extremities in direction of extension, adduction and forward rotation tends to be completed in early childhood, but is an unstable possession, and in a large number of cases never fully attained; in another large number of cases is attained but after varying periods of time, more or less reversion to the condition found at birth occurs; tendency to this reversion always present, but becomes more pronounced with approach of fourth decade and beyond. Postnatal evolution of abdomen in direction of competence proceeds throughout infancy and childhood, and, in selected cases, is complete at or before puberty. Very unstable possession; in majority of cases never fully attained; even when attained, tendency to reversion to condition of more or less incompetence constantly present; tendency becomes more pronounced with approach of fourth decade and beyond.

This instability of abdomen and lower extremities exists at the present day in the most primitive as well as the most civilized peoples, and its existence can be traced among all peoples as far back as pictorial history extends.

Development of abdominal competence also correlated with postnatal evolution of abdominal viscera. Evolution of viscera always incomplete at birth; considerable evidence to show that in many cases never completed.

Development of spine, lower extremities, thoracic cage, and even upper extremities and head, correlated with development of abdominal competence, and *vice versa*. Variations in these correlations result in spontaneous grouping of body forms along two main paths: (1) Basic or primary type of figure, represented by broad lower thorax, slight anterior convexity of lumbar spine, slight anterior inclination of pelvis. (2) Secondary or aberrant type of figure, represented by retracted lower thorax, pronounced anterior convexity of lumbo-thoracic spine, increased anterior inclination of pelvis. Abdominal incompetence and visceral ptosis in both types. Variations in the correlations enumerated show a spontaneous tendency of the trunk and extremities towards the developmental deformities: round shoulders, lateral and antero-posterior curvatures of the spine; modifications of weak foot, including *pes planus*; retracted lower thorax, marked lumbar or lumbo-thoracic anterior convexity; marked forward rotation of the pelvis; abdominal incompetence, and visceral ptosis — both *en masse* and *individual*.

Experiments and dissections support the clinical hypothesis that abdominal incompetence is the primary factor in the development not only of splanchnoptosis, but also of the common surgical diseases of the upper abdomen, the stomach, duodenum, gall bladder and bile ducts, jejunum-ileum, pancreas and kidneys (especially the right) being the most important viscera affected.

THE Chicago Isolation Hospital has had no patients since July 18, when the last of the 19 smallpox patients discovered since Jan. 1 was discharged. — *Journal A.M.A.*

INCONTINENCE OF THE URINE.

BY CHARLES GILMORE KERLEY, M.D., NEW YORK.

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THE involuntary discharge of urine is normal in the young infant. It becomes a voluntary function at a later age, the time depending largely upon the child's training. In most children with the right kind of management it may be controlled during the waking hours by the tenth month. During sleep it continues to a later period and while in many cases it may be under perfect control, at the completion of the second year I do not regard the loss of control as abnormal until the third year is completed. If during the second year the child shows a tendency to frequent urination and involuntary passage of urine during the waking hours with habitual incontinence at night, it is my custom to advise preventive measures.

In some of these children the urine is very acid and of a high specific gravity — 1,020 or over. In such cases, a reduction of the highly nitrogenous food stuffs in the diet, especially meat and eggs is often followed by improvement, — the eggs and red meat being given not oftener than every second day, alternately. Where the urine is normal, the quantity of fluids given during the twenty-four hours is reduced from 25% to 50% and more solid nourishment substituted.

When the incontinence persists during the waking hours at the completion of the second year, or during sleep at the completion of the third year, the condition is regarded as abnormal and the child placed under treatment.

In assuming the care of a child with incontinence our first step is to discover the cause of the trouble. With this object in view the patient is examined with the idea of discovering any peripheral abnormality which may have a bearing on the disorder. Thus the incontinence may be due to a vaginitis, or to an adherent clitoris in girls, or to phimosis in boys; it may be due to thread-worms in the rectum, to constipation, to stone in the bladder, to cystitis, — a very rare condition, — and to hyperacidity of the urine, — a very common one. The diet may play a part. The use of highly nitrogenous food in large amounts, or a diet rich in sugar may lead to changes in the urine sufficient to cause the trouble. The presence of adenoid growths in the nasopharyngeal vault is supposed by some writers to cause enuresis.

As a result of the diurnal and nocturnal incontinence, the bladder may never have developed and its capacity may be greatly reduced. Obviously, when such is the case, incontinence will be noted both day and night.

After all possible dietetic and peripheral causes have been eliminated, about 90% of the cases remain. These are due to a neurosis, and are not dependent upon any discoverable pathological condition. There is a lack of development, a weakness of the vesical sphincter and a lack of

co-ordination of those portions of the sympathetic nervous system which control micturition.

