ADAMS (S.S.)

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BY

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How a subject of as much importance as this should have so long escaped presentation and discussion before the American Medical Association is surprising; but the fact exists that it never has been presented to this body and for that reason I have chosen it.

There is not much importance attached to the history of the disease. With the assistance of Drs. Kolipinski and McArdle, of this city, I have examined all the literature on the subject from 1784 to the present, including articles in German, French, Italian, and Spanish. In 1784 Mitchell wrote on the disease as clearly as any subsequent author, and its pathology was as well understood then as now. The tendency at that time was to let it alone with a hope that puberty would restore the function of the bladder.

From birth the child instinctively voids its urine and we take it for granted that the act is reflex. But with the evolution of the teeth, speech begins, intelligence is developing, and we expect the will to control the sphincter vesicæ. The rule is that about the eighteenth month the child is taught to exercise complete control over the sphincter. If after this age the urine is passed involuntarily the tendency is to attribute the disgusting act rather to carelessness than to a pathological state, which to my mind is an injustice to the child. From observa-

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tion and the supervision over children of every condition of life I am loath to accept this conclusion, and am proud to state that all the cases which have come under my observation have had specific causes, and were not the effects of laziness. So believing, as I do, in a pathological state, it delights me to attempt this defence of the long-abused unfortunate.

Many a child has been repeatedly and unmercifully punished for wetting his clothes or bed in the face of repeated protestations that he could not help it. The disease and punishment go on together until the patient becomes such an object of disgust to himself and his family that they are impelled to seek professional advice. Then the parents learn that they have been chastising their child, perhaps for years, for a fault which was the result of disease, and therefore incontrollable, when they would have quickly resented a just punishment, if administered by some one else, for a real fault less offensive in its character.

Again there are others who, while they believe the act involuntary, will let it run on for years with the hope that education and the inculcation of habits of cleanliness will effect a cure, or that their only hope for relief is in the establishment of puberty.

The child instinctively becomes neat and seeks the proper time and place to empty its bladder, and I am unwilling to admit that it ever deliberately soils its clothes after it has once been taught to use the vessel. None of the brute creation will lie in their urine if they are not tied or penned; then why do we attribute this practice in the rational being to laziness? Simply because some are not able, by a careless and superficial examination, to find the cause, and well knowing that their reputations will be at stake if they do not account for the act, they too often condemn the helpless child to daily floggings. There must be a pathological condition to account for an act that makes nature an abhorrence to herself, and it is our duty to seek diligently for it, remove it, and thus transmute the filthy child into the cleanly.

But in too many cases the act continues untreated, in spite of punishments and the jeers of companions, until well-marked psychical changes take place. The child, bright and cheerful by nature, soon loses his vivacity; shrinks from the presence

of his companions, becomes morose and spiteful, pale and haggard, restless and nervous; will not look you in the face; and with chin depressed and upper lids drooping presents, indeed, a striking likeness to the onanist.

We generally find the disease divided into three varieties. In the first class the subjects suffer from a constant dribbling of urine day and night. This variety is infrequent, and when found it is usually associated with some serious pathological state. I have met with but two cases of this kind, in boys about eight years of age, who for several years had been unable to retain their water; examination revealed a vesical calculus in each case which, being removed, the function of the bladder became normal.

A second class comprises those whose incontinence is intermittent in character, and occurs in the day as well as at night. We find that in this class the urine is retained for a short time during the day, when the desire to void comes, but before the child reaches a convenient place the sphincter is overcome and the poor child is powerless to stop the flow. This is the form usually met with in the girl. In fact the histories of those I have seen have been that the girl would suddenly be taken with a desire to urinate, while in school or on the street, but before they could reach a closet the power of control gave way. The cause in these cases was found to be vulvitis or urethritis as a result of the iritation from ascarides in the vagina.

