CONSERVATIVE TREATMENT OF VESICOURETERAL REFLUX IN A CHILD 10 YEARS

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This clinical example is interesting due to the fact that a patient complained of nocturnal enuresis only once over ten years. The thorough examination enabled to detect the presence of vesicoureteral reflux. For a long time reflux had no clinical manifestations, and there were none recorded cases of urinary tract infection. Furthermore, no reflux-nephropathy developed. The patient underwent a complex of conservative treatment procedures aimed at the elimination of dysmetabolic changes, urinary bladder detrusor hyperactivity, and infectious process prevention in urinary system. The complex of measures appeared to be effective: urinary bladder contractive activity normalized resulting in enuresis stopping and reflux regress.

Key words: children; enuresis; vesicoureteral reflux; patient surveillance; management.

Vesicoureteral reflux (VUR) is the condition of urine reflux from the urinary bladder in ureters and/or renal pelvis. It is related to functional or organic abnormality of valve mechanisms between the ureter and the urinary bladder.

VUR incidence in children with urinary tract abnormalities and infections is 35–66.4% [1, 2]. It is due to asymptomatic course of the pathology and the lack of unified management in diagnostics. There has been proved genetic underlying risk for VUR in children (in cases when primary VUR is detected in other family members the risk increases almost fourfold) [3]. However, asymptomatic I–II degree VUR can be physiological condition in younger children [4]. VUR detection rate decreases with age.

Currently, the researchers studying VUR problem consider it necessary to correct the pathological condition using both conventional and surgical techniques [1, 5]. Different understanding of pathogenetic basis of VUR determines different views on the problem when choosing the treatment modality for such patients. There are still no clear indications for surgical management, and its management (the application of endoscopic techniques) has not been determined, the time and regimen of conservative therapy have not been yet clarified. However, those children, who have no spontaneous regress, should be managed properly, since they have the risk of reflux-nephropathy, and subsequently — chronic renal failure.

The presented clinical case demonstrates the peculiarities of rare vesicoureteral reflux in a child. The patient was followed up for three years (2010–2012).

A 10-year-old patient E. complained of nocturnal enuresis (4 times per night), mainly towards morning, profound sleep, occasional diurnal enuresis biweekly, headaches once in 2–4 weeks, without clear localization, caused by excessive fatigue.

From anamnesis vitae: a child from the first pregnancy, which proceeded with no abnormality, the first term birth, with no asphyxia and deadaptation signs at birth. Neonatal period was uneventful. At the age of a year his motor skills outgrew, his speech developed according to age.

From case history: enuresis — from early age, with no "lucid interval". Burdened family history: his father had had enuresis till adolescence, his mother — till the age of 10. Since the age of 9, occasional diurnal enuresis had associated — biweekly. From 10-year age headaches appeared. At the age of 10 the boy was once consulted by a neurologist regarding enuresis and headaches, and was administered and underwent a course of neurometabolic therapy by Pantocalcin and Novo-passit.

After therapy enuresis persisted, headaches occurred less frequently. In connection with his complaints the child was seen by a nephrologist. Outpatient examination revealed the following changes: common urine analysis revealed marked hyperoxaluria, the rhythm of spontaneous urination — a number and volume corresponded to a patient's age (average urine volume — 120 ml, a number of urinations — up to 8 times a day). The following fact is worth mentioning: nocturnal enuresis — up to 4 times per night. Renal and urinary bladder ultrasound investigation revealed the signs of the right renal pelvis hypotonia, incompetence of the urinary bladder sphincter and the upper third of urethra. The patient was offered hospitalization for further exanimation in order to diagnose and administer a proper treatment.

The patient was admitted to Children City Clinical Hospital No.1, Nizhny Novgorod (Russia). Objective condition of the patient was estimated as the state of moderate severity, close to satisfactory. His body mass was 39.5 kg, body height — 135 cm. Skin and visible mucous membranes — rosy, clear. Well developed subcutaneous fat layer, with regular distribution. There was no edema. Lymph nodes were not enlarged. Nasal breathing was not rough. Percussion sound — clear, pulmonary, breathing — vesicular, respiration rate — 18

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per minute. Heart boundaries — within the age norm, heart sounds in auscultation — clear, rhythmic, heart rate was 76 per minute. The abdomen was soft and painless, accessible for deep palpation. The liver and the spleen were not palpable. Urination was unimpaired, nocturnal enuresis. The patient had regular excretion.

The boy was examined according to standards: rhythm of spontaneous urination for 3 days, complete blood cell count, biochemical blood assay, clinical urine analysis, Zimnitsky test, urine and endogenous creatinine culture, clearance, uroflowmetry, renal and urinary bladder ultrasound, excretory urography, cystography.

There were found the following changes: clinical urine analysis — marked hyperoxaluria; uroflowmetry — bell-shaped curve, obstructive type of urination was not confirmed; renal and urinary bladder ultrasound investigation — the right renal pelvis hypotonia, incompetence of the urinary bladder sphincter and the upper third of urethra; excretory urography — pathological mobility of the right kidney; cystography — bilateral II degree vesicoureteral reflux. No renal dysfunction was found.

