Recent Diagnostic and Therapeutic Approaches to Prenatally and Perinatally Diagnosed Hydronephrosis and their Implementation in the University Clinical Hospital Mostar

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ABSTRACT

A shift of the diagnostics of urological malformations towards the fetal age by means of ultrasound, especially hydronephrosis which, apart from reflux, is the most frequent developmental urological disorder, opened many dilemmas and debates. In the course of more than three decades the application of this diagnostic approach to the problem of hydronephrosis became a routine clinical practice in all modern clinics. In this paper we present the problems related to this diagnostic method and its delayed application in the Mostar University Clinical Hospital. Along with the exposition of a general approach to the problem of hydronephrosis we briefly present our modest collection of cases which points to the most recent trend of a vigorous medical development in this region, despite unfavorable overall conditions which prevailed so far. The observation included 56 children with prenatal, perinatal and early age determination of pyelon dilatation by means of ultrasonic exploration who were treated surgically. Of this number 32 (57.14%) were male, and 24 (42.86%) female children. Of the observed patients 56 had unilateral and 6 had bilateral pyelon dilatation so that 62 kidneys in all were observed and treated. The dilatation was determined prenatally in 24 (38.7%) out of 62 kidneys observed in all, in 7 (11.29%) the disorder was observed perinatally and in remaining 31 cases (49.9%) it manifested during early childhood, school age, even at the age of pre-puberty. Of the children with prenatally and perinatally determined dilatation, in 14 (45.16%) out of 31 (100.0%) observed kidneys the ap radius of the dilated pyelon was between 10–15 mm, and in 17 (54.84%) more than 15 mm. Along with other examinations (MAG3 and DMSA) the patients were followed-up by ultrasonic exploration of the observed kidney for 6 to 30 (average 18) months after postnatal diagnosis; the ultrasonic exploration was repeated in intervals of 6 months. Within 12 months of birth surgical intervention on the pyeloureteral junction was done on all 17 kidneys with an ap radius of the pyelon greater than 15 mm, as well as on 4 kidneys in which ap radius was between 10 and 15 mm. In other 10 kidneys with prenatally and perinatally determined ap radius of 10 to 15 mm the follow-up period was 25 to 30 months (average 27.5). As the examinations (ultrasound, MAG3 and DMSA) even after this period showed no signs of regression of the dilatation, nor an improvement in patency this provided an indication for surgical intervention with the aim of establishing a normal flow across the pyeloureteral junction. Antibiotic prophylaxis was not applied systematically, but in a targeted manner if the uroinfection was confirmed clinically and in the lab. Through the presentation of cases we demonstrate the relationship of earlier and more recent procedures in the treatment of hydronephrosis in the gravitational area of the Mostar University Clinical Hospital. The fact that some children were subjected to surgical treatment due to hydronephrosis at the time of pre-puberty reflects earlier views on this clinical entity. The successfulness of surgical treatment of hydronephrosis in the observed patients is complete and comparable to medically more developed environments, and our diagnostic capabilities are getting close to that level too. We specially wish to stress the recent introduction of ultrasonic examination of pregnant women and foetus in the third trimester with the aim of an early detection of anomalies and malformations of the urotract as an indicator of a marked medical development. On the global level there are still inconclusive and opposing opinions on this subject, as is seen in recent literature. The controversies relate to the diagnostics as well as to therapy.

Key words: *hydronephrosis, prenatally and perinatally, diagnostic and therapeutic approaches*

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Introduction

The beginnings of a comprehensive work and development of children's surgery and urology within the Mostar medical environment began only recently, under adverse circumstances and with very limited means. A lot of effort has been invested in order for this region to follow the professional and scientific advance of medical practice in the field of children's surgery and urology. The last positive moves in this area represent a significant contribution and are an impulse for younger generations of physicians to strive for broader horizons and exchanges of experiences with other professionals, scientists, centers and medical environments. This will, we believe, arouse in them the »hunger for new professional and scientific knowledge«!