But the third class is the one that interests us most because of its frequency in both sexes, its nocturnal character, its possible concealment for years, and the promptness with which it yields to treatment. It is the children of this class who are so frequently punished for bed-wetting when they are as powerless to control the sphincter during the night as are those of the two preceding classes during the day. They may, and usually do, urinate before retiring, and yet about midnight, during a profound sleep, the urine is passed again; or it may be that the night is passed without the accident, but just before rising in the morning the contents of a full bladder are involuntarily set free. Patients of this class generally dream of urinating. In the boys of this class, urination takes place during erection of the penis. Again, we meet with cases where the cause is obscure, but, nevertheless, the nocturnal in-

continence occasionally takes place. In these patients I attribute the accident to causes that favor a perfectly physiological process in the adult. We well know that late suppers, rich food, wines, certain positions during repose, profound sleep, amorous or lascivious dreams, and many such causes produce a nocturnal pollution in the adult, and I am convinced that the same causes excite a similar irritation in the child; but, instead of the seminal discharge, the physiological process of which is not yet established, the bladder is emptied. In each instance the discharge is the result of a conservative process of nature to relieve the irritation. Indeed, this theory seems the more plausible because in many instances the nocturnal bed-wetting goes on undisturbed until the full establishment of the sexual functions, when the enuresis is superseded by nocturnal pollutions. This theory is also tenable because most of the remedies which cure the adult of his complaint very quickly relieve the child of its.

The disease is more frequent than the statistics of hospitals would seem to indicate, for the greater number of cases go untreated until a spontaneous cure is reached. The probability is, it is not always differentiated and recorded as a distinct disease, since in the statistics I have examined it seems to have occurred only 46 times in 15,169 children treated at the Children's Hospital, District of Columbia; 5 times in 2,058 at the Children's Hospital of Boston, and 4 times in 2,034 at the Children's Hospital of Philadelphia, or 55 times in 19,261 sick children.

It most frequently exists in children between eight and twelve years, but may occur at any time between two years and puberty. It is common to both sexes, white and black.

Trousseau was the first to trace a relationship between incontinence and epilepsy, claiming that in rare instances one succeeded the other, and that these histories always pointed to the transmission of one of the neuroses.

Some writers claim that there is a reflex relation between hip-disease and nocturnal incontinence, but the records of the Children's Hospital of this city, where a great many cases of hip-disease are treated annually, do not accord with this statement.

The following cases include some of each of the three classes:

CASE I.—Earnest P., four years, W., was admitted to the service of Dr. F. A. Ashford, at the Children's Hospital, D. C., during my term as resident physician, March 11th, 1879. He had had difficulty in retaining and passing urine for several years. There was now constant dribbling. March 16th, a calculus weighing 110 grains was removed by the lateral operation, and the patient was soon after discharged cured.

CASE II.—Sarah C., fifteen years, C., was admitted to the service of Dr. Busey, in the same institution, October 28th, 1876. She had had constant dribbling of urine for seven years. She was treated with tincture of belladonna,[1] and was discharged cured December 4th, 1876.

In such cases as this, it is not always easy to determine the pathological condition. Usually atony or paralysis of the bladder, enlarged prostate, or stricture of the urethra is present.

CASE III.—Frank C., seven years, W., was admitted to Dr. Ashford's service April 19th, 1879. He had had dysuria for some time. As soon as he desired to urinate, he had to run to the closet to avoid wetting his clothes. Wet the bed at night. Blood passed in urine at times. April 24th, a calculus weighing one hundred and seventy-five grains was, with great difficulty, removed by the lateral operation, and the patient was soon after discharged cured.

CASE IV.—H. S., four years, C.M., was admitted to the same service September 12th, 1871. For two years he had had difficulty in retaining his water, and pain on micturition. A calculus weighing fourteen grains was removed by the lateral operation, and the patient was discharged cured.

CASE V.—L. M., twenty-two months, W. M., was admitted to the same service August 4th, 1873. Had frequent desire to urinate, at times painful, sometimes involuntary; urine offensive. A calculus weighing fifty-two grains was removed by the lateral operation August 11th, and the patient was discharged cured.

CASE VI.—S. T., eight years, C. M., was admitted to the same service August 5th, 1880. He had difficulty in retaining his water and sometimes wet his bed. Examination revealed phymosis. Circumcision was performed August 21st, and the boy was soon after discharged cured.

CASE VII.—C. W., four years, C.M., was admitted to the same service March 13th, 1882. He had had for some time frequent and difficult urination; at times involuntary. Circumcision was performed and the boy cured.