Taking into consideration headache complaints, the patient was examined by a neurologist, and the following diagnosis was made: "cephalgic syndrome (tension-type headaches)". The patient was recommended to be examined in the outpatient setting: ocular fundus, Doppler sonography of cerebral vessels. An urologist advised a planned surgery for reflux correction.

Based on the findings the diagnosis was made: "neurogenic dysfunction of the urinary bladder; bilateral II degree vesicoureteral reflux; polysymptomatic enuresis; pathological mobility of the right kidney; cephalgic syndrome (tension-type headaches)".

The patient was managed with due consideration of the diagnosis. In order to correct dysmetabolic disturbances a diet therapy was administered — dietary menu according to Pevzner diet and water load up to 2–2.5 liters a day, mainly before noon, dipsotherapy 2 h before sleeping. Drug therapy included: neurometabolic therapy: Glycine — 0.05 g (1/2 tablet) t.i.d. sublingual and Pantocalcin — 0.25g (1 tablet) t.i.d. to stop the signs of urinary bladder detrusor hyperactivity. Physiotherapeutic procedures consisted of d'Arsonval for panties zone, 7 procedures to improve trophic function of urinary organs. Therapeutic exercise: respiratory maneuvers for strengthening abdominal muscles and pelvic floor, 10 procedures, cervico-collar zone massage, 8 procedures.

The improvement was observed against the background of the provided treatment: the number of "wet" nights reduced up to 4–5 times a week and once at night, clinical urine analysis — no abnormality.

The child was discharged from hospital and recommended: a regular medical check-up by a pediatrician; to prevent dysmetabolic disturbances — a diet therapy avoiding food containing large amounts of vitamin C and oxalic acid, for 2 weeks: potato and cabbage diet, and the following extension of food products and compliance with water schedule; the sanitation of chronic infection foci; control of clinical urine analysis — once in 7–10 days and in intercurrent diseases; phytotherapy (Indian kidney tea, clusterberry tea for a month); drug therapy: to continue neurometabolic course: Phenibut and Picamilonum, to prevent urinary tract infections — uroseptic drugs (Furaginum, Canephron: age doses within a month); a planned operative therapy; sanatorium-resort therapy. The above mentioned recommendations were followed.

In summer the patient was referred to a sanatorium for 21 days. The child underwent the treatment aimed at infectious process prevention and improvement of trophic function of the urinary system, which included regimen, diet, open air, therapeutic exercise, laser therapy, hydrotherapy (heat baths), impulse-therapy, cervico-collar zone massage. After the first course of sanatorium-resort therapy the improvement was observed: the number of "wet" nights reduced up to 1–2 times a week.

In another year, after the second course of sanatorium-resort therapy, the examination of the patient showed no VUR, and the boy did not suffer from enuresis.

This clinical example is interesting due to the fact that the patient complained of nocturnal enuresis only once over a long period of time, and his enuresis was interpreted as monosymptomatic. The screening assays (rhythm of spontaneous urination, clinical urine analysis, uroflowmetry) indicated normal urinary bladder functioning, and VUR was detected only after a thorough examination.

One might assume that there was urinary bladder dysfunction in the pathogenesis of the disease against the background of detrusor hyperactivity, which manifested itself in nocturnal occasional diurnal enuresis. Urinary bladder detrusor hyperactivity results in intermittent increase of intravesical pressure leading to the development of the secondary VUR in a patient. Unfortunately, due to the patient's age and his negative attitude, cystometrographic recording turned out to be impossible. Hyperoxaluria, in its turn, promoted urinary bladder detrusor hyperactivity.

Allow for the fact that for 10 years reflux had no clinical manifestations, and there were no recorded events of urinary tract infection, and no reflux-nephropathy developed, we chose a conservative therapy. A complex of conservative treatment procedures aimed at the elimination of dysmetabolic changes, urinary bladder detrusor hyperactivity, and infectious process prevention in urinary system. The complex of measures appeared to be effective. Against the background of the therapy, urinary bladder contractive activity normalized resulting in enuresis arest and reflux regress as well. Thus, in schoolchildren with no urinary tract infection, the preference should be given to the conservative treatment of vesicoureteral reflux.

References

1. Cooper C.S. Individualizing management of vesicoureteral reflux. *Nephrourol Mon* 2012 Summer; 4(3): 530–534.

2. Garge S., Menon P., Narasimha Rao K.L., Bhattacharya A., Abrar L., Bawa M., Kanojia R.P., Mahajan J.K., Samujh R. Vesicoureteral reflux: endoscopic therapy and impact on health related quality of life. *Journal Indian Assoc Pediatr Surg* 2013 Jan; 18(1): 11–15.

3. Cooper C.S., Austin J.C. Vesicoureteral reflux: who benefits from surgery? *Urol Clin North Am* 2004; 31: 535–541.

4. Delvin J.B. Prevalence and risk factors for childhood nocturnal enuresis. *Irish Med J* 1991; 84(4): 118–120.

5. Kim J.W., Oh M.M. Endoscopic treatment of vesicoureteral reflux in pediatric patients. *Korean J Pediatr* 2013 Apr; 56(4): 145–150.