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INDEX
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SCORBUTUS IN INFANTS,—SOME CALIFORNIA CASES.*

Harry M. Sherman, A. M., M. D., Orthopedic Surgeon to the Children's Hospital, San Francisco.

The special reason for the presentation of these cases lies in the comparative infrequency of examples of this but recently identified condition. But while the cases are comparatively infrequent, and are, absolutely, very few in number, there are still some; and probably there are more than we know, owing to some failing of recognition, and others not being reported. Moreover, it has seemed to me that they were increasing, for of the nine cases that I have seen, and the records of which make up this paper, four have been seen in the past month. Finally, the point must be made that they are absolutely unnecessary illnesses, perfectly preventable in all instances, and that their occurrence is a sad commentary on our management of infant feeding. Scorbutus—scurvy—in infants owes its recognition chiefly to Barlow, of England, who reported his cases and conclusions in 1883. In May, 1894, Northrup in New York reported the first American cases. Since the special attention of American physicians has been called to the condition by Northrup, cases have been recognized and reported from all over the country. The first case I know of in California was reported by Dr. Mary Delano Fletcher, of Alameda, a little while before I saw my first case. This first case of mine I saw in March, 1894, just before Northrup's paper, and I was helped to my diagnosis by Barlow's article in Keating's Cyclopedia of the Diseases of Children. Once a case of scorbutus has been recognized and studied, the recognition of the same condition in other children is not difficult, and there is no pediatric state more amenable to treatment than this, and, as

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an added charm, the treatment does not contemplate the administration of a single drug beyond, perhaps, some simple laxative.

Case 1—M. F. Aet. 9 mos. Seen March, 1894.—A female child, of healthy parents, in excellent surroundings. Had been nursed two weeks, then put on Mellin's Food and sterilized milk, with an interval, during which she took a mixture made after a private formula of the family attendant, who was a doctor of homeopathy. All that I could learn of this was that it contained gelatine. Some weeks before I saw her she had begun to act as if it hurt her to be handled. This increased, the limbs became swollen—not red—more especially about the knees, and the legs from the knees down were in a state of pseudo-paralysis. The gums were swollen and ecchymotic. There was slight fever. There were slight evidences of rachitis. I considered that the case was one of acute rachitis, with, possibly, some acute rheumatism; but, in a few days, after finding Barlow's article, reached the correct idea of scurvy, put the child on orange juice and raw milk, stopped all medication, and improvement began at once, and recovery was complete in a fortnight.

Case 2—v. d. R. Aet. 10 mos. Seen May, 1894—A male child, of healthy parents, in good surroundings. Had been nursed six weeks and then put on condensed milk and Mellin's Food, which had been continued for eight months and then changed to sterilized milk, diluted, and Mellin's Food. About two months before I saw him the gum over an oncoming tooth became blue and swollen, and shortly after this he resented the handling or dressing of his feet, and this condition has become worse, so that he screamed if touched, and the tenderness had extended to all four limbs, while the lower limbs were swollen and hung as if paralyzed. The swelling and ecchymosis of the gums had increased, and there were crescentic ecchymoses under each eye. A change to a raw milk diet, modified by the addition of a little cream, and the administration of orange juice, resulted in a complete recovery in ten days.

Case 3—A. H. Aet. 11 mos. Seen March, 1896. —A female child, the third in the family, of fairly healthy parents, and in very good surroundings. From birth had been nursed at night and fed on Mellin's Food in the daytime. Later Malted Milk was substituted for the Mellin's Food, and then, in its turn, gave way to Imperial Granum, milk and water. A few weeks before I saw the child there had developed a restlessness, and at the same time tenderness on being handled, more marked in the lower limbs, which were swollen and paretic, but tenderness extended also to the arms. The gums were swollen and ecchymotic, especially around the appearing teeth, and there was an ecchymosis below the left eye. The child remained quiet in one position, but screamed violently, and evidently because of great pain, if she was touched or moved. A change to a diet of raw milk, modified by the addition of cream, and the administration of orange juice, restored the child to a normal condition in two weeks.

Case 4—McG. Aet. 12 mos. Seen August, 1896. —The youngest child of a family, of healthy parents and in good surroundings. Had been nursed for a time and then had had Malted Milk as the staple food. A short time before I saw it the child began to act as if handling or dressing the left foot was painful. It was in this condition when I saw it, and the gums around the on-coming teeth were somewhat swollen and ecchymotic. Modified raw milk and orange juice were prescribed. I never saw the child a second time, but was told it recovered slowly.