CASE VIII.—James S., four years, W. On the 19th of March, 1884, Dr. Busey invited me to assist in circumcising this boy. From birth the little fellow had been accustomed to pass his

[1] Dr. Busey's method of treatment is to give the tincture of belladonna at bed-time, and increase the dose one drop daily until improvement begins, and then hold that dose until a cure supervenes.

water frequently, but after straining for several minutes he would become tired and cease trying, apparently before the bladder was emptied. Dr. Busey's attention was called to this condition, and examination revealed an elongated prepuce with an opening about the size of a knitting needle. The patient at this time was pale, languid, thin, restless, slept at short intervals during the night; retained his water but only a short time. He, being etherized, was circumcised as described later on. The adhesions to the glans were so firm that it required a longer time than usual to break them up. He soon recovered from the operation and has not had any difficulty about urination since. Three weeks after the operation Dr. Busey informed me that I would hardly recognize the child. He had become fat, rosy, and cheerful.

It may be claimed by some that this case is not properly classed, as there was no actual incontinence. But if it is admitted that in a perfectly healthy child of his age the urine should be retained three or four hours, then an uncontrollable desire to pass water at shorter intervals being shown, it would seem to approximate incontinence, and hence this classification. Although I cannot state positively, still I venture the assertion that, when the desire to urinate came, if he had not hurried to a convenient place, he would have soiled his linen.

CASE IX.—Mary W., four years, C., was admitted to Dr. Busey' service April 19th, 1871. She had had incontinence and intense pain on micturition for one week; the incontinence mostly at night. She was treated with tincture of belladonna and was discharged cured May 17th.

CASE X.—W. H., twelve years, W. M., was admitted to the same service February 15th, 1879. Four years before he had had measles; from that time he had had incontinence day and night. He was put on the belladonna treatment and was discharged cured March 6th.

CASE XI.—Guy P., eleven years, W., was admitted to the same service September 3d, 1879. He would generally hold his water until the bladder became distended, when he lost control over the sphincter. He was improving rapidly under the belladonna when his parents removed him without the consent of the attending physician.

CASE XII.—Nellie C., eight years, W., was admitted to the same service May 9th, 1882. She had had incontinence day and night for six years. She was given the stigma of maize and belladona, and was discharged cured June 11th.

CASE XIII.—Alice L., four years, W., was brought to me for an excessive leucorrhea, and inability to retain her water for any length of time. At short intervals she would run for the closet but before reaching it she would lose control over the bladder. Examination showed the presence of ascarides in the rectum and

vagina. She was given santonin internally and enemata of aloes and milk, and was speedily cured.

Sometimes we meet with cases of incontinence with high-colored, acid, and offensive urine, when the administration of bicarbonate of potassium will quickly effect a cure.

Finally, another class is met with where there is an adherent prepuce with a collection of smegma behind the corona. In such cases breaking up the adhesions and cleansing the part will generally effect a cure.

CASE XIV.—Ida B., thirteen years, C., was admitted to Dr. Busey's service April 12th, 1883. She had had noctural incontinence for two years. She was treated with belladonna, and was discharged cured June 8th, 1883.

CASE XV.—Fred R., three years, W., was taken with balanitis in November, 1883. Upon examining him I found an elongated prepuce with an opening about large enough to admit an ordinary darning needle, from which was pouring a profuse purulent discharge. The inflammation was believed to be due to the phymosis and I advised circumcision. At this time I questioned the mother as to whether he was the subject of nocturnal enuresis and learned that he sometimes wet the bed, but was in the habit of calling her three or four times during the night to put him on the chamber. On the 24th of November, with the assistance of Dr. McArdle, circumcision was performed. The mucous membrane was adherent as far as the meatus and a large quantity of smegma was behind the corona. In ten days the patient was discharged and up to date (May, 1884) has not wet his bed, holds his water well during the day, and rarely has to be taken up at night.

CASE XVI.—Charles O., eight years, W. Four years prior to operating, his father informed me that the boy was in the habit of wetting the bed, at least once, and often several times, every night. At that time, I did not examine the boy, but accepted the father's statement that the prepuce was long, incapable of being retracted, and with an opening about large enough to admit a small probe. Owing to the father's prejudice against anesthetics, and my unwillingness to operate without them, the trouble continued unchecked. I refused to advise the administration of drugs, stating that, in my judgment, the incontinence would never be cured without circumcision.

In November, 1883, he had measles and was under my care. When convalescent and in good condition, I proposed circumcision and obtained the consent of the parents, as well of the patient, the latter being anxious to be cured.

On the 2d of December, with the assistance of Dr. McArdle, circumcision was performed.

While the night before the operation the patient voided his urine three times during sleep; since then, he has only done so twice, at long intervals. On these occasions, the incontinence was attributed to salty diet and the taking of large quantities of water.

