

### PART III. ABNORMALITIES OF THE BREAST

In lactating women psychological disorders and pathological conditions, particularly those associated with marked pyrexia (König, 1939; Herlitz, 1946; Ström, 1947) are liable to limit success in breast feeding. Ill health, however, plays only a minor part in this respect in comparison with abnormalities of the breast, and in the light of our present knowledge it appears that acquired abnormalities of the mammary gland and nipples are more often associated with impaired lactation than those of congenital origin (Spence, 1938; Engel, 1947; Robinson, 1942).

#### Review of the Literature

The recorded incidence of fissured nipples in women delivered in hospital during the first two weeks of lactation varies between 6 and 50% (Robinson, 1942; Gunther, 1945), and it has been stated that women so affected are more prone to have difficulty in breast feeding their infants than are those with normal nipples (De Lee and Greenhill, 1947; Robinson, 1942). These authors, however, do not give the details on which their statements are based nor do they assess the frequency of premature weaning among women with fissured nipples.

Both Norval (1947) and Waller (1938, 1943) have studied the effect of breast engorgement upon lactation and have stated that women with all grades of this condition may fail to breast feed their infants successfully, but that those with severe breast engorgement frequently wean their infants earlier than do those with milder degrees of engorgement. Norval (1947) showed that only women with the severest degree of engorgement, that characterized by enlargement and excessive hardness of the breast lasting for more than four days (2.4% of his series), found more difficulty in breast feeding than other women, while Waller (1938) gave the impression that all grades of engorgement were responsible for women weaning their infants prematurely. Some women, however, experience no engorgement of the breast and in some the breast enlargement is delayed, absent or hardly detectable. Such women may also have difficulty in breast feeding their infants. In Norval's (1947) series of 462 women 13.8% fell into this category, and of these half had inadequate lactation. According to Waller (1938) this type of woman usually experiences no difficulty in breast feeding. There is, therefore, lack of agreement upon the

relationship between breast engorgement and breast feeding.

In the past mastitis has accounted for a high proportion of cases of premature weaning. The infants were weaned within a few days of the onset of the disease because it was considered best for both the mother, who was able to rest the affected breast, and the infant, who was protected from the risk of gastro-enteritis due to taking the infected milk (Moon and Gilbert, 1935). The same authors noted that in 33% of cases the mother had no option but to wean her infant because she developed bilateral mastitis. Moreover, breast feeding was not very practical in those women who required operation (24 to 75%). König (1939), who studied 102 women with mastitis, found that only 34% of them were able to breast feed their infants entirely on the tenth day of lactation as compared with 66% of a control series of women. Robinson (1942) confirmed König's conclusion but did not give details of her investigation. About 9% of all lactating women have acute mastitis and approximately 10% of these women develop the disease in the first two weeks of lactation (Fulton, 1945). There is no doubt that lactation is markedly affected by mastitis, but whether it is so frequently terminated because of the disease now that antibiotic therapy has been introduced, is a matter for consideration.

#### Method

Separate investigations were made into the relationship of each of the abnormalities, fissured nipples, breast engorgement and mastitis, to (a) adequacy of lactation in the second week of the puerperium and (b) duration of lactation beyond the second week of the puerperium. The same methods of investigation were used throughout. Adequacy of lactation was assessed by first studying the incidence of breast feeding, partial breast feeding and artificial feeding on the fourteenth day of the puerperium or earlier if the woman was discharged from hospital before that time. The duration of lactation beyond the second week of the puerperium amongst women who were completely breast feeding or partially breast feeding their infants in the second week was determined by noting the number of such women who breast fed for one, two, three, four, five and six months. In each investigation the results were compared with those for a control series of women who had none

of the abnormalities under discussion. Women with premature infants were not included in any of the investigations or control series.

