fed their babies for four months, compared with 68% in social classes I and II. For mothers who were confined at home the overall incidence of prolonged breast-feeding was 50% with no variation in the different social classes.

The babies who were born in the winter and spring (December to May inclusive) were breast-fed longer than babies born in the summer or autumn, but the difference is of doubtful significance ($P < 0.20$). Neither sex nor birth weight appeared to influence breast-feeding habits.

Discussion

So interwoven are the factors which influence breast-feeding habits that it is not only impossible to assess their individual contribution but even difficult to distinguish favourable and unfavourable influences. It is, for instance, unlikely that previous experience of child-bearing has anything but a beneficial effect on lactation, but it is not until parity and economic status are separated from one another that the true physiological effect is seen.

The present investigation has shown that mothers with heavy domestic commitments and lack of suitable facilities tend to wean their babies early, but we are still no nearer knowing what in "the complex of adverse circumstances which accompany poverty" (Ryle, 1946) has the most harmful effect. Other observers have failed to establish a direct relationship between lactation and nutrition (Robinson, 1939). It is improbable, therefore, that the observed association is due to malnutrition. It could, however, be due merely to the fact that the commercial advertising of baby foods is more successful in working-class than in professional circles. Once established, breast-feeding is both simpler and cheaper than artificial feeding. It is therefore unlikely that a working-class mother with several children weans her baby merely to "save trouble." On the other hand, breast-feeding can be very tedious in the early days and, other things being equal, a mother with heavy commitments and inadequate assistance is less likely to be successful in establishing lactation than a mother who can devote more time and attention to the new baby.

The relatively high level of breast-feeding among mothers delivered in hospital could be due to a bias in favour of hospitals by mothers who are otherwise favourably situated to establish and maintain lactation, or to the setting itself, which is, domestically speaking, restful and one in which good habits could be encouraged not only by precept, but also by example. It has certainly been a feature of other investigations (Hughes, 1948; Dummer, 1949; Dykes, 1950; Royal College of Obstetricians and Gynaecologists, 1948), but the relative importance of temporary freedom from worry, "selective recruitment," and example has not yet been measured.

Enough has been said to show how difficult it is to disentangle even the few factors chosen for special study, and how impossible to arrive at firm conclusions. With the small numbers available, the survey data have done little more than confirm the observations of previous writers and provide a background for the survey children. It may, however, be possible for larger clinics to select one or two of the more promising lines of inquiry for closer study. Meanwhile, the relatively high incidence of prolonged breast-feeding in the group as a whole suggests that a target of "breast-feeding by 80% of mothers for six months [which] would materially reduce both morbidity and mortality rates in infancy . . . is perhaps more readily obtainable than is generally believed" (Cruickshank, 1945).

Summary

Among 574 mothers attending the Oxford Child Health Survey, 53.8% breast-fed their babies completely for over four months and 16.2% for less than three weeks.

Social and economic conditions have a pronounced effect on breast-feeding habits. If they are good the incidence of prolonged breast-feeding increases with the increasing size of the family; if not it will diminish.

The high prevalence of breast-feeding among mothers delivered in hospital emphasizes the importance of freedom from domestic commitments in the early days of lactation.

I am indebted to Sister Wood, of the Oxford Mothercraft Clinic; to my colleagues in the Child Health Survey, particularly to Miss Thwaites, until recently our social worker; and to Dr. Alice Stewart for her encouragement and help. The Medical Research Council contributed towards the expenses of this investigation.

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Medical Memoranda

Cholangiography by Means of a Barium Enema

The inflamed gall-bladder containing stones not infrequently becomes attached to a neighbouring hollow viscus, and on occasion a stone or stones may ulcerate into the intestinal tract, either completing the passage safely or producing intestinal obstruction, the complication of obstruction being more likely when the fistula is between the gall-bladder and duodenum.

Examples of the spontaneous passage of gall-stones by the intestinal route were commonplace when biliary surgery was a rarity. The following case is worth recording because the safe passage of the stone or stones did not result in the fistula closing, owing to the normal channel being blocked by a stone in the ampulla of Vater. Moreover, the patient's symptoms were presumably due to the persistence of the fistula, and the presence of this fistula was demonstrated radiologically before operation.

CASE REPORT

The patient, a married woman aged 70, was referred to me by Dr. Russell Fraser. She had been a known diabetic since 1939. In 1947 she suffered from severe diarrhoea for about nine months, and this cleared up after a single injection of liver extract. Up to three months previously she remained well so far as her gastro-intestinal system was concerned, and then the diarrhoea recurred. The bowels were opened 10 to 12 times daily, and she was most affected at night and in the mornings, but the bowels were not opened in the afternoon. The stools were pale yellow and liquid, and there was no blood or mucus. Liver injections were tried again, but with no relief. There was no loss of weight. She also suffered from frequency of micturition, pruritus vulvae, and cataract, all these symptoms being attributed to the diabetes. It was thought that the diarrhoea was due either to the diabetes or to a neoplasm of the colon.

Sigmoidoscopy did not show any abnormality. A barium enema (Dr. A. Jenkins) revealed a fistulous communication between the colon, in the region of the hepatic flexure, and the gall-bladder. The opaque material passed along what was thought to be the common duct, where there was a filling defect which was believed to be a stone at the ampulla of Vater (see illustration).

Operation was carried out November 16, 1951, and the findings were exactly as had been suggested radiologically.

Radiograph showing the filling defect.

