

CONGENITAL HYDRONEPHROSIS IN CHILDREN WITH DIFFERENT TYPES OF SPINAL DYSRAPHIAS: CLINIC-MORPHOLOGICAL CHARACTERISTICS

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The authors treated 117 patients 5-15 years old with different types of spinal dysraphias, 22,22% of which had co morbidity – congenital hydronephrotic transformation. All patients were operated on kidney after correction of neurosurgery pathology. The peculiarities of the diagnosed and studied by the authors structural changes of pelvic-ureteral segment speak in favor of the applied excision methods of heroic organ-saving operative therapy of congenital hydronephrosis in children with this pathology.

Keywords: spinal dysraphia, congenital hydronephrosis, morphology, operative therapy, children

A number of questions of aetiopathogenesis, diagnostics and treatment of congenital hydronephrosis (CH) are still important, and first of all – questions of choice of appropriate method of operative therapy with children [4, 6, 10]. Uncertainty of the information in literature (excision methods with pyeloureteral anastomosis overlap or plastics of local tissues?) occasioned for our research. Hydronephrosis is anatomically characterized by steady distension of kidney pelvicalyceal system, atrophy of organo-specific tissue, its medullar-cortical layers, and clinically characterized by progressive worsening of basic renal functions in consequence of urine outflow disorder at pelvic-ureteral segment level and hemocirculation disorder in kidneys [12, 16]. Hydronephrotic transformation may appear against acquired obstructive uropathy [4, 3, 5, 17] and as a result of genetous obstructions of pelvic-ureteral segment, which appears more often in childhood [3,8,10]. Moreover genetous obstructions of urinary system generally and CH in particularly are often combined with different types of spinal dysraphias wich in its turn constituted a ground to suppose one mechanism of formation of kidney abnormal development and axial skeleton abnormal development[14]. Moreover that comparison of the combined diseases and vertebral-cerebrospinal abnor-

malities disposition allowed supposing that assident deviation in development is often settled in zones or organs, innervated from the segments that are responsible for innervations of faulty spondyles. For example, abnormalities of urinary tracts [14] are usually met with spinal pathology, settled at Th7-L4 spondyle level and reach 76%.

Overlay of different complications is possible in the course of CH- urolithiasis, arterial hypertension, chronic kidney disease, but especially often and early complication of congenital hydronephrosis in children is obstructive pyelonephritis which greatly worsens the course and worsens prognosis of basic pathology and creates additional difficulties in treatment of such patients [1, 2, 7, 9, 18]. However, we haven't met works, dedicated to research of the reasons and pathomorphological peculiarities of hydronephrosis in patients with spinal dysraphias.

We examined and treated 117 patients: 98 children with spina bifida and 19 patients with latent forms of spinal dysraphias - spina bifida occulta (9 patients with dermal sinus, 5 — with diastematomyelia and 5 — with lipomyelocele); there were 26 patients (22,22%) with kidney hydronephrotic transformations. They were all made operative correction of neurosurgery pathology

(3 patients with lipomyelocele, 2 — with dermal sinus, 1 — with diastematomyelia and 20 with different forms of myelocele). There were 17 boys and 9 girls. Age of the patients was from 5 to 15 years, though according to K.U.Ashcraft and T.M. Holder [1], 50% of patients with spina bifida should appear signs of affect of upper urinary tracts during the first 5 years.

The patients' anamnesis data and clinical results were studied, neurologic and somatic status was examined, ultrasonic examination of kidneys and spinal canal content was made and also excretory urography, which generally was combined with the estimation of radiography of spine; for cause traditional X-ray methods were complemented with tomographic. Moreover measurements of daily urine and urine relative density were made, content of protein, protein fractions, BUN in blood serum, creatinine in serum and urine, extraction ratio of endogenic creatinine, water tubular reabsorption were measured, measures of periferic blood were examined. The control group in this research was 93 almost healthy children of the same age. The operated material of those patients who underwent surgery was histologically examined.

26 children who underwent surgery with CH were not diagnosed strict hereditary load concerning urinary system diseases. 54,5% of children were diagnosed two-sided, 45,5% — left-sided hydronephrosis 2-3 degree (according to Lopatkin N.A. classification), in one case among those hydronephrosis was diagnosed in double kidney. All the patients in the process of complex treatment were undergone reparative operation – resection of pelviureteric segment with pyeloureteral anastomosis overlap according to Andersen-Heins (more often with resection of pelvis according to Kuchera). Macroscopically, according to our data, the reason of hydronephrotic transformation development in patients with myelocele was pelviureteric segment stenosis, in a patient with lipomyelocele- presence of embryonal adnations, constricting this part of ureter. All these rea-

sons lead to overdistension of kidney pyelocaliceal system with urina, to difficult inrush of urina from receiving tube of pyramid of medulla and to its atrophy, to difficult filtration of myelocele, excision of bone septum of spinal canal when diastematomyelia, disintegration of epi- and subdural parts of lipoma when lipomyelocele.

The resected part of ureter was thoroughly pathohistologically examined. The material was fixed in 10% neutral formalin, carried through rising proof of alcohols, covered with wax. Sections with thickness 5 μm were colored with hematoxylin and eosin, picrofuxin according to Van Gizon, Goldman and Romanovsky (for blood elements). Perls reaction for iron was conducted. Histologic changes of pelviureteric segment was characterized in the most cases by different intensity of the ureter tissue fibrous dysplasia processes, its metaplasia in its other types, to different maturity degrees of fibrous tissue (young- rich in vessels and delicate fibers, mature- with expressed processes of vessel reduction and formation of tough collagen fibers with sclerosis and hyalinosis). We [15] and some other authors [8, 10, 11] have already stated similar changes. In separate cases metaplasia of urinary system's epithelium into single-layered and one-row was detected in the resected segments, and also atrophy with flattening and desquamation. Besides, equivalents of chronic inflammatory process- lymphohistiocytic infiltrates- were detected in parietes of the studied resected pelviureteric segment, in a number of observations lymphoid tissue at different stages of its formation was visualized, more rare haemosiderophagus or deposition of haemosiderine shapeless mass (trace of extravasates).

The obtained morphological data may be interpreted as evidence of different intensity of fibrous dysplasia of pelviureteric segment, denervation of segments of pelviureteric complex and signs of chronic inflammatoru process in the latest. All this proves in favor of the used excision methods of heroic organ-saving operative therapy of

congenital hydronephrosis with children of the category after correction of genitourinary pathology.

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