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CHILD-BEARING IN THE TUBERCULOUS GRAVIDAE

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Introduction.

Many complex factors combine to render the investigation of the co-existing conditions of pregnancy and pulmonary tuberculosis a problem of considerable magnitude. Consequently, while its study to date has involved much labour and research, observations and conclusions are neither complete nor final.

So long as the basic principles of the entire cycle of pregnancy are imperfectly understood, and fundamental knowledge of the natural history of tuberculosis is lacking, finite assessment of this problem must be deferred.

The writers, in an attempt to clarify their own views on the correlation of child-bearing and pulmonary tuberculosis, carried out this present investigation, and the results of their personal observations on 150 consecutive tuberculous gravidae are recorded in this study.

Results of Investigation.

During the period, January 1947 to March 1948 inclusive, 150 pregnant, tuberculous patients were delivered in the maternity unit, Robroyston Hospital, Glasgow.

No selection was made in the patients admitted: all were recommended for admission from tuberculosis dispensaries and antenatal clinics, and accordingly results obtained may be regarded as applying to all types of tuberculous lung lesions associated with pregnancy.

Deterioration observed, clinically and radiologically during pregnancy, labour, and for approximately 2 to 3 months following delivery, was attributed to the effects of childbearing on the lung condition. Classification of tuberculous lung lesions being variable, it was decided for practicable purposes, to group patients on admission according to the following scale of assessments:

(1) "Quiescent" cases, in which the general condition of the patient was good; toxaemia was absent; tubercle bacilli were not present in the sputum, and serial skiagrams showed no sign of pulmonary progression.

(2) "Arrested" cases, in which the disease had been quiescent over a continuous period of 2 years.

(3) "Recovered" cases, in which the state of quiescence continued uninterruptedly for 5 years.

(4) "Active" cases, discharging tubercle bacilli in the sputum during the preceding 3 months.

Reference to Table I illustrates this grouping.

Of the total of 150 patients under review, 79 were primiparae, 71 multiparae, and

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their ages varied from 19 to 38 years, with the exception of 2 who were over the age of 40.

TABLE I.

Type of disease	Number of cases
Quiescent	73
Arrested	13
Recovered	6
Active	58
Total	150

Table II is an attempt to correlate age and parity distribution with the clinical status of the patient at the end of the period of observation.

artificial pneumothorax induced, with section of adhesions in 7; one patient, 3½ months pregnant on admission, was the subject of a two-stage thoracoplasty operation.

One other patient was admitted with massive left-sided pleural effusion, for which paracentesis was necessary.

Tuberculosis ante-dated the pregnancy in 108 patients, in 11 of whom the operation of thoracoplasty had been carried out prior to admission, while in 10 others, artificial pneumothorax was maintained concurrently with the pregnancy. The remaining 87 patients gave a history of routine sanatorium treatment, with artificial pneumo-

TABLE II.

Age group (years)	Primiparae				Multiparae				Total
	Imp.	ISQ	Worse	Dead	Imp.	ISQ.	Worse	Dead	
19–23	6	16	1	2	2	5	3	0	35
24–28	5	25	4	3	4	17	4	3	65
29–33	2	8	0	2	5	11	2	4	34
34–38	0	4	0	1	1	7	0	1	14
Over 39	0	0	0	0	1	1	0	0	2
								Total	150

The following facts are elicited from the above Table: 30, or approximately 20 per cent of the total retrogressed, 13 or 43 per cent being primiparae, 17 or 50 per cent multiparae.

Scrutiny of case records showed that in 42 instances, or 28 per cent of the total, the pulmonary condition was discovered for the first time during pregnancy, and of this group, 4 cases were quiescent, 38 were active. Of the latter, 17 with advanced chest conditions retrogressed. Two of these were diagnosed early in pregnancy, 12 late; in the remaining 3 patients, all of whom died, diagnosis was made for the first time in the puerperium.

Collapso-therapeutic measures in their many forms were applied with success to 20 other patients during gestation: 12 had thorax in 53, and phrenic nerve interruption in 10. Four deaths were recorded in this group of patients.

With regard to the influence of the tuberculous lesion on the pregnancy, it was found that toxaemias were uncommon. High blood-pressure occurred in 3 cases, eclampsia in 1, and antepartum haemorrhage in 1.

Labours were little affected; their duration varied from 1 hour to 24 hours 15 minutes, with an average of 14 hours for the primiparae, and from one hour 20 minutes, to 26 hours 35 minutes, with an average of 9 hours for multiparae.

Dyspnoea of moderate degree was noticed in 18 patients during the height of the second stage of labour, and of these 2 had received thoracoplasty operations and

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8 artificial pneumothorax treatment, while the remaining 8 patients suffered from advanced pulmonary tuberculosis. With the exception of 2 instances in which the afterbirth was manually removed, the placenta was expelled complete and spontaneous within 15 to 30 minutes. No spontaneous abortions occurred in the patients under discussion.