This presentation of our experiences and results regarding new diagnostic and therapeutic approaches to the problem of hydronephrosis in children is an indicator of the current clinical level in the Mostar environment. It will also point out to determinants that have conditioned and accompanied the diagnostic and therapeutic capabilities in our environment in the management of congenital urologic developmental disorders. The limited number of children treated, which we present in this paper, is not indicative of the incidence of hydronephrosis in the population of the Mostar area, but of the insufficiency of the earlier structure and work of the clinical discipline encompassed by the term »children's surgery and urology«, as well as of the demographic, social and other factors which preceded and determined it. In an earlier period, surgical pathology of child and adolescent age, especially the more complex one, went to other regional medical centers such as Zagreb, Rijeka, Split, Sarajevo. Patients even went to post-operative controls to these centers. This occurred spontaneously, but many other factors played their role in these events and influenced the ultimate decision of the population of this area with regard to their basic clinical choices and decisions.

Introduction into clinical practice of ultrasonic exploration of the uterus in pregnant women and its content in the third trimester of gestation is an indicator of the professional level which our hospital reached in recent times. Various developmental defects are being determined prenatally by the application of ultrasonic exploration, which is of special importance in early findings and therapy of developmental disorders of the urinary system. Such disorders, if not detected in time and in the absence of adequate treatment lead to the damage of the kidney parhenchyma and ultimately toward the end stage renal disease (ESRD)[1,2]. Hydronephrosis, along with vesicoureteral reflux, represents the most frequent developmental disorder of the urotract. Prenatal and perinatal diagnosing of hydronephrosis can be an indicator of the level of medical management of the youngest population. In the Mostar University Clinical Hospital a routine ultrasonic exploration of the uterus and its content in the third trimester has been introduced, with the aim of early detection of possible malformations of the fetus. This means that the level of diagnostic and therapeutic possibilities of medical management of the youngest population in our hospital gradually reached the level of other, more developed medical environments. This is especially important if we take into account that worldwide, as we will present further on, the diagnostic and therapeutic approaches to the prenatally and perinatally diagnosed hydronephrosis are not uniform. In order to illustrate recent capabilities in clinical work, compared to earlier times, we present the work and results achieved by the application of the newest diagnostic and therapeutic approaches to the problem of hydronephrosis in the University Clinical Hospital Mostar.

We present our case histories from the aspect of present-day diagnostic and therapeutic capabilities. Only at the end of our exposition will the introductory words of this paper acquire full clarity. The catastrophe of war has devastated this region, disrupted human relations and resulted in a serious deprivation with regard to acquisition of diagnostic technology and development of diagnostic capabilities. At one point the people's trust in the local medical community was seriously eroded, but it gradually returned, along with a trust in professional and scientific progress. We are trying, by using new diagnostic and therapeutic methods, as well as by education of new generations of personnel to secure this trust. Diagnostic capabilities for the management of pediatric surgical and urological pathology can now be described as good, though we still somewhat lag behind in clinical application. By supporting the professional formation and education of younger staff we are trying to reach an adequate level of application in clinical work. Highly sophisticated and specified diagnostic, as well as therapeutic procedures are gradually being adopted into our practice and are becoming a part of our daily clinical work. The introduction, at the University Clinical Hospital Mostar, of prenatal diagnostics of anomalies and malformations by the use of ultrasonic exploration of the uterus, as well as of the fetus, clearly confirms the above statements.