At my request, Dr. H. D. Fry, of this city, gave me the follow-

ing details of a case that came under his observation. It properly belongs to class one.

CASE XVII.—"September 13th, 1882, I was requested by Dr. J. H. Davidson, of Montgomery Co., Md., to perform circumcision upon a patient of his who was suffering from incontinence of urine due, apparently, to an elongated prepuce.

"The patient was fifteen and one-half years of age, and fairly well-grown. The penis was small and undeveloped; and, extending from the end of the organ was a long, snout-like projection of preputial tissue which could not be retracted over the glans penis. His mother gave the following history of the case: Until the age of five years, he was not unlike other children, as regards both his general condition and the appearance of his privates. At this time, his penis broke out with 'poison oak,' and the prepuce could then be drawn back, in order to attend to the dressing of the part. After his recovery, the glans penis could not be exposed.

"When about eleven years of age, the parts became sore again, and from this time he had no control over the discharge of urine. His general health declined; complexion was bad; complained of pains in his side; and became nervous and irritable. His manner at school was so different from that of other boys that his teacher's attention was called to his actions, and he spoke to the boy's parents and advised them to have something done with him."

"Such was the state of affairs at the time of the operation, and it had existed about four and a half years.

"I removed the redundant tissue back to the corona, broke away some adhesions that existed, and left the case with the request that no medicinal treatment should be employed. I wished to see the effect of the operation *per se*.

"April 28th, 1884, the boy's mother wrote the following report: After the operation, he had no fever; slept well, without opiates; and suffered little pain. There was little or no suppuration. In a week, he left his bed and, in a month, returned to school. His general health, since, has improved slowly; is less irritable; complexion better; and retains his water."

In the few cases of occasional nocturnal incontinence the cause may be an overloaded stomach or bowel, intestinal worms, hip disease, adherent prepuce, or amorous or lascivious dreams.

I myself do not doubt that, in cases of phymosis, the nocturnal incontinence is due to reflex irritation. In some cases, the irritant is the smegma behind the corona which keeps up a constant excitation. During the day the will is powerful enough to overcome the action of the spinal centre presiding over urination, while at night the will is asleep, and the reflex reaches its maximum. In other cases, owing to the contracted orifice of the prepuce, the bladder becomes tired from prolonged ex-

pulsive efforts, and relaxes before it is emptied During the day, frequent micturition is observed, but the bladder is not emptied; at night, the desire to urinate is just as frequent, but the will is asleep, and the spinal centre responds to the irritant by involuntary micturition.

To determine the pathological condition is not always an easy matter. Atony of the sphincter vesicæ, or spasm of the detrusor urinæ, may be the cause. The controlling power over the sphincter, which is largely reflex, may, by the influence of the will, prevent the escape of urine during the day; but at night, when the will is asleep, this power is relaxed, and the consequence is involuntary micturition, regardless of cerebration.

As I do not admit that incontinence is frequently the offshoot of fear or laziness, of course I hold that moral suasion and corporal punishment are not efficient correctives, and equally, of course, I contend that, in most cases, the indicated procedure is either remedial or operative.

It would be more interesting than instructive to examine the literature of the internal remedies which have been successful in these cases. Nearly every drug in the materia medica has been tried with equal success, if we are to credit the books. Drugs physiologically and chemically incompatible have been combined, and success claimed for them. Accepting the theory of a want of tonicity in the muscular walls of the bladder, some have used remedies that should have aggravated the trouble, and yet have claimed a perfect cure. In such cases, the results were probably accidental, and most likely were brought about by nature, in spite of the treatment.

Leonardi and others extol chloral, but others have failed to derive any benefit from its use. It acts by allaying the reflex irritability in the cord. I do not approve of the use of this drug with children; certainly not except with the utmost caution. Owing to the variability in strength of the preparation, and the uncertainty of its physiological action, as well as to individual idiosyncrasies, it must, in my opinion, be regarded as one of the most dangerous and uncertain remedies in common use.

The bromides take foremost rank in the treatment of those cases in which an exalted nervous condition can alone account

for the incontinence. They should be given in large doses at bedtime.

