

whooped three weeks. Dose, 3 up to 12 drops. Very severe attack. Was well in three weeks, and grew rapidly very fat.

Case 27.—November, 1894; female 2 years old. Whooped for ten days. Dose, 3 up to 5 drops. Severe attack. Well in three weeks.

Case 28.—November, 1894; male $2\frac{1}{2}$ years of age. Dose, 2 up to 4 drops. Mild attack. On the fifth day caught cold. Temperature 104 degrees. Dull, stupid, languid. I stopped bromoform and gave aconite and belladonna. In two days resumed bromoform. Now, whooping about once in two days and sleeping and eating well, and coughing much less.

Case 29.—Exposed Oct. 22, 1894; boy eight months old. Coughed from the 26th to the 28th quite violently, and on the evening of the 28th whooped from twenty to thirty times—typically. I gave 2 drops of bromoform at 8 P.M., and at 1 A.M. Temperature normal, pulse 120. Did not whoop after 11 P.M. until the next day at 7 A.M., two whoops; 7:30, 2 drops of bromoform. Temperature and pulse normal. At noon, 3 drops bromoform; at 4 P.M. 2 drops. One whoop at 1 P.M.; 6 P.M., temperature 99.4 degrees, pulse 120, good. Much swallowed mucus in stool to-day. Dull and sick—that night whooped once. Slept well.

October 30. No whooping to-day. Cough loose and very moderate. Gave 5 drops of bromoform during the day. Evening temperature 99.2 degrees, pulse 120.

October 31, slept well. Bright as usual. Coughed several times—no whoop—ate well. Temperature and pulse normal.

November 1. Gave 1 drop of bromoform four times to-day. No whoops.

November 15, an occasional cough. No more whoops. Shortly after last record, baby caught cold and coughed several times a day. No whoops. Has gained steadily since.

My plan of administration is based on the following idea: begin with a dose which can be well borne, increase as rapidly as is compatible with safety up to the maximum dose, *i. e.*, that dose which distinctly diminishes the number and violence of the whoops. As the number of paroxysms decidedly lessens, and when the patient sleeps all night, I begin to diminish the dose by drops. I give it four times a day as a rule, but in severe cases add an extra dose in the middle of the night. I see the patients frequently, and keep close watch on the condition of lungs, bronchi and heart. I have always exhibited bromoform in its pure state, writing for a given quantity of the drug and ordering it to be put up in a dropping bottle, and to be given in a little water; this I do because it can not be easily dropped in any other way. If you bear in mind the high sp. gr., you will understand why it is difficult to drop, and you will not be surprised to know that there are in the neighborhood of 360 drops in one drachm.

Mr. Geo. W. Hackney, Ph. G., of Pittsburg, has made, at my instance, many experiments looking toward some other and more agreeable method of giving this drug. His work seems to show that emulsions are not palatable; that mixtures are not safe; and that the best way, outside of my own way of giving it in water, is in a mixture of alcohol, glycerin and water.

The first requisite seems unattainable, each mixture or solution seeming to markedly retain the sweet pungent taste of the drug. The second requisite, that of safety, obtains only in absolute solutions—alcohols of various strengths.

I have made it a practice to repeatedly examine the heart and lungs of all cases, and the record has been here omitted only to insure brevity. In no case under observation was there any heart lesion developed, nor was there any moist râles, except in two cases. These cases differed in severity, but Cases 16, 19, 21, 25, 26 were certainly very severe. Case 26, for example, having, previous to treatment, lost her breakfast eight times in one morning.

Since I wrote the body of this paper, Dr. W. W.

Johnston, of Washington, has, in the *Archives of Pediatrics* (April, 1895), called our attention to the great mortality in pertussis. His essay deals with the shadowy side, and we are indebted to him for his exhaustive comparisons and mathematical data. He deals with things as they are and have been, and not as they may be. I do not want to precipitate a discussion on pertussis as a disease, but only to call to your attention the fact that in the use of bromoform we have a method of controlling this disease and avoiding the great mortality which surely does obtain.

There is another class of cases to which I wish briefly to refer, in which bromoform seems to accomplish something unattainable in any other way. I refer to those bronchial subacute colds in adults, in which a very hard, persistent, dry cough obtains, and which seem to resist the drugs ordinarily given for their amelioration. In such cases I have found bromoform to work most effectively; in a very short time reducing the frequency of the cough, causing a moderately free expectoration, and consequently relieving the muscular distress of the patient. To such cases I give the drug in capsule (letting the patient fill the capsule) in doses ranging from 20 to 30 drops every six hours.

The danger signal is usually plainly to be seen; drowsiness following the exhibition of an overdose, usually in course of an hour or two.

In conclusion, let me again lay stress on my method of giving this drug, *viz.*: begin with a known safe dose, then push to the limit of evident relief of symptoms as rapidly as possible. In this way we may expect to avoid many of the complications and save much time in the treatment of this disease—as well as markedly reduce the mortality.

DOUBLE CLUB FEET AND HANDS—TREATMENT.

Read in the Section on Diseases of Children, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY B. MERRILL RICKETTS, M.D.

CINCINNATI.

The object of presenting this subject and report of a case is to place one of the rarest affections on record, and to draw from its history and treatment any deductions that may be of profit.

It is to be regretted that so little has been accomplished, especially in rendering the club hands more useful.

Unfortunately, the causes do not lie within the domain of surgery—they being manifested in utero.

Whatever the cause may be, the results are practically the same; if it is due to a neurosis, but little can be hoped for in increasing the usefulness of the affected extremity.