Materials and Methods

The first surgical intervention in the treatment of hydronephrosis included in this presentation was done at the Department of Children's Surgery and Urology of the University Clinical Hospital Mostar in 1997 year, and since then the number of children surgically treated in this hospital due to hydronephrosis and other anomalies of the urotract is gradually rising. A comprehensive approach to this pathology in our hospital is assured by a collaborative effort of obstetricians, pediatric urologists and nephrologists. In the Mostar area there is another city hospital which treats children and adolescents, so that the number of cases presented in this paper with regard to the timeframe of observation may seem small. This, however, is not the only reason of the small number of presented cases. This scarcity in the pathology related to hydronephro-

sis, and probably other anomalies, does not reflect the real incidence of hydronephrosis and its sequelae among the population of this part of Mostar, which, without additional explanations might indicate an above-average health of the population which unfortunately is not the case.

Along with intravenous pyelography and functional examinations such as MAG3 renography and DMSA renal scintigraphy since the year 1997 the conventional ultrasonic examination of pregnant women as a basic examination for the revealing of malformation of organs and organ systems of the foetus was introduced in the diagnostic spectrum of the Clinic of Gynecology and Obstetrics of the University Clinical Hospital Mostar. In our patients we followed, by the use of ultrasonic examination prenatally, perinatally and postnatally the dimensions of the pyelon with established dilatation using sectoral and linear probes, in the frequency range between 5 and 7.5 Mhz (Toshiba SSA – 270A Color Doppler).

Having outlined the background, we present our cases, and then certain moments which point to the aspirations and a proactive approach to the introduction of new diagnostic and therapeutic methods into our routine clinical work.

Table 1 indirectly points to the trend of integrating and implementing modern diagnostic and therapeutic approaches in our hospital into routine clinical practice, by contrast to earlier times when the pace of advance was much slower. This illustrates a certain discrepancy between recent medical trends and an earlier approach in these regions with respect to acceptance of new knowledge, particularly related to the problem of hydronephrosis. Namely, it is evident that in 4 patients surgical intervention on the pyeloureteral junction was done only in the 13th year of life, which is indicative of an earlier approach characterized by prolonged observation. This approach carries the risk of irreparable damage to the parenchyma and weakening of the renal function, an attitude which is gradually improving in recent times.

The study included 56 children 32 of which (57.14%) were male and 24 (42.86%) female. 50 of them had a unilateral pyelon dilatation, and 6 had bilateral dilatation, so that a total of 62 kidneys were observed. This is shown in Figure 1.

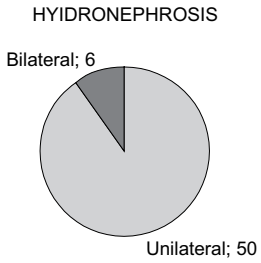

Fig. 1. Breakdown of hydronephrosis with respect to sides.

On Table 2 it is visible that 8 patients were allegedly without symptoms. We may presume that they nevertheless had milder symptoms and received symptomatic therapy in an earlier period. It also opens the possibility that in these children obstruction and dilatation were milder, so that the symptoms were also milder and as such did not alarm the parents to take the child to a physician for examination.

Table 3 shows that in 6 of the observed children the cause of aggravated passage across the pyeloureteral junction was an aberrant blood vessel. In four of them the occlusion of the blood vessel was performed, as well as the resection of the lower pole of the kidney along with pyeloureteral anastomosis, and in other two a cranial transposition of the blood vessel and pyeloureteral anastomosis.

TABLE 2
TYPE AND INCIDENCE OF SYMPTOMS

Clinical symptoms	No. of children
A) asymptomatic	8 (14.29%)
B) symptomatic	48 (85.71%)
Urinary infection	28 (50.00%)
Sepsis	0 (0.00%)
Pain	12 (21.43%)
Haematuria	8 (14.29%)

TABLE 1
NUMBER OF PATIENTS BY AGE AND SEX AT THE MOMENT OF DIAGNOSING HYDRONEPHROIS

Age (years)	Male	Female	Unilat. hydronephrosis	Bilat. hydronephrosis	Tot. children	No. of kidneys
<1	18	5	50	6	23	62
2–3	5	3			8	
4–5	2	5			5	
6–7	0	5			5	
8–9	2	1			3	
10–11	4	2			6	
12–13	0	0			0	
>13	1	3			4	
Total	32 (57.14%)	24 (42.86%)	56 (100.0%)			

