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AN ALPHABET OF BREAST-FEEDING

BY

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In this third year of war the saving of food is an urgent duty, and the waste of food is strongly and rightly denounced. It is timely, therefore, to draw attention to the serious waste of breast milk caused by the prevalent neglect or mismanagement of breast-feeding. Breast milk is the ideal and complete food of the infant for the first six months of life and can continue to be its principal article of diet for the remainder of the first year. The gross quantity of breast milk consumed by a baby in six months is about 210 pints (on the basis of $\frac{3}{4}$ pint daily for the first month and $1\frac{1}{4}$ pints daily for the next five months). Deducting the 41,459 infant deaths in Great Britain during 1941, there were 635,062 survivors, and their requirements in breast milk for the first six months were $16\frac{1}{2}$ million gallons. It is a reasonable estimate, and probably an under-estimate, that one-third of this quantity, $5\frac{1}{2}$ million gallons, of essential ideal infant food was lost through unnecessary weaning of babies.

Of babies weaned early the great majority are weaned in the first month of life. In my ward at the Edinburgh Children's Hospital 62% of a consecutive series of 100 babies had been weaned by the end of the first month, and by the end of the second month the figure was 80%. It will be agreed that this early weaning of babies is due to the failure of mothers, nurses, and doctors to overcome the numerous difficulties in breast-feeding that occur in the first weeks of lactation. For a generation the pre-eminent value of breast milk has been taught and accepted; but this has had little effect in practice, because, on the occurrence of difficulties, weaning is advised for reasons that are far too often trivial and unnecessary. The results are not only a colossal waste of the best infant food available but also a waste of money, time, and trouble, and a loss of thousands of lives. This is bad enough in times of peace; it is worse in time of war, when the substitute, cows' milk, is scarce and urgently needed for older children, and when the conservation of infant life and health is a paramount duty.

The following simple account of breast-feeding, its normal processes, and difficulties is offered to nurses and doctors in order to assist them in their duty of securing and maintaining breast-feeding in every possible case. It might be called the A B C of the subject—an alphabet of breast-feeding.

The Normal Processes of Breast-feeding

Breast-feeding is not so simple as it looks, and its inauguration is beset with many difficulties. But these difficulties can be understood and overcome only if the underlying facts of normal structure and function are known.

(a) *Breast-feeding*.—This is not a single process but a triple one, consisting of lactation, suckling, and digestion. For each there are anatomical and physiological data. In each the normal process may be at fault; so that difficulties may arise in lactation, suckling, and digestion.

(b) *Lactation*.—This consists in the production of milk in the mammary glands and its temporary storage in the dilated great ducts behind the nipple. Efficient lactation depends, among other things, on the regular emptying of these ducts by suckling.

(c) *Breast Milk*.—For the first two or three days breast milk consists of scanty thick colostrum. About the third day there is a free flow of thin breast milk, accompanied by engorgement of the breast. At the end of the first week the daily output of milk, when mother and baby are healthy, is about 15 oz.; at one month, 20 oz.; at three months, 25 oz.; and at six months, 30 oz. These daily quantities can be easily checked by test-feeding.

(d) *Suckling*.—This is a co-operative act of mother and baby. Its success depends upon many things: upon the practical skill of mother and baby, both of whom may require training by the nurse in the first week; upon the healthy condition and shape of the nipple; upon the complete emptying of the milk ducts at each suckling; upon the complete eructation of swallowed air, a process which again requires deliberate patient training in the first days.

(e) *Digestion*.—Daily inspection of the tongue is important. The chemical processes of early digestion are less important than the mechanical. Early vomiting is often due to mal-adjustment of the pyloric sphincter with the contraction of the body of the stomach, or to retained air, and is rarely due to organic pyloric obstruction. The early peristaltic action of the intestines is vigorous and produces three to four stools a day. The colour of the stools changes from dark green to bright yellow about the fourth day, but a light green stool at this stage may be physiological or the result of milk excess.

Difficulties of Breast-feeding

The complete list of difficulties is a long one. They may arise from disturbance or fault in lactation, suckling, or digestion; from general illness in mother or baby; from psychological faults in mother and baby. Some of these difficulties are irremediable and call for weaning; but most can be overcome easily, or by patience and perseverance. In the list that follows the unmanageable difficulties are marked —; the manageable are marked +; and those that are doubtful —+. The great majority of all these difficulties occur or become obvious towards the end of the first week. In this list there is a broad grouping into maternal and baby difficulties; nearly all the unmanageable difficulties (and they are few) occur in the maternal group. A group with an asterisk (*) indicates that unnecessary weaning is common in this group.