Case 5—D. Y. Aet. 17 mos. Seen January, 1897. —Female child, of healthy parents and in good surroundings. Had always been a bottle-fed child, taking chiefly Mellin's Food and condensed milk. She never had had raw milk. Lately she had had condensed milk and mush, and some beef extracts, and, *mirabile dictu*, some *soft boiled eggs*. For the first year of life she had apparently done pretty well, but, in August, 1896, she had a little fall and acted and screamed as if she had been severely hurt, and

later began to act as if she had pain on being handled, and at the same time ceased creeping. At this time, too, the gums became swollen and ecchymotic and some teeth that were coming remained stationary. The tenderness became more extensive and severe. She moved herself not at all, and screamed when others moved her. Her limbs became swollen, especially the upper part of the thighs, and the front of one tibia. One eye suddenly became very prominent, starting forward as if it would jump from the orbit. The gums were much swollen, ecchymotic, and where incisions had been made by the family attendant, a doctor of homeopathy, they were ulcerating. The child's condition was most pitiful. The diet of the modified milk and orange juice did not suit this child's age, so she had, in addition to these, fresh meats, eggs, brains and oysters, and some vegetables. In two weeks she was perfectly well, and development, which had been inhibited, again progressed.

Case 6—M. baby Aet. 13 mos. Seen November, 1897.—Female child, of healthy parents and in exceptionally good surroundings. This child was never suckled. She began with Nestle's Food, then was put on super-diluted milk (milk, 1 part; water, 3 parts), and later Peptogenic Milk Powder. The mother stated that this had been her staple article of diet, and in the preparation of it the milk had been brought to the temperature where bubbles appeared around the edge of the vessel and a scum on the surface of the milk, but there was permitted no ebullition. At night the Nestle's was continued. Some little time before I saw her the child screamed violently on the receipt of slight violence to the left leg and foot, and shortly afterwards an ecchymosis came behind that knee, and any handling of the leg and foot was resented bitterly. More recently the limb hung powerless, as if paralyzed. This was the condition when I saw her, and the only other condition developed was that the gums were too red and bled easily when her teeth, of which she had several, were cleaned. This case was like Case 4 in presenting a mild development, in fact

a development so mild that I doubted the accuracy of my first diagnosis, which was that the case was scurvy. However, my doubt was cleared up by the case promptly recovering, under no treatment but a modified raw milk diet and orange juice.

Case 7—B. H. M. Aet. 14 mos. Seen November, 1897.—Male child, of not strong parents, and in good surroundings. This child was suckled the first month, then Horlich's Malted Milk was added to make up a deficiency of the mother's milk, and finally it was made to replace the latter entirely at the fourth month. From this time on the diet was varied; that is, the fifth month he ate Carnrick's Soluble Food, in the middle of the sixth month he took Mellin's Food for a week, finished up the month on Horlich's Malted Milk, and in the seventh month relapsed to Carnrick's Soluble Food. In the middle of the eleventh month he again tried Mellin's Food, prepared by a special formula, and he also ate a sample of Eskay's Albuminized Food, but in the twelfth month he had reverted to the Carnrick's Soluble Food, which was apparently, for this child, the least bad of the lot; and, on this, with a single daily meal of mutton broth and rolled crackers, he was subsisting when I saw him. He had been sick and in the condition in which I found him for some time. The gums were swollen and ecchymotic and ulcerated. The lower limbs were swollen, especially the knees and ankles. The child lay constantly in one position on a pillow, and any motion of the body or limbs, even those necessary to attend to him, no matter how gently made, caused him to scream violently. There was, at the same time, some bronchitis and some diarrhœa. These two last complicated the treatment and prolonged recovery, but the raw milk, meat juices, and orange juice and water, these last given *ad libitum*, finally won the day, and he completely recovered from scurvy, bronchitis and diarrhœa.

Case 8—T. C. Aet. 11 mos. Seen November, 1897.—Female child of not very strong parents, and fairly good surroundings. She had been suckled two months, then, the mother's milk fail-

ing, she was put on condensed milk, but this did not agree, and at about the beginning of the fourth month Reed & Carnrick's Food was begun and continued. Six weeks before I saw the child she began to cry if her legs were handled, and later to scream violently from the same cause. Later the legs became paretic, and the tenderness developed in one arm. When the legs were first affected the gums became also swollen and ecchymotic, and this condition persisted and got worse. She was given orange juice and fed on raw modified milk, and, as there was some constipation, a little oatmeal jelly was added to it. In twelve days she had perfectly recovered.