TABLE 3
PROVEN CAUSES OF HYDRONEPHROSIS

Cause of hydronephrosis	No. of children
Stenosis of the pyeloureteral junction	48 (85.70%)
Aberrant blood vessel	6 (10.70%)
High ureteral junction	2 (3.60%)
Total	56 (100.00%)

As is seen in Table 4 in observed patients the incidence of concomitant diseases was low compared to other reports in which vesicoureteral reflux predominates with a frequency between 10% and 20%[3,9].

TABLE 4
TYPES AND INCIDENCES OF COMORBIDITIES

Concomitant anomalies of the urinary system	No. of cases
Vesicoureteral reflux (opposite side)	1
Ureter duplex (opposite side)	1
Megaureter (opposite side)	1

Results

In Table 5 it is shown that in 31 (50 %) of 62 (100 %) observed kidneys the dilatation of the pyelon was determined prenatally, and in 24 (38.71%) perinatally. In the remaining 7 (11.29%) observed kidneys the diagnosis of hydronephrosis was made in early childhood, school age, even the age of pre-puberty. As we have adopted a policy that the exploration of the uterus and its content is done in all pregnant women in the third trimester, we believe that in the future ratios presented on Table 5 will be entirely different. The observation and, if necessary, therapy, of prenatal and perinatal dilatation of the pyelon will be undertaken in our hospital in the same manner in which it is done in medically more advanced environments. This will assure a more adequate approach to the treatment of hydronephrosis.

Dilatation expressed in mm of the ap radius of dilatated pyelon is shown on Table 6. In 14 of 31 kidneys in which the dilatation of the pyelon was determined prenatally, perinatally and during the early babyhood the ap radius of the dilatated pyelon was 10–15 mm, and in 17 kidneys it was greater than 15 mm. In a total of 10 kidneys with pronounced ap radius of the dilatated pyelon of 10–15 mm and in the 17 cases with the radius greater than 15 mm surgical therapy was indicated and the surgery of the pyeloureteral junction performed before the end of the first year of life. This was due to the fact that the control findings in the interval of 6 and 12 months did not show regression of the pyelon dilatation nor an improvement of the urine drainage. In some of them within 6 months of observation and after completed controls which did not point to an improvement in the passage of urine across the pyeloureteral junction, surgery of the stenosis of the pyeloureteral junction was indicated and performed.

TABLE 5
RATIO OF PRENATAL, PERINATAL AND SUBSEQUENTLY DIAGNOSED HYDRONEPHROSIS

		No. of kidneys
Age of diagnosis	Prenatally	31 (50.00%)
	Perinatally	24 (38.71%)
	Early babyhood	7 (11.29%)
Total		62 (100.00%)

TABLE 6
PRENATALLY AND PERINATALLY OBSERVED KIDNEYS WITH DILATATION EXPRESSED IN MM OF THE AP RADIUS OF THE PYELON

	Pyelon dilatation expressed in ap radius in mm		
Ap radius	5–10 mm	10–15 mm	>15 mm
Number of kidneys	–	14	17

All children with prenatal and perinatal pyelon dilatation were periodically followed up. Protective prophylaxis was not applied, but antibiotics were given at the moment of outbreak of the urinary infection provided it was confirmed both clinically and in the lab. After 6 months of observation all children were subjected to ultrasonic exploration of the kidneys, along with other examinations (DMSA and MAG3). The same was repeated after 12 months.

Table 7 shows the age of children at the time of operation. Twenty-three children were operated within the first year of life, and 8 more within the first three years. In these groups of patients there was a pronounced aggravation of passage across the pyeloureteral junction which demanded a prompt decision on the therapeutic approach.