Maternal Difficulties

General

(f) *Psychological* (+).—Maternal unwillingness, fear, anxiety, and ignorance form a group in which the difficulty is in an attitude of mind. At the present time it is a large

group, and is responsible for many cases of early and unnecessary weaning. It is kept large by the connivance and consent of nurses and doctors; and it could be greatly reduced at once by our own assurance and by reassurance and persuasion of the mother.

(g) *General Physical Illness* (-+).—This is a miscellaneous group that includes the serious complications of labour, chronic heart disease, pyelitis, anaemia, malnutrition, and acute illness. The deciding factor is the condition of the mother and the effect of lactation on her general health. In many cases weaning is called for; in many, lactation can proceed without injury to the mother and with advantage to the baby. In only one case is the bar to nursing absolute; and that is maternal tuberculosis, in which lactation and suckling are dangerous to mother and baby alike.

Lactation

(h) *Excessive Engorgement of the Breasts* (+).—This is a common event in the middle of the first week, and may cause great local discomfort and some general upset; but it is transient and is easily reduced by gentle manual expression of milk, compresses, and an aperient. It is often a herald of abundant lactation. True mastitis with abscess formation generally occurs later, and calls for suspension of suckling from the affected breast for two or three weeks. When healing is complete, lactation can be re-established.

(i) *Nipple Conditions*.—(1) *Fissure of the Nipple* (+) is caused by lack of ante-natal care, by excessive suckling in the early days of lactation, by breast engorgement, etc. It is treated by withdrawal of suckling for from four to seven days, by manual expression of milk, and by frequent careful dressing of the lesion with soothing and/or astringent lotions. (2) *Retraction of the Nipples* (-+) is a more stubborn difficulty, and is treated by softening, mobilizing, and pulling out of the nipples, while lactation is maintained by manual expression. Treatment may fail.

*(j) *Scanty or Diminishing Lactation* (-+).—This can be guessed if the baby is hungry, is angry after suckling, and has small infrequent stools; it can be easily verified by test-feeding (a daily output of 10 oz. or less at the end of the first week means inadequate lactation). It is treated by suckling of both breasts for shorter periods and at shorter intervals, by manual expression of milk after suckling, by stimulation and mobilization of the breasts, by improving maternal digestion and nutrition, and by giving the baby *small* supplementary feeds which prevent loss of weight but maintain a state of slight hunger and active suckling. These measures should be continued for two weeks, and should be controlled by occasional test-feeding. They are generally successful in the early cases; but less often if the decline shows itself in later lactation.

(k) *Excessive Lactation* (+).—This is common and often enough produces digestive disturbance—gastric flatulence and vomiting, and large frequent stools. It is easily put right by reducing the number of feeds and the period of suckling.

Suckling

(l) *Mismanagement of Suckling* (+).—This is another important group. The inexperience and ignorance of the mother may result in clumsy handling of the newborn during suckling, allowing the baby to fall asleep at the breast, too prolonged suckling, and neglect of the important technique of breaking wind. All these faults can be easily removed by the patient expert instruction of the midwife.

Baby Difficulties

Suckling

(m) *Mismanagement by the Baby* (+).—The baby, like the mother, may be unwilling to play his part, or may be ignorant and inapt. And so we have the not uncommon early refusal to take the nipple; however stubborn the battle between nurse and baby, this refusal is always overcome by withholding food (not fluid). Also, the baby who falls asleep at the breast must be kept awake and goaded into action.

Digestion

(n) *The Mouth*.—Observation of the mouth ought to be part of the daily routine of the nurse. Thrush and other forms of stomatitis interfere with breast-feeding, and their early

detection allows rapidly effective treatment. Deformities of the mouth may or may not impede suckling.

*(o) *Vomiting from Gastric Catarrh* (+).—This is due to infection of the stomach by the swallowing of infected material from the vagina, causing vomiting in the first two or three days after birth. It is treated by giving water only for 12 hours, with a little sodium bicarbonate or magnesia; and, if necessary, by washing out the stomach.

*(p) *Vomiting from Gastric Spasm and Flatulence* (+).—The two conditions need not be combined, but often are so. The vomiting is usually quiet, frequent, and small, but may be forcible. The baby is of the restless type, impatient in suckling and wriggling about afterwards. Treatment is entirely a nursing procedure. Suckling should be interrupted several times "to break wind"; on its completion a further patient effort should be made to produce eructation, and the baby soothed to sleep in the upright position before being laid down in his cot. In this type of disturbance the feeding interval should not exceed three hours, and with advantage may be less. These measures must be patient and thorough. Weaning in these cases is a bad blunder, and is often followed by persistent frequent vomiting for months.