#### Fissured Nipples

Two hundred and eighty-eight women who developed fissured nipples while in hospital were investigated. In each case a record was made of the day of the puerperium on which the fissured nipples were first detected. The results were divided into two groups, one for women who developed fissured nipples before the sixth day of the puerperium and another for those who first had fissured nipples either on or after the sixth day of the puerperium. Each of these groups was subdivided to show those mothers who were entirely breast feeding, partially breast feeding or artificially feeding their infants at the end of the second week of the puerperium; the number in each subgroup is noted in Table 1. A control series of 3,454 women who were free from any abnormality of the nipple during the first two weeks of the puerperium was investigated and subdivided in the same way. The results are also recorded in Table 1. A comparison of the two sets of results shows that the number of women with fissured nipples who were

breast feeding completely was lower than that for the control group of women. This difference in incidence (31%) was statistically significant. It was also apparent that this difference was greater when women who developed fissured nipples on or after the sixth day of the puerperium were compared with the control series (41%) than when women with fissured nipples before the sixth day of the puerperium were compared with the control series (22%).

Women who had fissured nipples during the first two weeks of lactation were followed up to decide whether they breast fed their infants for as long as a control series. Of the 185 women with fissured nipples investigated, 124 were entirely breast feeding and 61 were partially breast feeding in the second week of their puerperium. The duration of lactation in each case was determined. The results were subdivided to show the duration of lactation among women in whom fissured nipples were noted before the sixth day of the puerperium and among those in whom fissured nipples were first noted on or after the sixth day of the puerperium. Similar observations were made on a control series of 388 women who had not suffered from fissured nipples; of these 280 were initially entirely breast feeding and 108 were initially partially breast feeding on the day of discharge from hospital. The results of the follow-up of both these series are recorded in Table 2. They show that the control series of women tended to breast feed for longer than the series of women with fissured nipples. A statistical analysis was made of the differences between the results of the control series and of mothers with fissured nipples before the sixth day of the puerperium, and between the control series and mothers with fissured nipples on or after the sixth day. Only the difference between the control series and that of women with fissured nipples on or after the sixth day who were entirely breast feeding in the second week of lactation was statistically significant.

TABLE 1

INCIDENCE OF DIFFERENT TYPES OF INFANT FEEDING IN WOMEN (A) WITH FISSURED NIPPLES ON OR BEFORE THE FIFTH DAY OF THE PUERPERIUM, (B) WITH FISSURED NIPPLES AFTER THE FIFTH DAY, (C) WITH NORMAL NIPPLES

Group	No.	Percentage		
		Completely Breast Feeding	Partially Breast Feeding	Artificially Feeding
A	144	60	31	9
B	144	41	41	18
C	3,454	82	8	10

TABLE 2

DURATION OF LACTATION IN WOMEN (A) WITH FISSURED NIPPLES ON OR BEFORE THE FIFTH DAY OF PUERPERIUM, (B) WITH FISSURED NIPPLES AFTER THE FIFTH DAY, (C) WITH APPARENTLY NORMAL NIPPLES

Group	No.	Initial Lactation	Percentage Lactating Each Month						
			$\frac{1}{2}$	1	2	3	4	5	6
A	58	Adequate	100	74	60	55	46	46	45
B	66	Adequate	100	67	39	32	27	24	21
C	280	Adequate	100	90	74	64	59	53	51
A	20	Inadequate	100	30	20	15	10	10	10
B	41	Inadequate	100	49	19	15	15	15	12
C	108	Inadequate	100	41	24	19	13	12	9

It would appear that women with fissured nipples were less successful in establishing and maintaining lactation than those without such an abnormality, the degree of impairment being statistically significant in women whose nipples became fissured after the fifth day of lactation and not in those who developed fissures before that stage. The cause of this difference is obscure. It is possible that the aetiology of the fissures in the first group differs from that of the second. For instance, the disorder occurring in the first few days after parturition may be predominantly due either to faulty management of the initial stage of breast feeding or to the infant failing to fix properly on the breast, while that occurring after the first week may be predominantly due to a failure to establish an adequate milk flow.