If due to peripheral causes they must be corrected and the general physical condition of the child improved, although in my experience the delicate and chronically ailing are not the children who suffer most. By far the greater number of my patients have been well-nourished children who were otherwise normal. Long-continued incontinence does not appear to affect the general health. When well established, the condition untreated, usually continues until the child is eight or ten years of age. I have known of a few cases which had persisted until puberty.

If no improvement follows the removal of all possible dietetic and peripheral causes, we must assume that we have an idiopathic incontinence to deal with. If the case is of several months' or years' standing, with nightly incontinence, once, twice, or three times, we must acquaint the mother with the fact that prolonged treatment will in all probability be required, and that unless her active and continued co-operation is assured, the treatment of the case will not be undertaken.

To show how untiring must be our efforts, a recital of an early experience with twelve inveterate bed-wetters may not be without interest. Several years ago, while resident physician at the New York Infant Asylum the patients, nine boys and three girls ranging in age from six to ten years, were selected for treatment. All were in fair health. No local cause for the enuresis could be discovered in any of them. They had been through the usual treatment with strychnine, belladonna and other drugs without improvement. They had always been bed-wetters. All wet two or three times during the night, and three once or twice during the day in addition. The oldest, a boy of ten, with incontinence by day and night, pronounced incurable had been returned to us from the West, where he had been sent by the Children's Aid Society.

The patients were put to bed at seven o'clock and wakened at ten, to urinate. The medication suggested below, was used. Physiological symptoms of atropia occurred in three in the form of a typical belladonna blush and excitement. After six weeks of treatment, there was slight improvement in four. One or two nights a week would be passed without bed-wetting. At the end of the third month the lapses were but once or twice a week. Seven were well at the end of the fifth month, rarely wetting the bed. The treatment was continued two months longer when the dose was reduced one half, again continued for two months and then stopped and nine months after final discontinuance, there had been no return. The remaining five, all over six years of age and including the girls, showed but slight improvement after the fifth month of treatment, the incontinence being of almost nightly occurrence. During the next three months, the improvement was gradual and at the end of the eighth month, incontinence occurred not oftener than twice a week, and during the tenth month, it was only

occasional. The dose was reduced one half and after one year of continuous treatment, there was no return of the trouble. The atropia was stopped and after six months, the cure was apparently completed.

These cases need not cause discouragement, as they were inveterates, all over six years old, the oldest ten. They had always wet the bed and had resisted all previous treatment. Frequently a treatment of from four to six weeks, even a shorter time, effects a cure. The child receives three meals daily. The breakfast and dinner correspond to the age of the child, but one should emphasize the fact that red meat is to be given but once during the twenty-four hours. The supper, which should not be later than six o'clock, I designate a "dry supper." It may consist of any cereal, such as rice, hominy, farina, or wheatena, served with butter and sugar. If this is not well taken a small quantity of both sugar and milk may be added. Permissible articles for the evening meals in addition to the above are, ice cream, milk toast, blanc-mange, raw fruit, jelly, stewed fruit, bread and butter. Meat, eggs, or heavy foods of any kind should not be given at night. At four o'clock in the afternoon the child is given as much water as it wishes, but no fluids after this are allowed other than a little milk on the cereal. The absence of all fluids after 4 p.m. will at first be a hardship for some children and they may be allowed a small quantity, — three or four ounces of milk or water, with the evening meal, but this quantity is gradually diminished until at the end of a week it will not be missed.

The child should be as lightly covered at night as comfort will permit. There is less tendency to incontinence if the child rests on its side or stomach. Sleep in this position should be encouraged. In inveterates, where every possible aid is brought into use, I have used the knotted towel as a means of keeping the child off its back. A knot is tied in the middle of the towel. It is then passed around the child so that the knot will rest on the back. If it is long enough the ends of the towel may be pinned together over the abdomen like an abdominal binder. When the child attempts to rest on the back the knot causes discomfort and the position is changed. At 10.30–11 o'clock when the person in charge retires, the child should be taken up to urinate.

