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Analysis of Ultrasound Results in Screening Hip Joints in Infants

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Abstract: Early and timely diagnosis of hip pathologies in children is important for neonatologists, pediatricians, and orthopedists, as delayed treatment of these pathologies often leads to disability.

Objective: to improve early diagnosis of hip joint pathologies in young children.

Materials and methods: We conducted an ultrasound examination of the hip joint in 116 newborns in the neonatal surgery department of the Tashkent Pediatric Medical Institute (TashPMI) and the Republican Perinatal Center.

Results and conclusions: The study demonstrated the effectiveness of noninvasive ultrasound in diagnosing hip dysplasia, congenital hip dislocation, and epiphyseal osteomyelitis. This significantly facilitated subsequent radiographic examinations and timely treatment.

Keywords: Infants, hip dysplasia, congenital protrusion of the femur, osteomyelitis of the femoral head, diagnostics, ultrasound examination.

Introduction: Pathologies of the hip joint in orthopedics and in pediatrics current problem especially new born femur in infants development dysplasia, congenital Exit Epiphyseal osteomyelitis is a complex problem. Dysplasia should be screened and not delivered. leave early determination importance without a doubt, however compound components exactly grade neonatal surgeons, pediatricians and orthopedists For Very important counts. (Buriev M., 20 24; Abdullaev M., 20 2 3; B. Ergashev B., 2019) In young children, the hip joint is not fully developed, bone mass is low, the femoral head and acetabular wall are primarily covered by hyaline cartilage, and only a small amount of fatty tissue is present at the base of the joint. In healthy children, the formation of ossification centers in the joints takes up to 6-8 months. Therefore, X-ray examinations in young children cannot provide accurate and complete information about hip joint pathologies. Currently, modern ultrasound diagnostics is the best non-invasive diagnostic method for identifying the structure of all joint structures, developmental delays, and ongoing pathological processes in infants and young children. It allows for the assessment of not only the condition of the joint components but also the state of blood circulation, which is crucial for choosing a treatment method and improving its results. Therefore, the main goal of this study is to improve the diagnosis of hip joint pathologies.

METHODS

We Tashkent State in the University Children's Clinic and the Republican Perinatal 116 children in the center hip joint Ultrasound check We spent time checking for We mainly R. Graphical method by using sonographer compound types we have determined (Table 1).

Table No. 1

Distribution of infants by age and sex.

Diagnosis	Floor		abs .	%
	Girl	boy		
Healthy child	42	30	72	62.0
Joint dysplasia	14	1 1	25	21.5
Premature birth of the hip	4	4	8	6.8
Congenital complete exit	4	2	6	5.1
Epiphyseal osteomyelitis	2	3	5	4.3
General	66	50	116	100

Modern ultrasound equipment now allows for examination of the hip joints of infants and young children using two- and three-dimensional echography to determine the structure of all joint structures, developmental delays, and pathologies. The study was conducted using the Interscan-250 (Germany) and the Sonoscape S8 mobile ultrasound system with sector and convex multifrequency transducers with a range of 3.5/5/7.5 MHz in accordance with the accepted standard of R. Graf (1984, 1997).

RESULTS

Tashkent State in the University Children's Clinic 81 Child and the Republic Perinatal Center neonatal operation A total of 36 children were examined in the department. Hip joints of types 1a and 1b were detected in 52 (60.4%) children. diagnosis a clinical examination was conducted and sonography hip joints type 1a and 1b at the base healthy because considered upon inspection pelvis The edge of the bone is clearly visible. A more pronounced bone line is visible. almost correct corner harvest does, does not femur head embrace and bone by bone the ratio is 2/3 In 72 children (62.0%), types 1a and 1b hip joints were diagnosed. Based on clinical examination and ultrasound examination, types 1a and 1b hip joints are considered healthy. On examination, the pelvic brim is clearly visible, the "Erker line" of the bone forms an almost right angle, the pelvis is adjacent to the head of the femur, and the bone-to-bone ratio is 2/3. Angle a is 60°, and angle b is less than 55° - this is type 1a; if angle b is greater than 55°, it is type 1b. In 25 children (21.5%), simple hip dysplasia was detected, that is, only low ossification of the femoral head, which does not affect the structure and development of the joint. Angle a is 60°, and angle b is less than 55°, which indicates type 1a; if angle b is greater than 55°, it is considered type 1b. Type 2a hip joints were detected in 8 (6.8%) children with severe developmental dysplasia of the hip and incomplete development of the joint-forming structures. The angle a is less than 59° but greater than 50°, and the angle b is greater than 60°. Type 2b hip joints were detected in 3 (3.4%) children with confirmed developmental dysplasia of the hip. The rims of the acetabulum (the "bay window" line) are rounded, and only the upper part of the acetabulum covers the femoral head. The angle a is less than 59° but greater than 50°, the angle b is greater than 60°, and there is subluxation. Type 2 hip dysplasia was detected in 6 children (5.1%) with severe developmental dysplasia of the hip. The general joint structures are underdeveloped, the Ercker line is smooth and flat, the femur is enlarged, and the femur does not cover the femoral head. The "a" angle is less than 49° but greater than 43°, and the "b" angle is greater than 65°. Without treatment, the femur may dislocate, and is clinically diagnosed as congenital hip dislocation. Inflammatory processes in one or both hip joints were observed in 5 (4.3%) newborns, manifested by swelling of the joint capsule and exudation.

Subsequent radiographic examinations resulted in a joint puncture and a diagnosis of epiphyseal osteomyelitis. To assess blood flow in the joint, we used color Doppler ultrasound (CDUS), which allows us to determine the condition and diameter (mm) of the blood vessel wall (Table 2). Pulsed Doppler ultrasound (PD) was used to determine blood flow velocity (cm/sec).

Table 2

Dopplerographic parameters in hip dysplasia (30 days) M + m.

hip joint	Type of dysplasia			
	(type 2b and type 2c) (n = 9)		(type 2a) (n = 6)	
	Indicators			
	speed cm/sec	diameter in mm	speed cm/sec	diameter in mm
right	72 ± 0.05	2.71 ± 0.01	68.23 ± 0.01	2.6 ± 0.01
left	71.1 ± 0.03	2.96 ± 0.02	66.15 ± 0.09	2.8 ± 0.01

In the table As shown in the Doppler graph Ultrasound inspection parameters number dysplasia different in types difference does And this changes normalization care For Very This is important.

CONCLUSION

Held research based on data obtained from infants hip joint Expenses inspection differences in the joint pathologies early in phase define And in children next orthopedic checks for unnecessary And invasive No X-ray from the rays run away help gives the number. sled joint Doppler Ultrasound inspection and in my joint blood rotation situation exactly evaluate opportunity gives And this is medicine in progress It is considered important. In general, timely early diagnosis of the disease helps determine a clear treatment plan and prevent its exacerbation and various complications.

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