Portpartum haemorrhage occurred in 3 patients, puerperal sepsis in 1.

Reference to Table III illustrates the type of delivery and number of patients who went to term.

TABLE III.

Delivery	Primiparae	Multiparae	Total
Spontaneous ...	44	58	102
Spontaneous and episiotomy ...	8	2	10
Forceps	4	2	6
Forceps and episiotomy ...	14	2	16
		Total	134

Two multiparae, seen for the first time at the 6th month approximately, died undelivered; in both the lung lesion was advanced and bilateral, and in 1, tuberculous meningitis complicated the condition.

No deaths occurred during labour.

Table IV shows the number of patients on whom therapeutic interruption of the pregnancy was performed; clinical status at the end of the observation period is noted.

One hundred and thirty-seven infants were born to 132 patients, 119 or 86.5 per cent being normal, full-term, with death occurring in 3 cases. In addition, 1 infant, also delivered at term but with multiple congenital deformities, died soon after birth. Fourteen deaths occurred in 17 premature infants born.

Included in the group of premature deliveries were 5 sets of twins.

DISCUSSION.

Although some success has been met with, attempts made to solve the recurring problem of the tuberculous gravidae have been retarded by many adverse factors, not the least of which is the present-day regrettable ignorance of the basic pattern of the combined conditions. Recently, however, numerous careful and painstaking contributions have appeared, resulting in the revision of opinion on their reciprocal relationships.

Accordingly, in the management of the pregnant tuberculous patient, a principle of conservatism is now advocated, and this precept has been put into practice in the patients under review. Furthermore, in an endeavour by the local authorities, City of Glasgow, to bring the management of these patients under unified control, the effects of a conservative and unitarian approach to the problem have been observed. At this juncture, before undertaking discussion of

TABLE IV.

Method of termination	Primiparae					Multiparae				
	Imp.	ISQ.	Worse	Dead	Total	Imp.	ISQ.	Worse	Dead	Total
Surgical induction	0	0	0	0	0	0	0	0	1	1
D. & C.	0	0	0	0	0	0	0	0	1	1
Hysterotomy and sterilization ...	1	0	3	2	6	1	0	1	0	2
Hysterotomy without sterilization	1	1	1	0	3	0	0	0	0	0
Caesarean section	0	0	0	0	0	0	1	0	0	1
Total ...	2	1	4	2	9	1	1	1	2	5

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the results, mention of their management must be made.

In February 1947 special provision was made in the maternity unit and associated antenatal and postnatal clinics, Robroyston Hospital, Glasgow, for the observation and treatment of expectant and nursing tuberculous mothers, all of whom, resident within the city, were eligible for admission. In order that contingencies of an obstetrical and medical nature might be investigated and treated simultaneously, the staff included a consultant obstetrician and a chest physician, while the responsibility for the infant after delivery and during the neonatal period devolved upon the paediatrician to the hospital. Breast feeding, except in certain selected cases, was forbidden.

In the patients under review prior consideration was given to the lung lesion, the pregnancy being regarded as secondary in significance. Where indicated, surgical procedures designed to secure partial and complete immobilization of the diseased lung were applied, not only during pregnancy however long its duration, but throughout the puerperium.

Decision to apply such measures was influenced by many factors, of which the following are noteworthy:

(1) Family history, (2) Previous sanatorium treatment, (3) Character and extent of the lung lesion, (4) Obstetrical history, past and present, with special reference to the reaction of the patient to her pregnancies.

Finally, consideration was given to factors common to both conditions, such as the age of the patient, socio-economic circumstances, and individual nutritional states.

Since surgical measures do not negative the need for rest, emphasis was laid on this important principle of tuberculosis therapeutics. Diet was supplemented by adequate amounts of calcium, iron and vitamins, in an attempt to bring about an optimum nutritional state, with its resulting high level of resistance.

When obstetrical problems were encountered they were dealt with in an orthodox manner. Where pregnancy was advanced less than 5 months, therapeutic interruption was performed if the case was one of advanced pulmonary tuberculosis in which collapse therapy was contra-indicated. Later than this period pregnancy was allowed to proceed to term and, where possible, labour was shortened and dystocia avoided. Spinal anaesthesia was preferred to inhalent drugs. On discharge from hospital advice was given the mother regarding contraception, and she was advised to report, with her child, to the postnatal clinic in 3 months' time for further assessment.

Conditions such as pregnancy and pulmonary tuberculosis with their diverse symptomatology and course, singly and collectively, make difficult the compilation of statistics of results, and the fallacy of formulating definite opinions on evidence presented in this study is obvious.

Table I shows that 50 per cent and 30 per cent of the total number of patients were quiescent and active respectively; the remainder were arrested and recovered cases.

Morbidity and mortality rates reached their peak in the present series (Table II) in age groups 24 to 28 years, affecting 37 primiparae and 28 multiparae, 14 or 21 per cent of which group of 65 patients deteriorated. In this group, pulmonary progression was the same for both primiparous and multiparous patients.