*(q) *Vomiting from Excess of Milk* (+).—This may produce little disturbance beyond the spilling up of milk after suckling and the passage of frequent large stools; or it may give a similar clinical picture to that of section p. A few test feeds will disclose the condition. The remedy is simple and effective—to reduce the number of feeds and cut down the period of suckling to 15 or 10 minutes.

*(r) *Vomiting from Pyloric Obstruction* (+).—This is rare until the end of the second week. The clinical features of pyloric stenosis need not be described, nor its specific treatment. But *breast-feeding must be maintained*: its continuation will greatly favour the success of any treatment, medical or surgical. Weaning in cases of pyloric stenosis is still far too common, and the mistake is costly in lives. Indeed, the rule is *absolute for this and every other type of vomiting—never to wean on account of the baby*. The only exception is the excessively rare condition of anaphylactic vomiting; and its rarity serves only to prove and uphold the validity of the rule.

(s) *Intestinal Flatulence* (+).—If this causes colic it is easily recognized. But there is a silent type in which there is no colic; and the baby, fat and flourishing, is happy throughout the day but cries through wakeful hours at night and disturbs the peace of the household. Such babies put on weight rapidly and take large feeds quickly, which carry through a little swallowed air into the intestine. The condition may seem too trivial to require treatment, but in the long run nervous injury is done through loss of sleep. *Treatment*: Reduce intake by cutting down the period of suckling; slow down the rate of feeding; take special care in "breaking wind."

(t) *Frequent Large Greenish Stools* (+).—These are due to excess feeding, and the remedy is to reduce the number of feeds and the period of suckling. Small doses of paraffin emulsion will control any accompanying catarrh.

(u) *Constipation* (+).—One type of constipation fairly common in breast-fed babies in the early months is of special character and seldom described in books. There is no bowel movement for two or three days, and then the passage of a large soft healthy motion. General health and digestion are excellent. The cause is anal spasm (not fissure); and the remedy is to pass the little finger covered with vaseline into the anal canal and keep the sphincter dilated until the lower bowel and rectum contract and expel the stool. This is done twice daily until there is a spontaneous daily movement, and thereafter once daily for a week.

General Conditions

(v) *Prematurity* (+).—Breast-feeding is especially valuable in premature and feeble babies; but lactation is likely to be delayed, particularly if the stimulus of suckling is lacking. The special methods of feeding in prematurity cannot be detailed here; but lactation can be encouraged by manual expression of the breasts, and when small amounts are obtained these can be given to the baby. It is surprising how a small feeble baby of 4 lb. or less, and a fortnight old, will at once suck the nipple vigorously. Before breast milk is available a diluted

sweetened condensed milk is the best food ; its low fat value is an advantage.

(w) *Gastro-enteritis* (+).—This dangerous condition is rare in breast-fed babies at home ; but it is an ever-present risk in institutions. Vomiting and diarrhoea are accompanied by the essential symptoms of sudden anorexia, grave weakness, and dehydration. Immediate drastic treatment consists in total withdrawal of milk for one, two, or more days, the substitution of sweetened alkaline water, the giving three or four times daily of small doses of magnesia (a half to one teaspoonful), and parenteral salines. Meantime, lactation is maintained ; but breast milk is resumed only when the colour and the strength of the baby have improved and there are signs of hunger and returning appetite. At first the breast milk, given by bottle, should be skimmed and diluted. In the acute stage a little sweetened tea twice daily is of value.

(x) *Failure to Gain Weight, and Poor Appetite* (+).—This condition is common at the end of the first week. Hunger and appetite can be restored quickly by the withdrawal of two or three breast-feeds and the substitution of sweetened water preceded by half-teaspoonful doses of magnesia. This can be repeated, if necessary, on a second day.

(y) *Febrile Illness in the First Month* (+).—This may be dehydration fever or any other sharp and transient febrile illness. The dietetic treatment is the withdrawal of breast-feeding for 12 to 24 hours and the substitution of abundant sweetened fluid ; and here, again, the diuretic and diaphoretic action of tea infusions can be used with good effect. Breast-feeding can then be resumed.

(z) *Etcetera* (+).—Among all other pathological states in the baby during the period of breast-feeding—whether organic, structural, functional, or infective—while some may require a temporary withdrawal or modification of breast milk, there is not one which contraindicates breast-feeding.