This relationship would be even more explicit if the comparison had been done of results found in patients with prenatally and perinatally determined pyelon dilatation

TABLE 7
AGE AT THE TIME OF SURGERY

Age (years)	Male	Female	Total
<1	18	5	23
2–3	5	3	8
4–5	2	5	5
6–7	0	5	5
8–9	2	1	3
10–11	4	2	6
12–13	0	0	0
>13	1	3	4
Total	32 (57.14%)	24 (42.86%)	56 (100.0%)

which showed spontaneous regression in the analogous time-frame. This calls for our response in the future!

In Table 7 it is likewise visible that a part of the children was subjected to a surgical treatment of hydronephrosis in pre-school, school and even pre-puberty age, which is indicative of earlier views of the development of hydronephrosis and a therapeutic approach in every specific case. Full compatibility of Tables 1 and 2 shows that at the moment of diagnoses in 31 children of pre-school and school age the signs of hydronephrosis were so obvious, and changes on kidneys so pronounced that surgery was undertaken immediately. Namely, in those cases we didn't have the opportunity to participate in potential earlier diagnostics nor in giving indications for a possible treatment. The attempt to further elaborate this issue would be too complicated, even to the point of confusion, so we are leaving it out at the moment.

Discussion

The approach to the problem of hydronephrosis from the diagnostic and therapeutic aspect underwent a major turnabout in the last three decades thanks to the introduction of ultrasonic exploration of pregnant women and fetus in the third trimester and immediately after birth. Aksu et al. (2005) report the findings of ultrasonic examination of pregnant women which showed that of the anomalies of the fetus 50% were anomalies of the urinary tract, and of these 50% were hydronephroses. The same results were obtained by other authors[4–7]. A basic question being raised here is which number of prenatally and early postnatally established pyelon dilatations represent hydronephrosis, i.e. the pathological state which endangers the growth and development of the kidney in the neonate and requires treatment. The criteria for the discernment of pyelon dilatation which can be defined as pathological and the other which we might call »benign«, i.e. one which may be expected to gradually go into spontaneous regression[4,8] are not equivocal even today, as pointed out by Mallik and Watson (2008). Katzir et al. (2005) maintain that 10–15% of the neonates have a physiological pyelon dilatation, while Belarmino and Kogan (2006) maintain that 50% of neonates with prenatally diagnosed hydronephrosis actually have a transitory physiological hydronephrosis. In prenatal and early postnatal diagnostics by means of ultrasonic exploration of the foetus and foetal kidney, as well as the kidney of the neonate, the anteroposterior radius of the dilatated pyelon is being determined, and this is precisely what is not strictly defined, i.e. it is not defined which size of radius in ap projection expressed in millimetres is taken as a possible threshold which requires either only a follow-up or more complex diagnostic procedures, even leading to surgical intervention. As stated by Wolenberg et al. (2005) and Lee et al. (2006) there are various criteria for this. So, with the aim of a better prognosis of a possible further postnatal progression or regression of the dilatated pyelon in the neonate some propose a more aggressive approach in the diagnostics, follow-up and treatment [3] while others are inclined towards observation and an application of less intensive examinations during follow-up[6].

