

of antiseptics, such as iodoform and chloride of zinc (40 grs. to the ounce) is of secondary importance to an improvement in the vitality of the limb. They are, however, very valuable as adjuncts to the elevation treatment. After the ulcer has assumed a healthy appearance, if the patient must go about, apply elastic pressure *before* the patient arises from bed. This is a most important point, which possibly Dr. Martin was the first to insist upon.

When a patient is brought under your notice with pain in the knee, for which you cannot find any evident local reason, always carefully examine the hip; and in a patient who limps as if from hip-joint disease, if you do not find in the hip evident objective symptoms of joint disease, always carefully examine the back. He may be suffering from vertebral disease, with effusion into the psoas muscle under the psoas fascia.

In fractures of the leg use the box splint—two pieces of wood rolled in a sheet. See that the foot is kept at right angles to the leg, and thus retraction of the heel is prevented. Take care that there is no eversion of the foot. In oblique fractures use extension.

In fractures of the patella fix to the anterior aspect of thigh a large piece of sticking-plaster, and make through it extension on the quadriceps extensor cruris—elevating the limb on an inclined plane with a foot piece.

In fractures of the thigh use extension with the weight and pulley, take care that the weight is not too heavy, and measure the limb every third day, so that the weight may be reduced. The too prolonged use of the weight may result in delayed union or in non-union. In children, in restless adults, and in cases of delayed union, use a double long splint with a transverse cross piece. In other cases a single long splint is sufficient; with the double long splint the patient is fixed in a wooden box, so that he can only move his arms and his head.—*Edinburgh Medical Journal*, June, 1886.

## NOCTURNAL INCONTINENCE OF URINE.

BY DR. H. PICARD.

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In order to form an exact idea of the mechanism of nocturnal incontinence—which belongs almost exclusively to young children—it is necessary to thoroughly understand in what micturition consists. The urinary apparatus has two functions to fill: The production of urine and its expulsion. We now speak only of the latter function. In the normal condition the urine which fills the bladder cannot flow back through the ureters because their orifices are closed by a sort of valve whose occlusion becomes more and more hermetic as the bladder becomes full. On the other hand the bladder, when full, contracts without our consciousness, and in compressing its contents against the uretro-vesical orifice, which it distends, gives rise to the desire to urinate. The urine does not run forward, firstly because the tonicity of the muscular fibres

of the vesical sphincter and the urethral orifice suffices to retain it in the bladder when a flow is not needed; and secondly, if the desire is marked, and we wish to resist it, the contraction of the muscles of Guthrie and of Wilson comes under the influence of the will, reinforces the involuntary muscles, and maintains the urine in the bladder. In the contrary case we make, in the first place, a light effort, which, in contracting the diaphragm, supports the intestines upon the bladder and aids its contractions; and then we relax the voluntary muscles of the deeper parts of the urethra so that the involuntary muscles being no longer sustained, the urine cannot fail of expulsion. Here is then, in the physiological state—and this is a capital point in the subject which occupies us—an *opposition* between the action of the bladder and that of the urethra. The contraction of the latter, it is seen, is indispensable to the distention of the former during its time of repletion. Urethral relaxation, however, is voluntarily effected when the bladder contracts for micturition. Now, it does not matter in how small a degree the equilibrium may be interrupted between these two forces—the urethral which retains and the bladder which expels—the disturbance must result in incontinence. Well, in the infant up to 15 or 18 months, this equilibrium is absent, the contractility of the bladder being very great, whilst that of the urethro-vesical sphincters does not exist. The involuntary muscles are too weak at this time and the will is still incapable of causing the voluntary muscles to contract. So, in early infancy, incontinence is normal, and is diurnal as well as nocturnal.

When incontinence is prolonged after 2½ to 3 years it is abnormal, and at 4 years it has already become an infirmity, only, it ordinarily becomes at that age, wholly nocturnal. This abnormal prolongation of a normal condition is not invariably the origin of nocturnal incontinence, and sometimes we see cases of children who, although they have adopted correct habits at 3 or 4 years, become nocturnal urinators at 7 or 8.

Why does incontinence cease in the daytime in children who have it at night? Because in the waking condition the will intervenes in contracting the urethral muscles subjected to its influence. Also, it is observed that some children sleep so profoundly that the desire to urinate is powerless to awaken them. In these cases the sensation goes to the medulla which conducts it to the brain; but this organ, made insensible by sleep, does not perceive the impression and, therefore, does not make any effort to contract the voluntary muscles. But the medulla, which perceives the sensations and responds to them as well during the night as during the day, relaxes the muscular fibres so that the neck of the bladder being no longer closed by either, allows the urine to escape without the knowledge of the individual. In children within this category the emission takes place at the time when sleep is most profound. Trousseau cites a striking example in the case of a girl who was