a haemorrhage) was: Hb, 66% (Sahli); erythrocytes, 4,400,000; C.I., 0.8; leucocytes, 9,500; reticulocytes, 1.5%; Wintrobe V.I., 0.80; differential white count, normal; coagulation time, 2½ minutes; bleeding time and clot retraction, normal; platelets, 400,000. Some weeks later the blood showed: Hb, 55%; R.B.C.s, 4,500,000; C.I., 0.6; platelets, plentiful.

A series of skull radiographs were taken and examined stereoscopically for a calcified angioma or naevus, but no abnormality was found.

Discussion

In the differential diagnosis haemophilia, pseudo-haemophilia, erythraemia, the purpuras, leukaemia, Banti's syndrome, and hypertension have been excluded. The unusual feature was that in this case epistaxis caused evident clinical anaemia (Lévy), but at times there was polycythaemia. In view of the fact that this occurred when the patient was free from an attack for some 3 weeks or more, it is suggested that it was due to a physiological bone-marrow response to repeated haemorrhages: such over-compensation is known to result from excessively frequent blood donation by healthy persons. No previous reference to polycythaemia in this condition could be found, though Lévy in 1933 stated that the haematological picture may vary. The headaches were another unusual feature. Campbell's case differs in that the headaches have a more pronounced migrainous character, though they do not justify the use of the term "migraine," which is usually applied to a well-defined clinical entity. There are no previous case reports of this condition being associated with headaches, excepting the mention by Osler (1938) of the association of Lindau's syndrome in angiomatosis—a calcified pial angioma accounting for the headaches and other complaints (glaucoma); Hurst in 1932 also mentioned the possibility of angioma of the brain. It is suggested that in both Campbell's case and the present one the headaches may be due to a relative polycythaemia causing engorgement of the cerebral vessels and terminating by epistaxis. In two cases of the second generation of this patient's family epistaxis could not be definitely ascertained; the presence of the malady is, however, not excluded, since they may have been "frustrated forms" (Lévy, 1933). It is interesting to note that this patient did not suffer from menorrhagia—which is in agreement with the literature. A study of the family history favours Campbell's view that the prognosis of the disease is better than that given by Osler, although the condition obviously aggravates concomitant disorders. The immediate treatment of epistaxis is to control it by the inflated-finger-stall method; later, cauterization of the bigger naevi may be carried out—though new naevi are likely to appear.

Summary

A case of hereditary haemorrhagic telangiectasis with a family history of four generations and presenting some unusual features is reported. The literature is discussed in relation to this case.

My warm thanks are due to Mr. G. O. Taylor, Honorary Surgeon, Dorset County Hospital, for allowing me to publish the case; and to Dr. T. V. Cooper, County Pathologist, for the pathological investigations, for indicating the probable diagnosis of the case, and for help and encouragement in preparing this report.

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The Ministry of War Transport has notified owners and masters of merchant ships that dimethyl phthalate is now included in the medical scales and should be used as a repellent against mosquitoes when vessels are in malarious areas. The instructions for use are: After sunset a few drops of the liquid should be placed in the hand and applied to the exposed parts of the body, avoiding the eyes, the forehead just above the eyebrows, and areas around the mouth. The liquid should also be applied to the clothing if mosquitoes are biting through it. The effect of the repellent lasts for only about four hours, and a further application should be made when mosquitoes renew their attack. As dimethyl phthalate is a solvent for lacquer, paint, and plastic articles, it should not be smeared on spectacles, watch-glasses, fountain-pens, etc.

NEWER CONCEPTS OF BREAST-FEEDING

BY

M. WITKIN, M.D., F.R.C.P.Ed.

The decline of breast-feeding among civilized races gives the greatest concern to the medical profession. It is the endeavour of the paediatrician to explore every possible avenue in order to remedy this disconcerting state of affairs. With this objective I wish to draw attention to the importance of expressing some breast milk immediately *before* each feed, and the advantage of giving at each nursing *both* breasts instead of one. This routine distinctly helps the proper establishment of lactation.

Most textbooks on paediatrics stress the importance of completely emptying the breast *after* each feed. It is claimed that this is a *sine qua non* for the maintenance and stimulation of an abundant milk supply. It is mainly for this reason that only one breast is permitted at a feed. Although mothers are instructed to empty the breast completely after each nursing, relatively few carry this out—first, because it is very irksome, and, secondly, because the improvement observed is almost negligible. The emptying of the breast at the *end* of each nursing is in my experience not nearly so helpful as the expression of some milk *just before* baby is fed.

The lactating mammary gland consists of 12 to 20 lobes round the nipple. Each lobe is a miniature mammary gland and is composed of smaller lobules. Each lobule consists of a number of alveoli lined with large epithelial cells. The relationship of the lobules and the alveoli to the main duct of the lobe is analogous to that of a bunch of grapes to its stalk. Each alveolus possesses a duct, and the alveolar ducts from each lobule unite to form larger ducts, and finally form the main canal which expands in the areola as the lactiferous sinus. These sinuses, which serve as milk reservoirs, contract at the base of the nipple and pursue a straight course to its summit, perforating it by separate orifices considerably narrower than the ducts themselves. The surface of the nipple is corrugated and provided with secondary papillae. It is perforated by from 12 to 20 excretory ducts, the orifices of which appear at the bottom of these corrugated papillae.