### Breast Engorgement

The incidence of breast feeding in a group of 147 women with severely engorged breasts was compared with that in a control group of 3,595 women. The diagnosis of severe engorgement depended on either the presence of undue firmness of the mammary gland or of oedema of the breast associated with much local tenderness and pain and possibly a subnormal flow of milk. In all cases treatment was considered necessary and consisted of either emptying the breast or leaving the milk in the breast. In a few cases the breast was bathed with hot or cold water. Stilboestrol therapy was not used. The number of women in each group who were entirely breast feeding, partially breast feeding or artificially feeding their infants in the second week of lactation, was determined and the results are noted in Table 3. These show that

TABLE 3

INCIDENCE OF DIFFERENT TYPES OF INFANT FEEDING IN WOMEN (A) WITH AND (B) WITHOUT EXCESSIVE BREAST ENGORGEMENT

Group	No.	Percentage		
		Completely Breast Feeding	Partially Breast Feeding	Artificially Feeding
A	147	60	31	9
B	3,595	80	10	10

the incidence of breast feeding in the group of women with engorged breasts was less than in the control group. This difference (20%) is statistically significant.

The duration of breast feeding in mothers with

severe engorgement of the breast was also investigated and the results compared with those for a control group of women who had not suffered from severe engorgement. For this investigation 78 women who had had engorged breasts during the puerperium were followed up for six months. Of these, 48 were entirely breast feeding and 30 were giving their infants complementary feeds when they left hospital. Of the control group of 471 women, 296 were entirely breast feeding and 175 were partially breast feeding their infants in the second week of the puerperium. The results of both the series under investigation and of the control series are given in Fig. 1. They show that

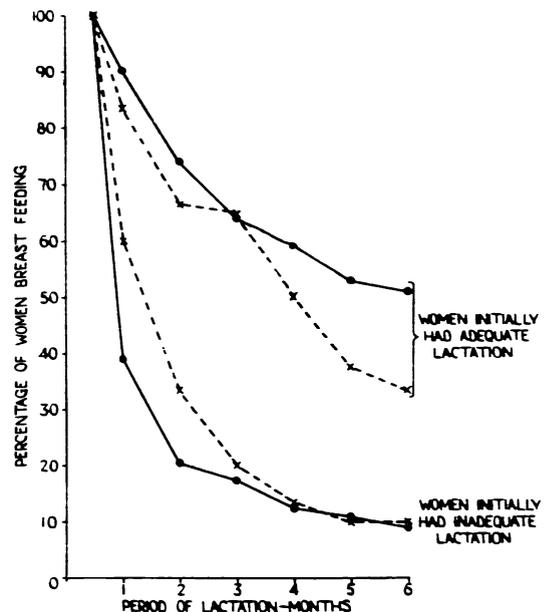


FIG. 1.—Duration of lactation in women with breast engorgement (○) compared with that of women without breast engorgement (●).

33% of women who had engorged breasts and were initially breast feeding continued to breast feed their infants for six months, while 51% of the comparable control group breast fed for the same period of time. This difference between the two groups (18%) is statistically significant. A similar comparison between the same groups of women who were initially partially breast feeding showed that the duration of lactation in the two groups did not differ appreciably.

The results of this investigation into breast engorgement showed that neither the incidence nor duration of breast feeding in women with severe engorgement of the breast was as satisfactory as

in other women delivered in hospital. However, compared with the number of women in hospital, the number treated for engorgement of the breast was small and did not exceed 5%. Thus, the percentage of all cases of inadequate lactation resulting from engorged breasts is only a fraction of 5%.

### Mastitis

The incidence and duration of lactation in women who developed mastitis have been investigated. The incidence of complete breast feeding, partial breast feeding and artificial feeding in the second week of the puerperium was determined in a series of 92 women who had developed mastitis and in a control series of 2,919 women who had no mammary infection. The results are recorded in Table 4. They show that 80% of mothers in

TABLE 4  
INCIDENCE OF DIFFERENT TYPES OF INFANT FEEDING IN WOMEN (A) WITH AND (B) WITHOUT MASTITIS

Group	No.	Percentage		
		Completely Breast Feeding	Partially Breast Feeding	Artificially Feeding
A	92	61	21	18
B	2,919	80	10	10

the control series and 61% in the series with mastitis entirely breast fed their infants in the second week of the puerperium. This difference (19%) is statistically significant.

