

Enuresis

Letter by Dr. Margaret Lowenfeld to the medical journal

The Lancet

Sir,

This correspondence and a sentence in your leading article of Feb. 19 ("We are not so well equipped to treat enuresis that we can ignore any promising technique") prompts me to write of some conclusions I have formed from twenty years of dealing, in the main successfully, with enuresis in children.

Does not the cause of our lack of success lie in the tendency for the specialist to treat enuresis as a phenomenon of the urinary system alone, and for the general practitioner to take the opposite line and tell the mother that the child needs no help and will "grow out of it"?

It is, of course, true, as you state, that in a certain proportion of children the situation arises from specific pathological conditions of the urinary system, but these cases amount to a very small proportion of those suffering from this very common complaint. Elaborate urinary investigations, on the other hand, tend directly to increase the child's difficulties in gaining control, and to hinder the achievement of understanding by physician, mother, and child of the part played by delayed bladder control in any individual child.

Surely the kernel of the whole problem lies in the power of the body to use its normal functions both to side-track and express emotional strains?

Do we not all remember the frequency of our visits to the w.c. while waiting for *viva voce* examinations, and have we not noticed how the frequency and timing of micturition in ourselves varies with the weather and the emotional significance of the days programme?

This ability of the bladder to respond to factors affecting the whole personality is much more marked in children than in adults. There is, also, an aspect of urinary performance additional to the emotional factors described by other correspondents, which is peculiar to children.

The adult is used to himself and his physical apparatus; he has, alas, in most instances, long ceased to "play," and his excreting organs are only of passing interest to him. On the hand, in children, curiosity, the desire to experiment, the enjoyment of "play," and the urge to acquire knowledge of himself and his functions, and of the mysterious lacks in his small sisters, leads to a concentration of interest on his excreting organ which can be overlaid with other activities during the day, but returns with full force when these vanish in sleep. Then, the child who is disturbed in his personality, as described by Dr. Symonds (Feb. 26), and who has insufficient opportunity and/or ability to "make friends" with the

varied aspects of himself, and to gain release from tension in play, will use his urinary function to achieve this end in sleep.

It is not the bladder or its controlling mechanism, but the whole child who needs investigation and help.

The difficulty in the treatment of enuresis arises from the separation between paediatrics and child psychiatry, so that the paediatrician too often sees only the function, and the psychiatrist only the personality, and such common-sense factors as maturation, opportunities for play, and sensible education of the mother in understanding both sides of her child's nature, so often do not appear at all.

It has been our custom, in our treatment at the Institute of Child Psychology, to provide a ground-floor room with a cement floor sloping to the outside, with illumination from a waterproof ship-side lantern, which is fitted with sinks at different heights, water toys of all sorts, and pots and jars and hose-pipes. Here, clothed in wellingtons and mackintosh, a child can work out in real water the drives, fantasies, and experiments, and – with the aid of the therapist – clarify the puzzles which lurk in his mind and perhaps tip the balance towards expression of all these through his own water reserves at night.

As Dr. Jackson (April 16, p.822) has so wisely pointed out, rate of maturation varies enormously in different children (though surely he is incorrect in putting the lower limit for bladder control at three years?), and giving up the desire for elementary water-play is a function of maturation.

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Enuresis

The causes of bedwetting are still in dispute. This is hardly surprising, since the physiology of micturition in man is still not fully understood. Moreover most of the patients are children, with whom communication is less easy than with adults; and the interpretation of the results of treatment is bedevilled by the tendency of enuresis to spontaneous cure. However much argument there may be about the relative importance of emotional factors, social environment, depth of sleep, constipation, and so forth, no-one questions the necessity to exclude organic disease of the urinary tract. Gross organic disease accounts for only a small proportion of cases – for example, 10% of Nash's [1] series of 218. Over half of these patients with organic disease had retention with overflow

