

# Twin Pregnancy – A study of the local pattern

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## Introduction

THE STUDY OF twin pregnancies has assumed greater importance for several reasons. The higher incidence of prematurity contributes to the perinatal mortality which has otherwise been decreasing. Multiple pregnancies are likely to become more frequent with the wider use of drugs for induction of ovulation. The practice of organ transplants leads to the importance of distinction between monozygotic and dizygotic twins. It has also been established recently that there are epidemiological differences in twin pregnancies in different geographical and ethnic groups. In fact an international congress on twin studies would be held in the latter part of 1977.

Thus the local pattern of twin pregnancies should be known and the differences from textbook descriptions be noted.

## Material and Method

This is a retrospective study of the case records of all the twin pregnancies in the University Hospital from the establishment of the maternity unit in March 1968 till June 1975. The University Hospital serves the urban areas of Petaling Jaya and parts of Kuala Lumpur as well as the surrounding villages and squatter areas.

## Incidence of Twin Pregnancies

In the period covered, there were 193 twin pregnancies out of a total of 19,189 deliveries, thus giving an incidence of 1:99. This is lower than Western figures which range from 1:66 to 1:80 but is similar to those in Asian populations (Table I).

Twin pregnancies are known to be more common in African races, fairly common in Caucasians and rarer in Oriental races.

**Table I**

### Incidence of Twin Pregnancy

Malaysia (Kuala Lumpur)	1 : 99	Present study
Singapore (K.K. Hospital)	1 : 121	Foong, 1970
Japan	1 : 156	Ihda, 1965
China	1 : 294	Gates, 1959
Philippines	1 : 85	Palagia, 1967
India (Calcutta)	1 : 59	Dass, 1934
England and Wales	1 : 84	Registrar-General, 1959
Nigeria	1 : 20	Cox, 1963
USA	1 : 89	Guttmacher, 1953

## Incidence according to ethnic groups (Table II)

Although the three main ethnic groups exist in Malaysia in the proportions of about 50 per cent Malays, 35 per cent Chinese and 10 per cent Indians, analysis of the University Hospital deliveries revealed that they were in the proportions of 26 per cent Malays, 43 per cent Chinese and 28 per cent Indians. Taking this into consideration, the incidence of twin pregnancy is 1:92 in Malays, 1:117 in Chinese and 1:109 in Indians.

**Table II**

**Incidence of Twin Pregnancy according to Ethnic Groups**

Ethnic group	No. of Twins	Percentage of obstetric patients	Incidence of twins
Malays	54	26	1: 92
Chinese	71	43	1:117
Indians	50	28	1:109
Others	18	2	-

**Table IV**

**Incidence of Twin Pregnancy According to Parity**

Parity	No. of Twins	Percentage of obstetric pts.	Incidence of Twins
Para 0	37	33	1:171
Para 1 and 2	79	38	1: 92
Para 3 and 4	47	19	1: 76
Para 5+	30	10	1: 64

**Incidence according to Age (Table III)**

From our study, it is seen that the frequency of twinning increases with age. While the incidence is only 1: 259 in those mothers below 19 years old, it is 1: 36 in those mothers above the age of 40.

**Table III**

**Incidence of Twin Pregnancy According to Age-Groups**

Age-group	No. of Twins	Percentage of Obstetric pts.	Incidence of Twins
Below 20 years	8	11	1:263
21 - 25 years	51	30	1:100
26 - 30 years	65	31	1: 93
31 - 35 years	29	20	1:114
36 - 40 years	31	7	1: 65
41+ years	9	1.5	1: 36

Anderson (1956) and Seksi and Miller (1963) noticed that age and parity increased the twinning rate. Law (1967) in London calculated that the incidence in grandmultipara to be 1: 52 and that in elderly primigravida to be 1: 50.

**Incidence according to Parity (Table IV)**

The number of deliveries in each parity group was roughly calculated from a random sampling of 500 deliveries in 1972 (from January to December). From these proportions, the incidence of twin pregnancies in each parity group was calculated. It followed a trend of greater frequency in the more parous mothers, from 1:171 in primigravida to 1: 64 in grandmultipara.

