 37 weeks, treatment should be delayed only to allow the patient's blood to be grouped and a straight radiograph of the abdomen taken to exclude gross foetal abnormalities. The attitude adopted towards conservative treatment is important. It may be that in some hospitals active measures are adopted on account of a moderate recurrence of bleeding which might be ignored by others. The decision on when treatment is necessary should be made by someone with experience and not by a junior medical officer. If any real improvement is to be attained, co-operation between senior and junior attendants must be enforced.

However, despite conservative treatment there are many patients who will be delivered of a premature infant. Prematurity is the most frequent cause of foetal mortality in placenta praevia as it is of foetal mortality in general (Williams, 1948; D'Esopo and Marchetti, 1942). Premature infants demand specialized care and attention, and an efficient paediatric service is essential to obtain good results.

In conclusion it must be emphasized that in any case of placenta praevia the attendant who sees the patient first has a great responsibility. Also, to obtain good results the co-operation of many is necessary, and these include the midwife, the general practitioner, the obstetric specialist, the paediatrician, and the patient herself.

Summary

A series of 286 consecutive cases of placenta praevia admitted to a hospital in Singapore during 1953 and 1954 is reported. This represents an incidence of 0.7% of all deliveries in the hospital during that period. Nineteen (6.6%) of the cases were in primiparae. The initial haemorrhage occurred after the 34th week of pregnancy in 78.3% of cases.

Conservative treatment was adopted where possible. Methods of treatment and results are given. Delivery

was by caesarean section in 50.4% of cases. The gross foetal loss was 43% and the maternal mortality 2.1%. The six cases of maternal death are summarized.

The dangers of subjecting a patient who has had an antepartum haemorrhage to vaginal examination are emphasized. The attendant who first sees the patient has a great responsibility. A high incidence of prematurity is unavoidable in cases of placenta praevia; therefore to obtain good results an efficient paediatric service is essential.

The social problem of poverty and ignorance in Singapore is underlined, and a plea made for educating the public to a better understanding of the aims of obstetrics.

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GLYCOGEN-STORAGE DISEASE OF LIVER

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Von Gierke (1929) first described a peculiar glycogen-storage disease under the title of "Hepatonephromegalia-glycogenica." It is a rare congenital disorder of carbohydrate metabolism occurring in infants and young children and is characterized by the storage of abnormally large amounts of glycogen not only in the liver but also in the kidneys, heart, skeletal muscles, and other organs (Humphreys and Kato, 1934).

The number of cases published is limited. Crawford (1946) could find under 50 cases described in the literature. Since then, however, further cases have been described by Van Creveld (1952) and Cori (1952).

No case of this disease had been reported from the Orient up to 1946 (Crawford, 1946), and so far as we know none has been reported since. The following cases are therefore of interest, and show that the disease exists in India.

Glycogen-storage disease includes five more or less distinct entities which may exist separately. Often, however, two or more are present at the same time. Occasionally a patient may initially show one of the manifestations and later have one or more of the remaining features superadded. Of the following groups Mason and Andersen (1941) consider as genuine Von Gierke's type only those with enlarged liver accompanied by impaired glycogen mobilization: (1) glycogen-storage disease of the liver, regarded by some as true Von Gierke's disease; (2) glycogen-storage disease of the heart and muscles; (3) patients showing enlarged liver with galactosuria; (4) cases associated with hyperinsulinism, the enzyme system being otherwise normal; and (5) an assorted group of cases, many of which show cirrhosis of liver.

An Indian family of seven children with two proved cases of disease came under our observation and are reported below. Besides these, three other siblings showed presumptive evidence of the disease, two others showed congenital malformation, and the parents showed some anomalies of carbohydrate metabolism (see family tree). All these are described later.

Case Reports

A soldier of the Indian Army reported to the out-patient department of the Military Hospital, Poona, in the beginning of 1952 for the treatment of two of his children.

The father, aged 39, and the mother, aged 32, were both healthy and were not blood relations. Both were Hindus and of Indian parentage. The family consisted of seven children, all sons aged from 1 to 14 years.

Case 1

The first son, aged 14, was born at full term after a normal pregnancy and confinement, and appeared healthy at birth. There was no history of birth injury or of neonatal ailments. He was breast-fed for about one and a half years, and was then put on the normal Indian diet, which is of a high carbohydrate and low protein content. He raised his head by the fourth month, cut his first tooth between the sixth and eighth months, sat up by the sixth or seventh month, and walked by about the first year. He talked a few words when 18 months old. Up to about the third year he was apparently normal and like other children. He then had an attack of pneumonia, and thereafter growth seemed to be retarded and the abdomen looked full.

His complaints on admission were a vague pain in his right hypochondrium, particularly when up and about; voracious appetite and marked flatulence; slight giddiness and