Case 9—A baby. Aet. 12 mos. Seen November, 1897.—Female child of healthy parents and fairly good surroundings. She was suckled with difficulty for two weeks, and then was given, each for a short period, cows' milk and water, modified milk, condensed milk, condensed milk and barley water, Mellin's Food and scalded milk, and for the last three months, boiled cows' milk and barley water. A few weeks before I saw her she began to cry if her right foot was handled, and the tenderness increased, the knee became swollen and the leg and foot dangled helplessly. At the same time the gums became swollen and congested, and slightly ecchymotic. Modified raw milk and orange juice were advised and the child, though not seen again, was reported to have recovered.

The reading of this series is not particularly entertaining, but it is very instructive, for it shows the awful amount of experimentation these children were subjected to. The same thing was shown in a list of rachitic children I published two years ago. Scurvy, as it is seen in children, is an accompaniment of rachitis, the causes that produce the latter causing, in some of the cases, the former; but those children whom I have seen with scurvy have never had severe types of rachitis, and scurvy is not to be thought of as an extra severe form of rachitis, for it is a distinct condition, and, after the child has recovered from it, the rachitis may, and often does, re-

main. The violence of the change from a woman's milk to a patent baby food is not appreciated by the people at large, and, indeed, by very few physicians, and yet, in spite of the statements on the wrappers, the two aliments offer points of contrast only, and none of comparison. It is not necessary here to go over the ground of this difference, for it is fully stated in every work on pediatrics published, and must be, in some form, on the shelves of every one who reads this paper. It is, however, right to refer to the special dietetic fault that is responsible for the development of the scorbutus. The latest and most comprehensive statement is that of Holt (Diseases of Infancy and Childhood, p. 211), in which it is said that persistence in any diet that is faulty in quality or in assimilability may produce the condition, and he goes on and points out that the most glaring faults are found in dietaries based on a proprietary baby food. The cases which I have here reported are all of them within this rule, for they were all more or less "baby-food babies," and, when the scurvy developed, two were taking Mellin's Food, two were taking Carnrick's Soluble Food, one was taking Imperial Granum, one Malted Milk, one Nestle's Food, one some baby food (my notes failed to state which), and one had been for three months on a diet of boiled milk and barley water. This last case brings us to the consideration of cooking the milk, or sterilizing it at a temperature that cooks. It has been taught that the sterilization of the milk at a temperature of 212° F. so changes it that it is no longer a fresh food in the proper meaning of the term, and that children who take sterilized milk for a long time develop scurvy, as sailors do who for a long time live on "salt-horse." Barlow thought the anti-scorbutic properties of fresh milk were destroyed by sterilization. This idea is not now held, and Holt quotes Winter's cases of recovery from scurvy on a sterilized milk diet. But milk is certainly changed by the sterilization process; according to Leeds, the amylolytic ferment is destroyed, the casein is less easily coagulated by rennin and is less digestible by pepsin and

pancreatin, the lact-albumen is partly coagulated, proteid matters adhere to and interfere with fat assimilation, and the lactose may be destroyed. These changes may not be sufficient in degree, of themselves to render the milk a scurvy-producing food; but if this milk is now diluted by admixture with some form of transformed starch, or is made the vehicle for the administration of a patent baby food, the conditions then seem especially favorable to the development of the scurvy.

The time has come when a physician who acquiesces in, or advises, the feeding of infants on these patent abominations puts himself in a position where some very annoying questions may be asked, and a position which he is utterly unable to explain or defend before a medical society. Why the literature on the wrappers and labels is preferred to that in the books and the literary part of the medical magazines is difficult to understand. But the fact remains that I am told every week by mothers that they fed their babies on baby foods by the advice of their physicians. We have to deal with many conditions of infancy which are not preventable, or which we, in our professional capacities, do not get an opportunity to prevent. Here is one that is entirely preventable and which we have the opportunity, frankly offered, of preventing. The problem of the successful feeding of infants who cannot be suckled properly, by reason of a maternal failure or fault, is fairly well worked out, and, in the most obstinate case, it only means a little patient trial, on simple lines, to get a formula for the modification of cows' milk to suit the individual. I am sure that in no case is it necessary for the physician to seek information, instruction or assistance from a commercial house. Pediatrics has been called the specialty of the general practitioner, and it offers a wide field of interesting questions, an opportunity for much original work, and a career with a satisfactory reward. Why does the general practitioner neglect it?