**Sex of the Infants**

The sex of the infants delivered were as follows:

Male	:	Male	=	81
Male	:	Female	=	20
Female	:	Female	=	17
Female	:	Male	=	75
				total
				193

The sex ratio of 106 males to 100 females is similar to that in singletons. However Standskov *et al.* (1946) believed that there were more females in higher orders of multiple pregnancies. Law (1967) in his study of triplets showed a ratio of 100 males to 150 females.

**Family History of Twins**

Out of 152 twin pregnancies which had adequately completed notes, 29 of these had a history of twins in the family which included parents, siblings and siblings of the parents. Thus 19 per cent of the twins delivered had a family history of twins.

Out of 2000 random cases delivered in the hospital, 395 patients had a family history of twins. Thus in the general obstetric population 19.5 per cent of them had a family history of twins. In these 395 deliveries, there were nine twin deliveries, giving an incidence of 1:44. Thus the chances of a Malaysian patient with a family history of twins is two and a half times that of the general Malaysian obstetric patient.

Foong (1971) in Singapore also found the tendency of twinning to be increased by two and a half times. However Western authors have noted higher tendency in those with family history. Gedda (1961) found that there was an additional twin pregnancy in 77 per cent of families who had previously delivered twins. In a control study of 100 families, only 23 per cent had twins. Davenport estimated that the twinning rate was increased by four to seven times in twinning families.

### Monozygous: Dizygous Ratio

It has been said that the familial trait influences mainly the dizygous twins. The chance of delivering monozygotic twins is constant throughout the world and has been estimated to be about 4 per 1000.

The monozygotic:dizygotic (MZ:DZ) ratio has been used by several authors to explain the differences in the incidence of twins in different populations. However it is not easy to identify correctly the monozygous twins as even microscopic examination of the membranes can be misleading. No planned attempt had been made in our study to identify the zygosity of our twins. However, following the method by Law (1967), all unlike-sex twins were considered dizygotic and assuming that the proportion of dizygotic twins in the like-sex is similar to that of the unlike-sex, the incidence of monozygotic twins can then be calculated.

From Table V, it is seen that the MZ:DZ ratio in the Malays, Chinese and Indians are 1.7, 2.2 and 1.3 respectively and the ratio in the three races is 1.6 on an average. Thus there is a much lower proportion of dizygous twins compared to that in Caucasians and Africans.

### Antenatal Complications in Twin Pregnancy

Generally the antenatal complications in the mother are exaggerated in twin pregnancy. It is thought that the side-effects arise from the greater distensibility of the uterus and the increased requirements from the multiple fetuses.

Excluding unbooked or late booking cases, 150 cases were studied. There was no maternal death in our series. In spite of more antenatal complications, no author has reported any increase in maternal mortality. From Table VI, about 20 per cent of the patients complained of breathlessness, 33 per cent with swelling of the feet, 18 per cent with varicose veins and 10 per cent with haemorrhoids. Ten per cent of the patients did mention that their abdomen seemed to be growing too fast but this symptom seemed to be a common complaint in our patients.

Anaemia was the most common complication (hemoglobin taken as less than 10 g/100 ml). From the serum assays, about 22 per cent were found to be iron-deficiency anaemia while another seven per cent had a dimorphic picture. There was no isolated folic acid deficiency anaemia. About 10 per cent of the booked twin carrying mothers had total dose infusion of Imferon.

Toxemia of pregnancy was more common in twin pregnancies. About 30 per cent of them had a blood pressure of 130/90 mm Hg or more with oedema but without albuminuria. There was one case of eclampsia. Other authors (Bender, 1952; MacDonald, 1962) had also found the incidence to be raised to about 25 per cent. Scholtes (1971) attributed this increase to the larger placental size and the relative circulatory deficiency in twin pregnancy.