By comparison the incidence in age group 20 to 33 years, was 12 for the primiparae as against 22 for the multiparae; 2 or 16 per cent of the former, 6 or 27 per cent of the latter, deteriorated.

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It is noteworthy that out of a total of 30 patients who showed evidence of progression of disease, 13 or 43 per cent were primiparae, 17 or 50 per cent multiparae. The numbers who showed improvement were approximately the same, 13 or 16 per cent for primiparae, and 13 or 18 per cent for multiparous patients.

While these figures are statistically insignificant to justify final pronouncements on the precise influence of age and parity on the evolution of pulmonary tuberculosis, the impression was formed that, generally, primiparae fared better than multiparae, presumably because the health of the latter had become impaired by repeated pregnancies and domestic responsibilities, resulting in lowering of the powers of resistance to a dangerous level. It is interesting to note that while Jameson (1935) supports this view, Cohen (1946) disagrees.

Of 42 patients in whom demonstrable lung lesions were discovered for the first time during pregnancy, 12 were diagnosed late in its course, death occurring in 7 cases, while 3 patients diagnosed tuberculous in the puerperium all died. In these 10 patients collapse therapy was contra-indicated on account of the nature and extent of the associated lung lesion. By contrast, 20 patients whose lesions were diagnosed early in pregnancy received this treatment, and it is significant that none revealed deterioration in the period under observation. The obvious conclusion, therefore, is that the later in pregnancy the diagnosis of tuberculosis is delayed the worse the prognosis.

Pregnant patients tolerate collapse therapy well, even thoracoplasty in certain selected cases (McIntyre, 1948), and pregnancy should not be regarded as a contra-indication to active forms of treatment.

Of 108 patients, the pulmonary lesion ante-dated pregnancy and, in the majority of cases, routine sanatorium treatment had been received: of this number only 4 patients died during the period of observation. This low mortality rate must be attributed to the fact that patients with known tuberculosis who become pregnant, and, at an early stage are brought under the surveillance of chest physicians, receive prompt and appropriate medical treatment. Experience teaches such patients not only the personal dangers of the disease, but also the hazards of contact infection, and concern for their child's welfare, no less than their own, leads them to seek advice early in pregnancy.

Of 134 patients who went to term, 70 were primiparae, 64 multiparae. Spontaneous delivery occurred in 122 patients, with episiotomy in 10, of whom 8 were primiparae.

Forceps were applied in 22 patients, with episiotomy in 16, 14 of the latter group being primiparae.

Postpartum haemorrhage was recorded in 3 instances, which is a small proportion of the total, and more favourable than the figure of 13 per cent given by Matthews and Bryant (1930) as the average incidence among parturient tuberculous patients.

Puerperal sepsis occurred in only 1 case, the condition being complicated by phlegmasia alba dolens.

The effect of the pulmonary lesion on the infants was almost negligible, 86.5 per cent being normal at birth, and in good general condition at the time of discharge from hospital; this figure corresponds very closely with that given by Barnes and Barnes (1930).

Five sets of twins were delivered.

Premature labours occurred in 17 patients, or 12.4 per cent of the total, in contrast to 8 per cent, which is the figure given as an average for the hospital generally. Since 14 of these patients suffered from advanced disease, the inference was that premature labour bore

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a direct relationship to the lung lesion. The remaining 3 patients were delivered of twins. It is possible that in this latter instance plural pregnancy was the contributing factor.

As one would expect, the mortality rate was high among the premature infants. Autopsies failed to reveal evidence of existing congenital tuberculosis.

Premature evacuation of the uterus was carried out in 14 patients, 9 of whom showed subsequent deterioration, 6 of these being primiparae, 3 multiparae. While ceding the point that pregnancy may have an adverse effect on tuberculous lung lesions, results obtained in this investigation tend to show that therapeutic interruption does not necessarily bring about an improvement in the phthisical condition.

In conclusion the writers are of the opinion that collapse therapy is the sheet anchor for gravidae with active tuberculosis.

To be efficacious this treatment must be instituted early, and routine radiological investigations for all pregnant women should be carried out as a prophylactic measure.

So long as the obstetrician remains unskilled in the technique of collapse therapy, and the physician unfamiliar with modern obstetrical practice, the writers would advocate unified control as outlined in this study.

REFERENCES.

Barnes, H. L., and Barnes, L. R. P. (1930): *Amer. J. Obstet. Gynec.*, **19**, 490.

Cohen, R. C. (1946): *Brit. J. Tuberc.*, **40**, 10.

Jameson, E. M. (1935): *Gynecological and Obstetrical Tuberculosis*, Philadelphia, Lea and Febiger.

McIntyre, J. P. (1948): *Brit. J. of Tuberc.* (In the press.)

Matthews, H. B., and Bryant, L. S. (1930): *J. Amer. med. Ass.*, **95**, 1707.

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