

CONGENITAL HEART DISEASE IN PREGNANCY

By Peter C. T. Chew, S. C. Chew, Y. K. Lee and S. S. Ratnam

SYNOPSIS

71 pregnancies in 58 patients with congenital heart disease were reviewed between June 1968 and December 1971. Ventricular septal defect and Atrial septal defect were the two common lesions, accounting for 62.6% of the cases. There was one maternal death in a patient with Eisenmanger's complex. No serious maternal complication occurred in the remaining cases. Obstetric complications were not common and vaginal delivery was achieved in 97.1% of cases. 8.7% of babies weighed less than 2500 gms. and the fetal loss was 2.85%.

INTRODUCTION

Heart disease in pregnancy offers one of the great challenges in Obstetrics as it has become one of principal causes of maternal deaths. Congenital heart disease accounts for 3% to 10% of organic heart disease in pregnancy (Naeye *et al.*, 1967). With improved diagnostic and surgical technique more and more women with congenital heart disease live through the reproductive years and undertake childbearing. The purpose of this paper is to review our experience in the Kandang Kerbau Hospital.

MATERIAL

From June 1968 to December 1971, there were 71 pregnancies occurring in 58 patients with congenital heart disease. The total number of deliveries during the period under review was 109,332. Each pregnancy is considered as a separate case.

RESULTS

- (1) *Incidence*: The incidence of congenital heart disease in pregnancy was 0.063 per cent.
- (2) *Ethnic group*: There were 63 Chinese, 4 Malays, 2 Indians and 2 Gurkhas. The

Department of Obstetrics and Gynaecology, University of Singapore.

Kandang Kerbau Hospital, Singapore.

PETER C. T. CHEW, M.B., B.S., M. Med., M.R.C.O.G.,
Lecturer.

S. C. CHEW, M.B., B.S., M. Med., M.R.C.O.G., Lecturer.

Y. K. LEE, A.M., M.D., F.R.C.P. (London), F.R.C.P.E.,
M.R.A.C.P., F.C.L.M., L.L.B., Senior Physician.

S. S. RATNAM, A.M., M.B., B.S., M.D., F.R.C.S. (Eng.
Edin., Glasgow), F.R.C.S.E., F.R.C.O.G.,
F.A.C.S., F.R.C.S.G., F.I.C.S., Professor.

number of cases in various ethnic groups other than Chinese was too small for statistical evaluation of comparative incidence.

- (3) *Age*: The age incidence is shown in Table I.

TABLE I

Age	Number
<20	3
20—	50
30—	18
Total	71

The average age of affected women was 29.0 years. 24.3% of patients were aged 30 years and above.

- (4) *Parity*: The distribution of parity is shown in Table II.

TABLE II

Parity	Number
0	27
1	17
2	18
3	4
4	1
5	1
6	3
Total	71

The average parity was 1.3. 38.6% of patients were primigravida and 4.3% of patients were gravida 5 and above.

MODE OF PRESENTATION

All cases were referred by Cardiac clinics and Maternal and Child Health Clinics, the patients being known cases of congenital heart disease.

Type of lesions: The distribution of lesions is shown in Table III.

TABLE III

VSD	25
ASD	20
PS	12
PDA	9
Fallots	3
Eisenmanger Complex	1
Dextrocardia	1
Total	71

VSD was the most common lesion followed by ASD. Together they accounted for 62.6% of cases in this series.

New York Functional grading: The effort tolerance was graded according to New York heart Association and this is shown in Table IV.

TABLE IV

Class	Number
I	58
II	8
III	2
IV	3
Total	71

92.9% of cases were in Class I and II.

MATERNAL COMPLICATIONS

One patient with Eisenmanger complex was admitted in Cardiac failure at 28 weeks gestation. She improved with medical treatment but discharged herself against medical advice at 34 weeks gestation. She was readmitted one week later in cardiac failure and died on the next day.

METHODS OF DELIVERY

Labour was induced in 9 occasion for various indications. The methods of delivery are shown in Table V.

The incidence of caesarean section was 2.9%. The indication was Cephalopelvic disproportion in one instance and fetal distress in the other. Instrumental deliveries were done in 27.1% of cases. In 3 cases, manual removal of placenta was

TABLE V

Lower Segment Caesarean Section	2
Forceps—low	10
Kjelland's	1
Vacuum extraction	8
Assisted breech delivery	2
Spontaneous delivery	47
Total	70

performed. The average blood loss was 140 ml. There were no cases of postpartum haemorrhage exceeding 450 ml.

FOETAL OUTCOME

70 living babies were produced in this series. There were 2 neonatal deaths, one from hyaline membrane disease, the other from bronchopneumonia. The foetal loss was 2.85%. The mean birthweight of the babies was 2901 gms. 6 babies (8.7%) weighed less than 2500 gms.

DISCUSSION

The incidence of congenital heart disease in pregnancy in Kandang Kerbau Hospital Singapore was 0.063 per cent. The incidence was somewhat lower than most reported series as it has been diluted by the large number of normal deliveries. Barnes (1970) reported an incidence of 0.12 per cent amongst 117,457 hospital deliveries and Mendelson (1960) found it to be present in 0.2 per cent of cases.

Ventricular septal defect and Atrial septal defect were the 2 common lesions, accounting for 62.6% of the cases. Majority of the patients in our series had good functional capacity. In fact, 92.9% of the patients had the effort tolerance of Class I-II according to New York Heart Association. However, it should be borne in mind that those patients with severe disabling malformation either die before reaching the child bearing age or are advised against marriage and pregnancy.

There was one maternal death in a patient with Eisenmanger complex, a mortality of 1.4%. Our experience with this syndrome is in line with most authors who reported a high maternal mortality rate exceeding 25 per cent (Jones and Howitt 1965; Neilson *et al.*, 1970). Pregnancy is thus strongly contraindicated in this condition.

In the remaining 70 cases, there was no serious maternal complication. It can be concluded that most women with congenital heart

disease, sufficiently mild to undertake pregnancy often tolerate repeated pregnancy without incidence.

Obstetric complications were not common. Labour was induced in 12.8% of cases and vaginal delivery was achieved in 97.1% of cases. The fetal loss was 2.85%, which was not unduly high compared with that of the general population. The mean birth weight of the babies was 2901 gms. and 8.7% weighed less than 2500 gms. There were too few cases of cyanotic heart disease to allow any deduction concerning fetal loss rate and birthweight. It is generally accepted that intrauterine death, premature delivery and small for date fetus are common complications in cyanotic patients. (Barnes 1970, Copeland *et al*, 1963).

REFERENCES

1. Barnes, C.G.: "Medical disorders in Obstetric Practice 3rd edition pg. 36." Blackwell Scientific Publication. Oxford and Edinburgh, 1970.
2. Copeland, W.E., Wooley, C.F., Ryan, J.M., Runco, V. and Levin, H.S.: "Pregnancy and congenital heart disease." American Journal of Obstetrics and Gynecology, 86, 107, 1963.
3. Jones, A.M. and Howitt G. "Eisenmanger's syndrome in pregnancy". British Med. Journal, 2, 1627, 1965.
4. Mendleson, C.L.: "Cardiac disease in pregnancy." F.A. Davis Company, Philadelphia, 1960.
5. Naeye, P.L., Hagstrom, J.W.C. and Palmage, B.A.: "Postpartum Death with Maternal Congenital Heart Disease". Circulation, 36, 304, 1967.
6. Neilson, G., Galea, E.G. and Blunt, A.: "Congenital Heart Disease and Pregnancy." Medical Journal Australia, 1, 1086, 1970.