In our series, 17 per cent had hydramnios detected clinically. This figure is higher than others reported, which ranged from 12.5 per cent (Brown

Table V

Monozygous:Dizygous Ratio (MZ:DZ) According to Ethnic Groups						
Ethnic Group	No. of Twins	No. of like-sex	No. of unlike-sex	No. of MZ	No. of DZ	MZ:DZ Ratio
Malays	54	44	10	34	20	1.7
Chinese	71	60	11	49	22	2.2
Indians	50	40	11	29	22	1.3
Others	18	—	—	—	—	—
Total	193	156	37	119	74	1.6
Caucasians (Strandkov, 1946)						0.5
Negroes in USA (Strandkov, 1946)						0.1
Japan (Ihda, 1965)						1.9
Nigeria (Cox, 1963)						0.3
England and Wales (Cox, 1963)						0.25

**Table VI**  
**Antenatal Complications in Twin Pregnancy**  
(150 cases)

*Symptoms complained by patients*

	No. of pts.	Percentage
Breathlessness	29	20
Oedema feet	51	33
Varicose veins	23	18
Haemorrhoids	15	10
Abdomen abnormally large	15	10
Frequency of micturition	10	7
<i>Complications</i>		
Iron-deficiency Anaemia	34	22
Combined iron-deficiency and folic acid deficiency anaemia	10	7
Toxemia of Pregnancy	45	30
Clinical Hydramnios	25	17
Threatened abortion	8	5
Hyperemesis gravidarum	8	5
Urinary tract infection	7	5
Placenta previa	3	2
Abruptio placentae	1	—

and Dixon, 1963) to 1.6 per cent (Seksi and Miller, 1963) the average figure quoted being 4 per cent (Danielson, 1960). The incidence in singleton pregnancies is about 0.5 per cent. Hydramnios is thought to be associated more commonly with uniovular twins (Donald, 1972) and this might explain the higher incidence in our series.

There were three cases of placenta previa and one case of abruptio placentae which presented by antepartum haemorrhage. There was five per cent each in the incidence of threatened abortion, hyperemesis, and urinary tract infection.

**Postpartum Haemorrhage**

The third stage is a critical stage in twin delivery as far as the mother is concerned. From Table VII, it is seen that 16 per cent of our twin deliveries had a blood loss of 500 ml or more, half of which occurred in premature deliveries. The incidence reported in the literature varies greatly from four per cent (Zuckermann, 1961) to 40 per cent (Danielson, 1960). Bender (1952) found it to be 10 per cent (compared to 5.3 per cent in singleton deliveries)

when ergometrine was not given and five per cent (compared with 1.5 per cent in singletons) when ergometrine was given. Law (1967) found it to be more common in primigravida (14.2 per cent) compared with multigravida (8 per cent). He also noted that although postpartum haemorrhage was more common in twin deliveries, very few (0.3 per cent) had severe haemorrhage of more than 60 ounces. In our series, only three patients had a loss of more than a litre and only one had loss of more than two litres.

**Table VII**  
**Postpartum Blood Loss in Twin Deliveries (143 cases)**

Blood loss	No. of pts.	Percentage
190 ml or less	71	50
200 to 490 ml	48	34
500 to 990 ml	20	16
1000 to 1990 ml	3	
2000 ml or more	1	

**Presentations at Delivery**

One of the causes of the higher perinatal mortality in twins is the higher incidence of abnormal presentations. Table VIII shows that the twins presented both as vertex in 41 per cent of cases, vertex followed by breech in 33 per cent, breech followed by vertex in 12.8 per cent, and both as breech in 9.0 per cent of cases.

**Table VIII**  
**Mode of Presentation of Twin Fetuses at onset of Labour**

Presentation	No. of pts.	Percentage
Vertex/Vertex	77	41
Vertex/Breech	62	33
Breech/Vertex	24	13
Breech/Breech	17	9
Vertex/Transverse	5	4
Breech/Transverse	3	
Not mentioned	5	
No. of breeches in first twins = 43 (23 per cent)		
No. of breeches in second twins = 79 (42 per cent)		

The number of breeches in the first twin is 43 (23 per cent) and in the second twin is 79 (42 per cent) out of 193 pregnancies. Thus the total number

of breeches of 123, giving an incidence of 32 per cent, is ten times the incidence of breech deliveries in singletons in our hospital (3.1 per cent). In addition there were nine fetuses which presented as transverse lie at delivery. Most authors have reported similar figures.

### Mode of Delivery

Table IX shows that 56 per cent of the first twins had spontaneous vertex delivery as compared to 44 per cent of the second twins. The difference was mainly due to the incidence of breech deliveries in the second twins. The rates of forceps and ventouse deliveries were similar. There were 11 caesarean operations (rate of 5.6 per cent). In addition, two more caesarean operations were performed for the second twin alone which was retained for more than one hour in both cases. It is to be noted that there were 23 deliveries where the first twin was delivered normally while their second twin had complicated deliveries.