The duration of lactation beyond the second week of the puerperium in 42 women who developed mastitis during the lying-in period was investigated, and at the same time similar observations were made on a series of 495 women who had not suffered from mastitis. Of the women with mastitis 32 were entirely breast feeding and 10 were partially breast feeding in the second week of the puerperium, but of the control series 300 were entirely breast feeding and 195 partially breast feeding in the second week of the puerperium. The results of the investigation are given in Fig. 2. The comparison between the two groups shows that slightly more women in the mastitis group and initially entirely breast feeding were successful in breast feeding for six months than in the comparable control group, but this difference (4%) is not statistically significant. A similar comparison between the two groups of women who were initially partially breast feeding was made; 20% of those who had mastitis and 9.2% of those

belonging to the control group breast fed their infants for six months. No conclusion, however, could be drawn from the results of such a small series of observations.

This investigation has shown that mastitis lowers the incidence of breast feeding in the second

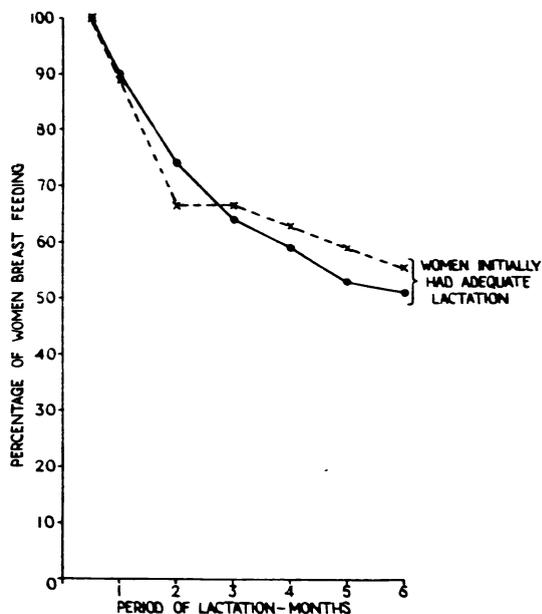


FIG. 2.—Duration of lactation in women with mastitis (x) compared with that of women without mastitis (o).

week of the puerperium. Thereafter, the course of lactation in women who were breast feeding during the second week did not differ apparently from that of other women. The hospital statistics showed that approximately 1% of all lying-in women developed mastitis in the first two weeks of the puerperium. It is apparent, therefore, that mastitis accounts for an extremely small proportion of women having inadequate lactation. It appears from a comparison of these observations with those made by both Moon and Gilbert (1935) and König (1939) that mastitis did not impair the course of lactation in the present series as markedly as it has done in past series. This is probably due to the relatively recent introduction of antibiotic therapy and a reduction in the surgical treatment of mastitis.

### Summary

The influence of fissured nipples, excessive breast engorgement and mastitis upon the course of lactation in women who had their confinements in

hospital has been investigated. The incidence of breast feeding, partial breast feeding and artificial feeding in the second week of the puerperium and the duration of lactation was determined. The results of these observations showed that women with fissured nipples were less successful in establishing lactation than other women. The women who developed fissured nipples after the fifth day of lactation more frequently had difficulty in breast feeding than those who had fissured nipples before that time. After leaving hospital the course of lactation in women who developed fissured nipples after the fifth day of the puerperium was less satisfactory than that of normal women or even of women who developed fissured nipples in the earliest days of lactation.

Women with excessive breast engorgement had greater difficulty in establishing and maintaining lactation than a control group of women.

Mastitis reduced a woman's chances of entirely breast feeding her infant in the second week of her puerperium. The course of lactation after that period was as satisfactory as that in women who had no history of mastitis. The greater success in breast feeding amongst the present series of women with mastitis compared with that for older

series was attributed to the introduction of antibiotics in treatment of the disease.

Fissured nipples, breast engorgement or mastitis accounted for a very small proportion of women failing to breast feed their infants satisfactorily.

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