The hepatic flexure of the colon was adherent to the liver, and when the two organs were separated the gall-bladder was brought into view and was seen to communicate with the colon by a fistula. The fistula was divided and the opening in the transverse colon closed in layers. The junction of the cystic duct and the common bile duct was identified, and these ducts and the common hepatic duct were

seen to be dilated. The pancreas felt normal. The common bile duct was explored and a stone was removed from the lower end. Another stone was found in the right hepatic duct. The ducts were washed out with saline, and, after the patency of the ampulla of Vater had been confirmed by means of a sound, the gall-bladder was removed and a drain placed over the common duct.

The patient made an uninterrupted recovery. The diarrhoea stopped immediately and has not recurred since.

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Serum Sickness

Antitetanus serum is given widely as a prophylactic measure in out-patient departments of general hospitals and by general practitioners throughout the country, and mild symptoms due to serum sickness are noted from time to time. The following case is interesting because of the splenic enlargement, a factor which may cause confusion in diagnosis from glandular fever and septicaemia. Splenomegaly has been reported in America, but apparently not in this country.

CASE REPORT

The patient, a girl aged 7 years, injured her left thumb so that the nail and pulp were hanging by a medial skin-flap. She was admitted to hospital on October 26, 1951, for suture under general anaesthesia, and was given a prophylactic dose of 1,500 international units of antitetanus serum subcutaneously into the right arm, and "distaquaine" penicillin 250,000 international units six-hourly. The wound healed and she remained very well and was discharged on October 31. She returned to the out-patient department the next day, when the thumb was dressed, and appeared quite well. On November 2, when she reported for further dressings, it was noticed that her temperature was 99.6° F. (37.6° C.), and on examination tender enlarged, firm glands were found in both groins and popliteal fossae. The spleen was palpable two fingerbreadths below the left costal margin, but was not tender. There was no rash.

The patient was admitted to a medical ward, and on further examination four hours later was found to have palpable glands in both anterior cervical triangles and in the left axilla. There was an area of skin in the left hypochondrium 4 in. (10 cm.) in diameter, bright pink in hue, but not

irritating. She had no temperature at this time. Her throat was normal, and she had no clinical jaundice. There was no apparent infection, and glandular fever was suspected. Blood examination showed: red cells, 4,530,000; haemoglobin, 78%; leucocytes, 7,000; polymorphonuclears, 83%; eosinophils 1%; lymphocytes, 13.5%; monocytes, 2.5%. A Paul-Bunnell agglutination test was negative, as were the Widal and Brucella agglutination tests. The next day, November 3, the pink erythematous area on the trunk had disappeared, but the skin over the gland in the right groin was discoloured. No local infection was apparent. A vaginal swab was taken, which revealed no cause for the adenitis, and a course of penicillin was begun by injection into the right buttock.

On November 5 the glands were no longer tender, but the whole of the right buttock was red, though on palpation there was no tenderness. A few rubelliform spots were noticed on the abdomen. The penicillin was discontinued, the diagnosis of serum sickness having been made. On November 6 the buttock was normal in colour, but a rash was present on both legs. This consisted of circular lesions with pale centres encircled by red rings varying in size from 5 to 30 mm. in diameter. The rash spread down her legs and faded lastly from her feet on November 8.

The following tests were made on November 8 and 9: Antitetanus serum was diluted to 1/100 and 0.02 ml. was injected intradermally into the right forearm. Twenty minutes later a wheal measuring 12 mm. in diameter and a flare measuring 24 by 30 mm. were noted. Antitetanus serum was diluted 1/10 and one drop was inserted into the left conjunctival sac: there was no reaction or irritation. (Claiborn in 1932 tested 465 patients with conjunctival and intradermal tests: 5.6% were positive to both tests; 21.3% were positive to the intradermal test only. All patients positive to the conjunctival tests were also positive to the intradermal test.) Crystalline penicillin was diluted 1/100 and 0.02 ml. was injected intradermally into the left arm. Twenty minutes later there was no reaction.

Strazza (1946) reported delayed sensitization to penicillin similar to serum sickness. On a scratch test the reaction to penicillin 15,000 units per ml. was negative. Gordon (1946) reported three cases and reviewed the literature on reactions to penicillin simulating serum sickness. There was no reference to enlargement of the spleen, but one case had glandular enlargement. Scratch tests were sometimes positive.

Diphenhydramine hydrochloride was begun on November 9, 20 mg. being given four-hourly. The glands in her neck, axilla, and popliteal fossae were no longer palpable on November 10. The glands in the groin had decreased in size and were not tender, and the spleen could just be felt on inspiration. On November 12 the spleen was no longer palpable.

Peterson and Bishop (1947) treated serum sickness with diphenhydramine hydrochloride, giving 50 mg. or more, up to 100 mg., six- to eight-hourly, depending on results. As relapse may follow withdrawal, they suggested carrying on for three days to a week, depending on the condition of the patient.

COMMENT

There was no history of asthma, urticaria, or hay-fever in the family, and this was apparently the first injection of horse serum the child had had. The first sign was a slight fever discovered seven days after the injection, though it is possible that the glands and spleen had enlarged before this time. The rash appeared on the tenth day, and varied in type over the next five days. The only complaint during these manifestations of serum sickness was tenderness in the groins.

I wish to thank Dr. H. R. E. Wallis for permission to publish this case and Dr. M. Marshall, house-surgeon, who transferred the child under my care.

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