Table IX

Mode of Delivery in Twin Pregnancies

Mode of delivery	First Twin	Second Twin
Spontaneous Vertex	105 (56%)	82 (43.5%)
Forceps	25 (12.5%)	20 (10%)
Ventouse	8	10
Assisted Breech	42	64
Breech Extraction	2	14
Cesarean section	11	13
Total abnormal deliveries	88 (44%)	111 (56.5%)

### Duration of Pregnancy

About three-quarters of the pregnancies were delivered spontaneously before term. It is a practice in our hospital to induce only at term. Thus twenty pregnancies were induced at term for twins as the only indication while another 16 were induced for twins complicated by pre-eclamptic toxemia. There were only four pregnancies which went beyond 40 weeks and had to be induced.

### Birthweights

Table X shows the comparative weights of both twins at birth. In our series there was no significant difference in the birthweight distribution in the two twins. Some authors showed that there was a shift to the lower birthweights in the second twin.

The total number of babies below 2500 grams was 59 per cent. Even considering those below 2270 grams as a better prognostic minimum weight in Asian babies (Wong, 1965) there were still 46.9 per cent below this birthweight.

### Perinatal Mortality

From our series of 193 twin deliveries, there were 34 perinatal deaths out of 20 pregnancies. In 14 pregnancies, both twins died; in four pregnancies, only the second twin died; and in two pregnancies, only the first twin died. Thus the perinatal mortality rate was 8.3 per cent for the first twin, 9.3 per cent for the second twin, and 8.8 per cent for both twins. This compares unfavourably with the overall perinatal mortality rate of 3.3 per cent in the University Hospital during the same period.

Out of the 34 deaths, 13 were macerated stillbirths, five were fresh stillbirths and 16 were early neonatal deaths. Other authors have quoted similar figures: 12.4 per cent (Sinnathuray, 1967), 13.3 per cent (Guttmacher, 1953), 9.4 per cent (Law, 1967).

Out of the 34 perinatal deaths, 20 babies out of 10 pregnancies were delivered before 32 weeks; nine babies out of six pregnancies between 32 and 36 weeks; and five babies out of four pregnancies were delivered after 36 weeks. The perinatal mortality rate calculated was 60 per cent before 32 weeks, 23 per cent between 32 and 36 weeks and only 4 per cent in the mature twins. (Table XI).

As for birthweights, there were 11 below 1001 grams, 12 babies between 1001 and 2270 grams and 11 babies were more than 2271 grams.

### Summary

A retrospective study of 193 twin pregnancies in the University Hospital showed that the incidence was 1:92 in Malays, 1:117 in Chinese and 1:109 in Indians. The incidence increases with age and parity and is more in those with family history of twins by more than two and half times. The monozygous: dizygous ratio was 1.6. Common complications were anemia (29%), toxemia of pregnancy (30%), hydramnios (17%) and postpartum haemorrhage (16%). The perinatal mortality of 8.8% was explained by the higher incidence of abnormal presentations (32%), operative deliveries (50%) and lower birth weights (59% being less than 2500 grams).

It is noted that certain features of twin pregnancies in our Malaysian population differ from those quoted in textbooks based on Caucasian populations. In particular, the incidence of twinning

**Table X**  
**Comparative Birthweights of the First and Second Twins**

		SECOND TWIN				Total for 1st Twin
		Less than 1000 g	1010 to 2500 g	2510 to 3000 g	2510 to 3000 g	
FIRST TWINS	Less than 1000 g	8	1	0	0	9
	1010 to 2500 g	3	84	16	2	105
	2510 to 3000 g	0	19	29	2	50
	More than 3000 g	0	3	10	6	19
Total for 2nd Twin		11	107	55	10	183

(Weight not recorded in 10 pregnancies)

**Table XI**  
**Perinatal Mortality according to Period of Gestation**

Maturity	No. of Pregnancies	No. of Babies	Percentage of Deliveries	Perinatal Mortality
Before 32 weeks	10	20	8	60%
32 to 36 weeks	6	9	20	23%
More than 36 weeks	4	5	72	4%
Total	20	34	100	

is lower, the proportions of monozygous and dizygous twins are reversed and the family history has lesser influence on the twinning tendency.

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