Conclusion

This brief epitome of breast-feeding makes a crowded presentation of a large and complicated problem of dietetics. In other branches of dietetics the doctor and the nurse are not concerned with the production of the food, nor with its conveyance to the patient, but only with doling it out. But in breast-feeding we have to supervise all three operations ; and before we can do this we must know and understand the processes that underlie lactation, suckling, and digestion. Only when we are instructed in this primary knowledge can we manage the normal dietetic problem of breast-feeding. And when we are so instructed we can then understand and deal successfully with the derangements that may upset these three physiological processes. It would not matter much if we had mastered the problem of the infant dietetics of cows' milk, complicated as it is with the far greater risk of infection. For in using cows' milk we face the double problem of malnutrition and infection, and our failure is shown in our high infant death rate.

Human milk is a food perfectly designed in its chemistry for the digestion and nutrition of the infant ; and in the arrangements for its supply and consumption it is almost proof against infection ; with these supreme advantages, it is also the cheapest of all human food, and the least troublesome to give.

But breast-feeding is not an automatic process ; and its inauguration is attended by many checks and difficulties. Most of these difficulties can be overcome by knowledge and patient effort ; and in this paper I have tried to set out in an orderly way the common difficulties and their simple remedies. The general neglect and mismanagement of breast-feeding has existed so long that its failure has become accepted as an inevitable effect of our civilized society. Actually it is one of the major problems that have to be faced in any serious effort to reduce our infant death rate. At the present time of dearth and war the mismanagement of breast-feeding, with its resulting waste of food wealth and life, is a matter of national concern. Every doctor and nurse who has the responsibility of advising and assisting mothers in breast-feeding ought to urge its continuation wherever possible and as long as possible, and give their best thought and effort to overcome any difficulties that may arise. They should pause and think more than twice before they recommend weaning in the first month or two of life.

ULCERO-MEMBRANOUS STOMATITIS

THREE ATYPICAL CASES

BY

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An investigation of 90 cases of ulcero-membranous stomatitis was recently undertaken, and of these, 87 were, on clinical and bacteriological evidence, classified as Vincent's disorder, while 3, which were atypical, form the basis of this paper.

Atypical Forms in the Literature

Reports in medical literature tend to show that atypical forms of ulcerative stomatitis are not uncommon ; they occur sporadically, sometimes in association with other diseases and sometimes alone. In most cases the condition bears a certain superficial resemblance to Vincent's infection, but the clinical course is usually different, as the chief features emphasized are the degree of toxæmia, the prevalence of complications, and the mortality.

In a rather different category is a group of cases showing a variety of skin lesions with similar manifestations in the mouth. Of these the most important are pemphigus vulgaris, erythema multiforme, and dermatitis herpetiformis. Up to recent times these cases were diagnosed on the clinical findings, but few attempts seem to have been made to investigate the bacteriology or the blood picture. Pemphigus is pre-eminently the disease in which most difficulty is encountered in making a differential diagnosis, as the bullae may first appear either on the lips or in the mouth. Matis (1940), in describing 5 cases of pemphigus in which the lesions were entirely confined to the mouth, points out that the diagnosis rested on the identification of the typical bulla, which ruptured in a few hours, and states : "Following rupture, the flaccid pellicle sloughs off, leaving a superficial ulcer, which promptly develops a marked secondary inflammatory reaction." Erythema multiforme, which also produces a bullous lesion in the mouth, may be another source of difficulty, but again the diagnosis must rest on the discovery of the typical lesion.

In describing cases of atypical ulcerative stomatitis some authors have applied the term "streptococcal." Costello (1931) reports a number of cases of coincident sore throat and sore mouth in children. The lesion in the mouth was apparently pustular in type, not dissimilar to the bullae of pemphigus, and on rupture it left behind a superficial ulcer. Culture from the contents of these lesions gave an almost pure growth of haemolytic streptococci. Similarly, Mead (1932) gives an account of several cases of alleged streptococcal stomatitis in which the clinical features were mainly those of an acute marginal gingivitis. Culture from these cases usually resulted in a mixed growth of *Str. viridans* and *Staph. aureus*. In none of them, however, was the condition reminiscent of ulcero-membranous stomatitis in the full clinical sense of the term, nor were any of the patients seriously incapacitated by the disease.

A very different disorder was recently described by Walton and others (1941) in which the severity of the local condition, ulcero-membranous in type, was completely overshadowed by the alarming prostration and acute illness of the patient. The clinical features of the 3 cases bear such a striking resemblance to those of Walton that it is felt they may belong to the same group. They have in common the following characteristics: (1) The patients were acutely ill, with the manifestation locally of a wide-spread ulcerative stomatitis, associated with a conjunctivitis. (2) Swabs from the mouth failed to reveal the presence of Vincent's organisms in significant quantity, but streptococci were grown on culture. In Walton's cases the organism was believed to be a streptococcus of the *faecalis* type. (3) There was no response to sulphanilamide or sulphapyridine therapy, but the patients appeared to improve after blood transfusion.