Failure in a large percentage of breast-feeders can be traced to a block either within the lumen of these fine ducts or at their exits. Such obstruction must lead to an accumulation and damming back of milk in the sinuses, ducts, and the whole parenchyma concerned. The effect of such back pressure is engorgement and a lumpiness in the mammary gland which, unless relieved, may lead to resolution and retrogression of that particular sector of the breast. In this way the baby is deprived of a quantity of milk which would otherwise have been contributed by that portion of the gland. In the course of days other ducts may become similarly occluded, with further loss of nourishment for the baby. Thus the condition becomes distinctly aggravated. The mother finds that she has on her hands a restless and unhappy baby, failing to thrive and plagued with intestinal colic as a result of insufficient food and excessive swallowing of air.

The destiny of the breast parenchyma, when there is duct occlusion within either the areola or the nipple, is as follows: There is a damming back of the milk throughout the lobe concerned, and if several are so involved the breast becomes distinctly heavy and painful. Instead of the tissues being lax and freely mobile so as to enable the infant to pull the areola well into its mouth, they become tense, hot, and unyielding, and the baby finds great difficulty in grasping the breast. Its efforts are mostly spent on the base of the nipple rather than well over the areola, with the result that the papilla often cracks. This not infrequently leads to an ascending infection and sometimes to a breast abscess.

Importance of Expressing Some Milk before Feeding

The question which immediately presents itself is, What factors are responsible for occlusion of the lactiferous ducts? It is quite obvious that such minute canals could easily become blocked either by milk products within the areolar sinuses or nipple ducts, or through the viscosity of colostrum in the early days affording resistance to outflow. The openings of the ducts on the surface of the mammary papilla are often occluded by coagulated milk, toilet powder, or desquamated epithelium due to the friction of clothing on the nipple itself.

If we examine the manner in which milk leaves the breast of a mother whose baby is adequately and successfully fed we find, on manual expression, the number of jets expelled from the nipple are many—12 or more. They do not appear all at once—usually three or four at a time—depending on the site of pressure exerted on the areola by the thumb and forefinger of the expressing hand. This demonstrates that the successful functioning of the breast depends mainly on the patency of the ducts. In cases where difficulty prevails we find only one or two jets appearing, and no more. This

obviously is accounted for by the occlusion of the remaining ducts either within the areola or nipple or at their exits. The food thus meets with resistance in leaving the breast. It is obvious, therefore, that the baby of such a mother cannot possibly be satisfied or thrive. Should this be discovered in the early days of the infant's life one is able, in a large percentage of cases, to correct the abnormality by teaching the mother to express some milk from each breast (about one or two teaspoonfuls before each feed) and advising feeding from *both* mammae at every nursing.

The technique of manual expression is simple. The mother should wash her hands thoroughly and dry them with a clean towel. The nipple and areola should be cleaned with pledgets of cotton-wool dipped in boiled water, and dried. A clean glass or other receptacle will be necessary to receive the fluid. It is more convenient to employ the hand opposite the mammary gland concerned. The mother should grasp the breast between the thumb above and the forefinger below, just outside the margin of the areola, which is pressed and squeezed with a firm but gentle follow-up action converging on the base of the nipple; this pressure, terminating with a slight pull behind the base of the papilla, coaxes out the milk. About 30 to 60 expressions are made per minute. Both breasts are treated in similar fashion *before* each feed; this should not take more than five minutes. Should the mother regard the expressed milk as a waste she can offer this to her baby by spoon or dropper, suitably warmed, after the breast feed. Immediately after the ducts have been cleared by this preliminary expression the baby is given one breast for 5 minutes and then the other for 15 minutes. As a result of this manoeuvre the milk will be found to flow more freely and abundantly. The child will thus obtain a larger quantity of nourishment, be more contented, and thrive.

Mothers are emphatic that this method of preliminary expression is far more beneficial and easier of execution than the common teaching of completely emptying the breast *after* each feed. Provided the ducts are patent and their openings function properly there will be no engorgement. Once the outflow of milk becomes free and conditioned the breasts take care of themselves and become adapted to the demands of the child.

Importance of Giving Both Breasts at Each Feed

In my experience the use of *both* breasts at each suckling is a distinct advantage over the orthodox teaching. The mother is instructed to nurse her baby 5 minutes on one breast and 15 minutes on the other. Provided the ducts and sinuses have been cleared by preliminary expression in the manner described there is no fear whatever of the breasts retrogressing as a result of not being "completely emptied" after each performance. We are apt to forget that when a baby feeds on one breast the other gland is reflexly stimulated. This would serve no useful purpose unless it was Nature's intention that both breasts should be suckled from.