If, however, the nerves should not be affected, and the deformity due to an over- or under-developed bone, the greatest benefit usually ensues from some surgical procedure.

There is a condition found in the congenital paralysis of the extensors of the forearm which does not exist in the congenital paralysis of the extensors of the lower leg, *viz.*, the ankylosis of the elbow joint. This seems invariably the case.

I have not thus far been able to find any report of ankylosis of the knee joint in paralyzes of this nature.

On the other hand, the joint motion of the knee is nearly always perfect; this may be accounted for by there being but one movement in the knee—the backward and forward one; we have beside this motion in the elbow, a rotary motion which renders the hand capable of abduction and adduction.

These two movements are greatly lessened when the hand is flexed to the extreme, as in case of club hand. This prolonged flexion in utero results in ankylosis, and the arms having less strength than the legs are more likely to remain quiescent.

The arms are drawn forward, giving a narrow appearance to the chest, but the shoulder movement is usually good.

Some if not all of the carpal bones are always changed in their shape as the result of prolonged affliction at a time when they are very soft and easily molded. There may also be one or more absent.

The second finger is usually very much flexed and overlapped by the index and third fingers. The thumb is drawn across the palm and pain is experienced when it is brought into a normal position.



Male, age 10 weeks, well nourished. Has four healthy brothers and sisters; congenital. Extensors do not respond to either faradism or galvanism, interrupted or straight. Multiple neuritis of tibial and radial nerves. Cut both tendo-Achilles and tendon and plantar fasciæ of both feet. Applied plaster-of-Paris massage, etc.; great improvement.

Multiple neuritis of the nerves supplying the affected muscles is usually found, but just what produces multiple neuritis remains a question. In the case I present for your consideration, no cause can be assigned.

The child, a male, white, was ten weeks old at the time that I first saw it, Jan. 10, 1894, when it was placed in my private hospital for observation. A consultation with Dr. Phillip Zenner resulted in finding the subject well nourished, and the youngest of five healthy children. The extensor muscles did not respond to either faradism or galvanism, interrupted or straight current. It was found that there were multiple neurites of the tibial and radial nerves. The bones of the two upper extremities and the left lower, including the tarsal and metatarsal, carpal and metacarpal, seemed to be normal in shape and number; also the bones of the right leg and foot, except the phalanges. All of the toes of the right foot were

imperfectly developed, while the tarsal and metatarsal bones seemed, as far as could be determined, as perfectly developed as those of the left foot. There was, however, a slight curvature of the right tibia, and the talipes was of a higher degree. Massage and light brass splints of my own construction were applied to the foot. These were kept on for fifteen or twenty days at intervals of three or four days each; during these intervals vigorous massage was applied; each tendo-Achilles was divided, after which the normal condition was more nearly reached. During this time, the mother was taught to extend the hands and massage freely. The fingers were extended separately and collectively, and I must say that during the three weeks of treatment the improvement was much more than I had expected.

The mother returned to her home after the third week and continued the treatment under the direction of Dr. E. S. Buffington.

About May 20, 1894, I again divided both the tendons and plantar fasciæ of each foot, which enabled them to be placed in a better condition than on any previous occasion.

The extremities were bandaged with plaster-of-Paris, which was allowed to remain for ten days, at the end of which time it was found that the position of each foot had been greatly improved.

The mother continues massage of the feet and hands, and the patient gradually secures better use of them.

DISCUSSION.

DR. MANLEY, of New York—This is a matter which must command particular attention on the part of those whose specialty is dealing with the diseases and deformities peculiar to very early life, and in connection with the subject which the Doctor has presented, the question arises, and upon which I hope the members here who have had experience in that class of cases will express themselves, as to whether it is the proper thing at an early stage in life, before the child is weaned and before it has begun to walk, to endeavor at once to radically overcome those deformities, or whether it is better to treat them by a gradual process of manipulation with appliances which will overcome the tendency to those spasmodic inclinations, and try to attain the end in view by massage and electricity.

I must say that so far as my own experience goes, particularly in these cases of talipes varus, by a division of the tendo-Achilles, not only the correction, but hyper-correction of the ankle of the foot, to keep the limb in that form until the spasmodic tendency is overcome, is usually done early. I do not gather that in this case there was any history of heredity as to deformities in any of the ancestors of the child. I simply wish to say that the deformity of the hands produced by action of the same or analogous set of muscles as in the legs, is quite unusual, and I think gentlemen here are interested in seeing the extent of correction the Doctor has effected in this very interesting case.

DR. RICKETTS—I am thoroughly convinced that the best means sometimes are the most radical, and that the best results are obtained only by the most radical means. In this case, as in many cases of club feet and bow legs, I believe in a child it is best to put it in a condition whereby it can get upon its feet as soon as possible. That is why we have better results in this condition of the feet than we do in the hands. If we could go back to the period when we were quadrupeds, and put the weight on the hands that we do on the feet, there would be no reason why the hands should not improve in the same degree as the feet. The question comes up in this case as to what is the best way of treatment. The feet are improving rapidly, the hands are improving also, but as I stated in the paper, the improvement in the hands is much less than the improvement in the feet, for the reason, perhaps, that the weight of the body adds materially to the good influences in correcting the deformity of the feet. This is the sixth case, I believe, that has been reported in this country, so far as I can ascertain. Dr. Reginald, about two years ago, reported five cases of this character, and I have since learned that this is about the sixth case reported thus far in American literature.