Drugs: Without a strict observation of the above measures, particularly those referring to diet and the absence of water after 4 p.m., drugs are of no value, whatever their method of administration. With the above suggestions carried out, we have one remedy which is of great value, and that is belladonna. For convenience of administration I prefer the alkaloid, atropia. To get the full benefit of the treatment in severe cases it must be pushed till we obtain the physiological effect as shown by a slight dilatation of the pupils. Before beginning the treatment it is well to advise mothers that a redness of the skin need cause no alarm, but when it is noticed to discontinue the drug until further instructions are given. The

atropia is administered as follows: One grain is added to an ounce of water; one ounce of water contains approximately 500 drops, so that one drop of the atropia solution would contain approximately 1-500th of a grain of the drug. The mother is given a chart containing the directions for administration, for a child five years of age it is as follows:

	4 P.M.	7 P.M.
1st day	0 drop	1 drop
2d "	1 "	2 "
3d "	2 "	2 "
4th "	2 "	3 "
5th "	3 "	3 "
6th "	3 "	4 "
7th "	4 "	4 "
8th "	5 "	5 "

The child is given one drop daily at 4 and 7 P.M. for every year of its age. Thus, for a child three years old the dosage should not be greater than three drops twice daily; for a child six years old not over six drops twice daily would be given. It may be well if the case is not under close observation to make a more gradual increase in the dosage so as to avoid the possibility of unpleasant physiological effects.

It is never advisable to exceed these doses even in older children, for the reason that the enuresis will be controlled, or the dilated pupil and the belladonna blush will indicate that more must not be given.

The tolerance for atropia varies considerably, although children usually bear it very well. Now and then a child is treated who can not take over two drops, 1-250th of a grain daily. To one boy eight years of age but 1-200th of a grain could be given twice daily. Pronounced benefit, ordinarily, will not be observed during the first week or two of treatment. If the child suffers from incontinence while awake, this will first be cured. The improvement in nocturnal incontinence is more gradual and may be considerably delayed. Thus, no improvement whatever may be seen for two or three weeks. In the cases cited above it will be noticed that in three no improvement occurred until the sixth week. In the average case the improvement is gradual. Instead of wetting the bed every night there will be nights at intervals of a few days when there will be very slight incontinence, or none at all. After a few weeks' treatment the incontinence entirely ceases. The mistake frequently made is to stop the atropia at this point. When this is done there is usually an immediate return. The full treatment should be continued until the child has ceased wetting the bed for at least two weeks, when the daily amount of atropia should be reduced one half and kept at this point for six weeks. If, at the end of two months from beginning treatment, there is no incontinence the drug may be discontinued, but the dietetic regulations, particularly the "dry supper" should be given for three months longer. It must be remembered that the element of habit, which had become established, is hard to overcome, even after the neurosis and the sphincter weakness has been corrected. Strychnia and tincture of

cantharides have been advocated by pediatric writers. In weak, poorly nourished children strychnia may be added to the iron or oil tonics, and as a tonic, be of service in improving the general condition of the patient and indirectly be an aid in the treatment of the enuresis. When incontinence occurs only during the day, the dietetic regulations are the same, with the exception that the fluids allowed need not be curtailed unless the quantity is excessive. The dosage of atropia is the same, but the time of administration should be changed to after breakfast and after luncheon instead of at 4 and 7 P.M. In addition to the atropia, strychnina should always be given in cases of incontinence by day, as a lack of development of relaxation of the sphincter is more of a factor with them than is failure of co-ordination in the nerve supply.

A fact to be taken into consideration in making a prognosis as to the duration of the treatment in a given case is the size of the bladder, since a child who has suffered from incontinence both by day and night may have a small and contracted bladder because of lack of development from disuse. In one of my cases, in a girl five years of age, the bladder had a capacity of but one ounce. The most reliable means of determining the size of the bladder is by measuring the amount of sterile water introduced through a catheter.

Medical Progress.

REPORT ON PROGRESS IN OBSTETRICS.

BY FRANK A. HIGGINS, M.D., BOSTON. ;
(Concluded from No. 6, p. 155.)

HEART DISEASE AND PREGNANCY.⁷

A great diversity of opinion exists as to the significance of heart disease in pregnancy. Some hold that this complication is one of extreme gravity, others that it is of comparatively slight importance and may be readily controlled by timely and appropriate treatment. A certain knowledge of the possible ill effects of this condition has also spread among the laity, and anxious inquiries regarding the outcome are usually addressed to the attending physician by the family and friends. It is often a difficult matter to render a prognosis in any given case, and the uncertainty which exists with respect to this question may, perhaps, be traced to the fact that most observers have failed to recognize any distinction between the various forms of cardiac lesions in their relation to the pregnant state. The importance of this is shown in a lecture by Tuszkaï of Budapest. He is led to propose a grouping of these cases with reference to the prognosis as follows: In the first group may be included those cases in which the cardiac lesion was present before the woman became pregnant. Here the prognosis is in general very bad. In the second group may be gathered those cases in which the disease of the heart, previously in a

⁷ Editorial: *Med. Record*, N. Y., Feb. 17, 1906.