Such alternatives in the treatment of children with prenatally and early postnatally determined pyelon dilatation create the following options: in the case of the first approach the child may be subjected to an excessive burden, while in case of the latter the possibility opens for an adequate diagnosis, follow-up and treatment to be omitted, with the possible negative consequences for the growth and development of the kidney, as pointed out by Salmon et al. (2006). In everyday clinical practice and professional discussions three terms are used to describe the prenatal and early postnatal pyelon dilatation: 1. hydronephrosis, 2. isolated moderate pyelon dilatation[4] and 3. non-specific physiological pyelon dilatation[9]. The boundaries between these three terms, which may have a bearing on diagnostic and therapeutic choices, are not clearly defined. Aksu et al. (2005) believe that the term hydronephrosis should include, along with the dilatation of the pyelon also the dilatation of the calyx. In several studies the assessment of the possible threshold of prenatal and perinatal hydronephrosis has been presented[5,15–17]. However, even in the most recent times the consensus was not reached in the assessment between the so-called »physiological pyelon dilatation« and the transition of the dilatation into a degree which opens the possibility of parenchymal damage during the kidney development[3]. Some of the authors set the prenatal ap diameter of the pyelon at 5 mm as the threshold[3], others at 7 mm[9] and yet others in the 10–15 mm range[4]. In any case, as even the dilatation expressed in ap diameter between 10 and 15 mm is not generally accepted as a criterion, the controversy lingers on[5,18,19]. Scott and Renwick (2001), Chitty and Altman (2003) and Ismaili et al. (2003) recommend the radius of the pyelon of 7 mm as the bordering line of division between the physiological and potential pathological dilatation. We expect further observations and discussions concerning possible pathological meaning of pyelon dilatation determined by the application of ultrasonic exploration of the fetus and neonate to contribute to a more adequate diagnostic interpretation and therapeutic approach to the dilatation, the so-called isolated pyelon dilatation i.e. the one without the dilatation of the calyx.

By contrast to earlier times there is a predominance today of attitudes that prenatally and perinatally determined pyelon dilatation does not immediately call for the diagnosis of hydronephrosis, but that in many cases it is an »isolated moderate dilatation of the renal pelvis«, according to Mami et al. (2009). The results of several investigations have shown that such a pyelon dilatation in the greatest number of children undergoes spontaneous regression during the second year of life and the drainage becomes normal[23–26]. Ransly et al. (1990) report that in 40% of children with prenatal diagnosis of hydronephrosis there was a spontaneous regression of the dilatation in early postnatal period, while Koff (2000) states that in 85% of observed children with prenatal hydronephrosis there was a spontaneous regression in early postnatal period. Mami et al. (2009) present their investigation in which a spontaneous regression of the pyelon dilatation

and a normal urine flow across the pyeloureteral junction occurred in 90% of children with determined ap diameter of the dilatated pyelon between 10 and 15 mm in the first 12 to 14 months of life. Aksu et al. (2005) observed 193 kidneys with prenatally determined pyelon dilatation with an ap radius of 5–9 mm. After 20 weeks of observation in 32% the finding was normal, and in 68% pathologic. Of the 68% kidneys with pathological finding in 31% the state remained stationary (dilatation did not increase and the flow of urine was satisfactory), in 22% there was a regression of dilatation, and in 15% the surgery on the pyeloureteral junction was necessary. Takla et al. (1998), determined in 55% of observed children with prenatal diagnosis of pyelon dilatation that after 18 months of postnatal observation there was a complete regression of the dilatation and a normal drainage of urine across the pyeloureteral junction was established[28].

This presentation of the most recent views in the approach to hydronephrosis, and the treatment of a dilatated pyelon, opens the question whether and in which percentage in earlier times the neonates, infants and small children with a certain degree of dilatation were adequately treated. Were there cases in which the prolonged period of indecision, in the expectation of spontaneous regression, was inadequate, leaving room to parenchymal damage and regression of the renal function? Were there, on the other hand, unnecessary surgical interventions, as stressed by Salmon et al. (2006), before the benefit of ultrasonic exploration of the abdomen of pregnant women and fetus and findings of pyelon dilatations which, as is believed today, is not always hydronephrosis? This possibility is elaborated by Mallik and Watson (2008) who observed two groups of clinical subjects in which prenatal and perinatal pyelon dilatation was determined, and which were separated by one decade. In the group belonging to an earlier period (1989–1993) a statistically greater number of children were subjected to surgical treatment of hydronephrosis than in the later group (1999–2003). This means that the awareness of spontaneous regression of the dilatation of prenatally and perinatally diagnosed hydronephrosis has spread and that lately more room is given to an expectative attitude.