But belladonna is the remedy *par excellence* in the treatment of those cases believed to be associated with a tonic spasm of the bladder. One of its physiological actions is to relax the tonic contraction of the involuntary muscular fibres. The muscles of the bladder being of this class, when the atropia in the urine comes in contact with the walls of the bladder it allays irritability and relaxes spasm. In order to derive benefit from the drug it should be given in large doses at bedtime, which should be increased, drop by drop, daily, until improvement results or its physiological effects are obtained. It must be borne in mind that children will bear much larger proportional doses than adults. I speak in the highest terms of this drug because, as will be seen from the foregoing cases, it alone produced beneficial results in about four weeks.

If there is a relaxation of the sphincter vesicæ, or paresis of the muscles the bladder, strychnia is indicated. But as I have never seen a case of this kind, I have had no experience with it.

If the patients are puny or in ill-health, we would naturally expect better results by improving the general health while we are administering remedies.

Experience has taught me that the best success attends those patients who are treated in hospitals. In these institutions the diet of the child can be regulated, and many advantages gained in treatment. Parents will insist and believe that the physician's instructions are carried out in full; but they forget the sympathizing friends about the house, who think the child unduly restricted, and who are, therefore, willing and ready to cater to its whims. For this reason, it has been my custom to advise children to be placed in the hospital. If the patient can be fully controlled, success will quickly attend the treatment indicated.

In order to make statistics of operative procedures valuable, the use of remedies should be suspended. If we operate then, the operation should stand upon its own merits, and not be embarrassed by drugs. After a circumcision, if belladonna is given, how can we tell which means effected a cure? In the cases above reported as operated on, nothing but soporifics were given.

I do not advocate circumcision as the certainly indicated remedy in all cases, nor do I believe that every boy who has incontinence, with an elongated prepuce, should be compelled to undergo the operation. If the prepuce cannot be retracted, then I would advise operating; and while sometimes the opening in the prepuce is large enough, yet it cannot be retracted owing to adhesions. In such cases, if these adhesions are broken up, favorable results will follow.

I prefer to perform the operation of circumcision in the following manner: The prepuce is drawn forward and Henry's clamp tightly applied; the end of the prepuce is then cut off with scissors and the clamp left on the stump for several minutes to check bleeding; a director is then pushed along the upper surface of the glans, and the mucous membrane divided beyond the corona. The membrane is then turned back to meet the retracted skin, and made fast by five silk sutures. In about ten days the patient is well. I remove only that part of the mucous membrane that is cut off with the end of the prepuce; for by leaving a long membrane it can be turned back and thereby hide the cicatrix, which is a source of mortification to many parents. In Cases VIII., XV., and XVI., there is nothing to attract the attention to circumcised organs.

One objection to the operation is that the glans will be left uncovered and that it destroys, to some extent, the sensitiveness of the organ. If this were true it would in many cases prove a great blessing, but unfortunately it is not true. Another objection is that the beauty of the organ is destroyed, whereas, in fact, if the circumcision is neatly done, the penis presents a far better appearance than it does with a redundant foreskin.

From the foregoing cases, which have invariably been attended with complete success, without the administration of a drop of medicine, is it to be wondered that I so strongly favor circumcision?

Some have advised forcibly stretching the contracted prepuce, a process both tedious and unsatisfactory.

Teevan, a British writer, advocates slitting the meatus, which he thinks is too small in most children with incontinence. As I have not seen any cases requiring the operation, I must accept his statement that benefit was derived from it.

There is one other class of treatment discussed and recommended in the books, what may be called the mechanical.

Many, I dare say, have been called to treat an edematous prepuce caused by tying a string around the penis to prevent bed-wetting. Perhaps some little fellow, after frequent thrashings has finally, in sheer desperation, conceived the idea of eluding the lash by tying up the escape-pipe. He may have missed the chastisement, but he paid dearly for the immunity.

Corrigan, apparently a writer of note in Great Britain, deliberately and strongly advocates hermetically sealing the prepuce with collodion. He stretches the prepuce and forms a pouch into which the collodion is poured, solidifies and thereby prevents the escape of urine!

Compression of the membranous portion the urethra by a pad, and packing the vagina have also enthusiastic devotees!

Knotted towels, spiked belts and other uncomfortable rigging to prevent the child from lying on its back have also received their share of commendation!

It seems hardly necessary to comment on these various mechanical methods of treatment, since they seem to evince a hopeless ignorance of the etiology of the disease, and are not only valueless, but actually harmful.

The bibliography of this subject has been very carefully examined, with the courteous and efficient aid of Drs. Fletcher and Wise of the Surgeon-General's Office, U. S. A., and I believe the following is a measurably complete list:

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