– a gross disorder indeed – and some of the others had conditions detectable only by special investigations, such as urethral polypi, pelvic kidney, and bladder tumour. Probably still more refined investigation would show that organic disease accounts for enuresis more commonly than is now supposed. Fisher and Forsythe [2], of Belfast, have described their experience with a new technique of cysto-urethrography in 135 children over five years of age whose enuresis had not responded to three months' intensive medical or psychiatric treatment, or both. Voiding cysto-urethrography is a well-recognised method of investigating abnormalities of micturition; and the chief novelty of the technique devised by Fisher and Forsythe is the use of a 25% suspension of barium sulphate, which throws an extremely dense shadow and so traces the outline of the urethra in the finest detail. Their results are remarkable. Of the 135 children no less than 25 showed evidence of valves of the posterior urethra. This proportion may be compared with Nash's [1] valve in 218 enuretics. In only 5 of the Belfast cases was there clinical evidence of obstruction (dribbling or straining) and no information is given about residual urine (except that it was measured routinely) or trabeculation. We know that severe obstruction may be caused by valves in the posterior urethra and in such cases the patient may have overflow incontinence and present as an enuretic. We are on less sure ground in inferring that a fold of mucous membrane in the posterior urethra if it does not cause obstruction may yet cause enuresis. There are indeed normal folds running outwards from the lower end of the verumontanum, and the question arises as to the extent to which such folds, if well developed but still within normal limits, may be shown up in the fine detail of these new urethrograms. The technique of Fisher and Forsythe deserves a wide trial, but the results must be interpreted cautiously.

Many children with enuresis have normal frequency by day, which shows that their bladders have a normal capacity. Why then should their bladders hold less at night? Do they in fact hold less? Perhaps they are called on to hold more by failure of the kidneys to shut down for the night in the normal way; and certainly many distracted mothers express themselves forcibly about the quantity of urine in the bed. Poulton [3] found that in most enuretics there is a disturbance of the normal rhythm which he calls relative nocturnal polyuria. It has been stated that normally about four and a half times as much water is excreted by day as by night. Poulton found that in normal children the lowest day : night ratio was 1:8, whereas of 100 enuretics 69 had a day : night ratio of less than 1:8. The significance of this finding is by no means obvious. It certainly cannot wholly explain enuresis; for polyuria due, for instance, to diabetes insipidus is not particularly associated with enuresis. It may be one of several primary factors; or perhaps it is a secondary effect of enuresis. It may be due to the emotional disturbance caused by (or perhaps causing) bedwetting; emotion is a well-known cause of diuresis. A second possibility is that a primary abnormality of the bladder neck causes enuresis and also incidentally polyuria. Winsbury-White [4] has noted polyuria in association with posterior urethritis, and the characteristic nocturnal frequency of prostatic patients is due to

nocturnal polyuria. We have much to learn about abnormalities of excretory rhythm in diseases of the lower urinary tract.

Is enuresis caused by an abnormality of sleep? No less an authority than Meredith Campbell [5] bluntly says No. Nevertheless many are convinced that the lightening of sleep by such drugs as dexamphetamine often stops enuresis. This does not prove that deep sleep is a cause. For one thing dexamphetamine does not only lighten sleep: it has a local action on the neuromuscular mechanism of the bladder [6] similar to that of ephedrine, which has been used for some time in the treatment of enuresis.

[1] Nash, D. F. E. *Ann. R. Coll. Surg. Engl.* 1949. 5, 318.

[2] Fisher, O. D., Forsythe, W. I. *Arch. Dis. Childh.* 1954. 29, 460.

[3] Poulton, E. M. *Lancet*, 1952, ii, 906.

[4] Winsbury-White, H. P. *Textbook of Genito-urinary Surgery*. Edinburgh, 1948; p.260.

[5] Campbell, M. *Urology*. London, 1954; p.1636.

[6] Cartwright, H. *Brit. Med. J.* 1954, i, 1036.