When only one breast is employed at a feed the gland is relieved once in 8 hours in the four-hourly feeding schedule and once in 6 hours if three-hourly feeds are given. This definitely is not sufficient stimulation. In bilateral feedings both breasts are relieved every 3 or 4 hours, and this method is far superior in establishing milk flow. As the lactating breast is constantly secreting milk, complete emptying is almost impossible. The teaching that any milk left in the breast after feeding eventually seals its doom is in my experience a myth.

Who would venture to assert that the successfully breast-fed baby completely empties the mammae at each feed? I feel convinced that Nature no more expects it to inhale and exhale *completely* with each inhalation and exhalation or the lacrimal glands to drain *completely* with each bout of weeping in order to sustain its subtlety. Once outflow is free and fully established, resolution seldom occurs so long as the mother and child are well.

It must be impressed on the mother that all healthy babies consume half their feeds within the first two minutes; that within five minutes they have swallowed two-thirds or three-quarters of the total feed, and that very little milk, if any, is consumed after 20 minutes of suckling. It is for this reason that I recommend only 5 minutes on the first breast and 15 minutes on the second, or sometimes 5 minutes on the first breast, 10 minutes on the second, and again 5 minutes on the first.

The importance of not allowing the child to spend more than 20 minutes at each feed cannot be exaggerated, as infants who are fed for periods of 30 to 45 minutes or longer almost invariably give trouble. After 15 or 20 minutes the child swallows large quantities of air, which cause colic, restlessness, crying, and sleeplessness. Furthermore, the gums and tongue become painful. If the mouth of such an infant is carefully examined the teething edges of the gums and the tip of the tongue are often found to be raw, inflamed, and angry-looking. This explains why such a child often refuses the breast. The mother in turn suffers as a result of the considerable trauma on the nipple through prolonged suckling.

There are other desiderata of vital importance. The mother, needless to say, must be willing and keen to feed her baby. She

must be prepared to devote most of her time to the new arrival, especially during the first two months. She should make all necessary arrangements at least 15 minutes before each feed—about 5 minutes of which should be devoted to the toilet of the nipples and their preliminary expression. She should be seated comfortably in a low chair and so placed that the nipple falls easily into the baby's mouth, and should ascertain that the infant can breathe freely through its nostrils. While she is feeding her infant she should be alone in her room and not disturbed, in order to give her undivided attention to her babe.

Summary

Every mother should express some milk from *both* breasts just before each feed. This is more helpful than emptying the breast *after* the feed. This procedure ensures the patency of the lactiferous ducts and free outflow of milk. The use of both breasts at each feed, 5 minutes on the first and 15 minutes on the second, is strongly recommended. The above procedures obviate feeding troubles in many cases.

UNILATERAL HYPOTONY DURING ANAESTHESIA

BY

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AND

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Apart from the findings of Lyle and Fenton (1934) there appear to be no references in the current literature with regard to a decrease in the intraocular tension during anaesthesia, and none in which a unilateral reduction in intraocular tension is described from any cause during general anaesthesia.

It is the object of this contribution to show that during anaesthesia a unilateral reduction in intraocular tension may take place from pressure exerted on the globe by a badly adjusted rubber face-mask. The condition was first discovered after an anaesthesia of 1½ hours' duration, under which an extensive repair was necessary for a badly crushed and lacerated hand. Pre-operative medication consisted of morphine 1/6 gr. and hyoscine 1/150 gr.

The patient, a man aged 45, was induced with pentothal sodium followed by nitrous oxide and oxygen, using a closed-circuit technique. Small amounts of pentothal sodium were added from time to time during the course of the operation, 15 c.cm. (0.75 g.) in all being used. On removal of the face-mask at the end of the operation it was at once noticed that the inflated rubber rim of the mask had been resting directly over the right globe and there was a small reddened area extending from the inner third of the supra-orbital margin to the centre of the infraorbital margin in a direct line across the lids. The right pupil was found to be widely dilated and the left contracted. (Anaesthesia was at this time light, the patient being only in the upper plane of the third stage.) A very sluggish light reflex was obtained on the right side, and the intraocular tension was found on palpation to be so much reduced that it was thought a posterior rupture of the globe might have been overlooked before the start of the operation. An examination of the fundus was attempted, but owing to the dryness of the cornea no detail could be defined. A more accurate estimation of the tension was obtained by the use of the Schiötz tonometer, showing the tension in this eye to be below 10 mm. Hg. The tension of the other eye was within normal limits. (See Case 1, Table I.) On examining the patient the day after operation it was found that the tension in the right eye had improved. No history of any previous eye symptoms could be obtained from the patient and there was no history of injury. The tension continued to improve and the patient was seen by the honorary ophthalmic surgeon, who confirmed the decrease in tension and absence of any other pathological condition. On the tenth day after operation the tension was equal to that in the other eye and the visual acuity was normal in both eyes.

As this case was of considerable interest from both the ophthalmological and the anaesthetic points of view, it was decided in future to examine cases as a routine immediately after operation—both where the anaesthetic mask had been fitting closely over one eye and otherwise—in order to determine whether any changes in the intraocular tension had taken place; also to try to discover whether the condition was produced purely by pressure from a closely fitting mask, or if the type of anaesthetic used, the condition and age of the patient, or length of operation helped to play any part. A unilateral