Presenting in the introductory part of the paper our diagnostic and therapeutic abilities, conditioned by social and all other circumstances characteristic of the area we work in, we wish to point out the aspirations of the medical community of Mostar towards the acquisition of new knowledge and integration into our work of recent results published worldwide. In spite of adverse circumstances, it has proven possible to achieve progress both in diagnostics and therapy, as well as in the education of staff. This is best illustrated by shorter or longer study visits of younger experts to European centers, which enabled the routine examination in the Mostar University Clinical Hospital of the pregnant women, fetus and neonates. This enables early detection of malformation of organs and systems, their adequate follow-up and treatment.

We present 56 children with a total of 62 kidneys with prenatally and perinatally determined pyelon dilatation. In 14 kidneys the ap radius of the dilatated pyelon was 10 to 15 mm, and in 17 kidneys more than 15 mm. Follow-up in children with prenatally and perinatally determined dilatation was 6 to 30 months. After 12 months of observation and controls, in all kidneys with an ap diameter of the pyelon of more than 15 mm and in 4 with a diameter between 10 and 15 mm it was ascertained that there are no signs of regression of dilatation. For these children the decision was made that a spontaneous regression is unlikely in the future, while at the same time the parenchyma may be damaged, and consequently pyeloureteral surgery was done. In remaining 4 kidneys with an ap diameter of the pyelon of 10 to 15 mm the follow-up was 25 to 30 months after which period surgery was done on the pyeloureteral junction, as there were no signs of regression of the pyelon dilatation. With these therapeutic choices we accepted in our daily clinical work the criteria and approaches to the problem of hydronephrosis which are accepted worldwide, taking into account the abovementioned differences and a divergence in details. Our results are in accordance with other authors[3,4,9] which is especially seen in the fact that in all our subjects with ap diameter of the dilatated pyelon measured prenatally or perinatally and found greater than 15 mm surgery was indicated as soon as 14 months after birth, and in some cases even within 6 months. Determination of the relationship of prenatally and perinatally diagnosed pyelon dilata tion and possible surgery requires, for the sake of a complete approach to this phenomenon, also the elaboration of relationship of cases treated surgically and those in whom pyelon dilatation spontaneously regressed within 14 to 30 months. This, for us also, remains a professional challenge. Therefore, in our subsequent programmed work we will elaborate this relationship in our clinical cases in order to complete the presentation of our approach to the phenomenon of prenatally and perinatally diagnosed pyelon dilatation and the treatment of this clinical phenomenon.

A long time has passed in the course of which this attitude towards hydronephroses crystallized and became a generally accepted diagnostic and therapeutic approach, albeit with a lack of uniformity. With this paper we intend to make our contribution to this discussion. We believe that the generations before us oftentimes had a great dilemma what kind of decision to take with respect to a specific case of hydronephrosis. Today, early detection and decision on the final outcome in the approach to the pyelon dilatation is incomparably easier in every particular case. We hope, like Toiviainen-Salo et al. (2004), to have in the near future a set of defined criteria for the gradation of pyelon dilatation as well as for the follow-up of possible progression or regression which would make clinical work easier and enable an adequate approach to the problem of prenatally and perinatally diagnosed pyelon dilatation.

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NOVIJI DIJAGNOSTIČKI I TERAPIJSKI STAVOVI U PRISTUPU PREPARTALNO I PERIPARTALNO DIJAGNOSTICIRANOJ HIDRONEFROZI I NJIHOVA PRIMJENA U SKB MOSTAR

SAŽETAK

Pomicanje prema fetalnoj dobi mogućnosti dijagnostike uroloških malformacija primjenom ultrazvučne sonografije, posebno hidronefroze kao uz refluks najčešćeg razvojnog urološkog poremećaja, otvorilo je mnoge dileme i rasprave. Tijekom više od tri desetljeća primjena takvog dijagnostičkog pristupa problemu hidronefroze u svim je razvijenijim sredinama ta pretraga postala svakodnevna rutinska klinička praksa. U radu iznosimo problem te dijagnostičke metode i njezine primjene sa zakašnjenjem i u našoj medicinskoj sredini ukazujući na čimbenike koji su to determinirali. Uz izlaganje općeg pristupa problemu hidronefroze u kratkim prikazima iznosimo našu skromnu kazuistiku koja ukazuje upravo na najnoviji trend snažnijeg stručnog medicinskog zamaha i razvoja na ovim geografskim prostorima usprkos do sada nesklonim okolnostima. U promatranje je uzeto 56 djece s prepartalno, peripartalno i u mlađoj dobi utvrđenom dilatacijom pijelona primjenom ultrazvučne eksploracije liječenih kirurški od kojih su 32 (57,14%) muška, a 24 (42,86%) ženska djeca. 56 je ispitanika imalo unilateralnu, a njih 6 bolateralnu dilataciju pijelona pa je ukupno promatrano i terapijski tretirano 62 bubrežne jednice. Prepartalno je utrđena dilatacija u 24 (38,7%) od 62 ukupno promatrane bubrežne jedinice, u njih 7 (11,29%) peripartalno, a u ostale 31 (49,9%) jedinice tijekom ranije dječje, školske pa i pretpubertetske dobi. U djece s prepartalno i peripartalno utvrđenom dilatacijom od 31 (100,0%) promatrane bubrežne jedinice u njih 14 (45,16%) ap radius dilatiranog pijelona iznosio je od 10–15 mm, a u 17 (54,84%) više od 15 mm. Bolesnici su uz primjenu ostalih pretraga praćeni ultrazvučnom esploracijom promatranih bubrežnih jedinica kroz 6 do 30 mjeseci nakon postavljene dijagnoze s time da je u intervalima od 6 mjeseci ponavljana sonografska pretraga. Unutar 12 mjeseci od poroda kirurški je zahvat na pijelouretralnom vratu izvršen u svih 17 bubrežnih jedinica s ap promjerom pijelona višim od 15 mm, ali i na 4 jedinice u kojih je ap promjer iznosio od 10 do 15 mm. Ostalih 10 bubrežnih jedinica s prenatalno i perinatalno utvrđenim ap radiusom dilatiranog prijelona od 10 do 15 mm follow-up je iznosio 25 do 30 mjeseci. Budući da ni nakon toga vremena nije bilo znakova regresije dilatacije i na tim je bubrežnim jedinicama indicran i izvršen operacijski zahvat uspostave prohodnosti pijeloureteralnim spojem. Antibiotska profilaksa nije primjenjivana, nego je terapija ciljano ordinirana ukoliko je uroinfekcija klinički i laboratorijski bila potvrđena. Kroz prikaz kazuistike upravo se govori o odnosu ranijih i novijih postupanja u tretmanu hidronefroze u našoj sredini. Na to posebno ukazuje

činjenica što su neka djeca zbog hidronefroze podvrgnuta operativnom liječenju u predpubertetsko vrijeme, a što je, zapravo, odraz stava ranijih vremena. Uspješnost je operacijskog liječenja hidronefroze u promatranih ispitanika potpuna i na razini je medicinski razvijenijih sredina, a tome se približavaju i dijagnostičke mogućnosti. Posebno je ukazano na uvođenje u novijem vremenu u našu medicinsku sredinu ultrazvučne eksploracije trudnica i fetusa u trećem trimenonu s ciljem ranog otkrivanja anomalija i malformacija kao indikatora intenzivnijeg stručnog medicinskog razvoja. U toj problematici na svjetskoj medicinskoj stručnoj razini ima dosta nedorečenog i neusaglašenog na što je u radu ukazano i što ispunja brojne stranice novije svjetske medicinske literature, a što usprkos tome sadrži kontroverze kako u odnosu na dijagnostički tako i na terapijski pristup.