Conclusions: The ultrasound examination of gastrointestinal tract is a useful tool for localization of abnormalities, allows the initial differential diagnosis, assessment of local expanse of the disease and detection of other abdominal complications.

USUFULNESS OF ULTRASOUND EXAMINATION IN DIAGNOSIS OF NECROTIZING ENTEROCOLITIS

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Backround. Necrotising enterocolitis (NEC) is one of the most serious disorders of the gastrointestinal tract in the neonatal period. If there is a clinical suspicion of NEC, early diagnosis and adequate treatment are essential. Plain abdominal radiography is the current modality of choice for the initial evaluation of gastrointestinal tract in neonates, however, when the diagnosis is unclear abdominal sonography with bowel assessment might be an important complementary study. The aim of the study was the evaluation of usefulness of the ultrasound examinations in diagnosis of NEC and their value for implementation of proper treatment.

Material and methods. In retrospective analysis the data of nine neonates hospitalized in Provincial Hospital No.2 in Rzeszów, in the period from September 2009 to April 2013 with recognized NEC were analyzed. Apart from the abdominal radiography in all nine cases the abdominal ultrasound with bowel assessment was performed. Images findings, epidemiological data, co-existing risk factors and course of disease were assessed.

Results. Most children in the assessed group were preterm infants. Images findings in plain abdominal radiography were normal or nonspecific. In all ultrasound examinations findings of wider spectrum were observed and pneumatosis intestinalis which is pathognomonic sign in NEC was recognized more often than in plain abdominal radiography. The treatment of most of the children was surgical intervention with resection of necrotic bowel loops and in more than half of the cases the localization of changes during surgery was complementary with findings in ultrasound examinations.

Conclusions. Abdominal ultrasound examination might be helpful in recognizing NEC especially when the plain abdominal radiography findings do not correlate with clinical changes although abdominal radiography is still recognized as the modality of choice. The range of morphological changes which can be detected on ultrasound is much wider than in plain abdominal radiography. The ultrasound examination allows to assess the stage of changes within intestines and adjacent tissues more accurately which is helpful for clinicians to make therapeutical decisions more accurate and easier and allows for implementation of proper treatment.

CHARACTERISTICS AND DISTINCTIVENESS OF MULTIPLE SCLEROSIS IN CHILDREN IN MAGNETIC RESONANCE IMAGING

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Background. Multiple sclerosis (MS) in children is a demyelinating disease of a central nervous system (CNS), which clinical symptoms and results of imagining examinations differ from those found in adults, and therefore requires different criteria of diagnosis. The chosen method of MS imaging in children is magnetic resonance imaging (MRI). The purpose of the thesis was to present the characteristics of pediatric MS in MRI brain scan.

Materials and methods. MRI brain scans of 20 children aged 11-17 with diagnosed MS were analysed. The compliance of MRI brain scans with KIDMUS criteria from 2008 was stated along with the location and morphology of plaques of demyelination.

Results. In the examined group all three KIDMUS criteria were met by 45% of children required for MS diagnosis, two criteria by 50% of children. The average size of the demyelination plaque was 9mm. Major foci were not stated. 95% of lesions were located in circumventricular white matter, 40% of lesions in brainstem, 25% in cerebellum and 5% in thalamus.

Conclusions. The image of changes in MRI brain scan in children presents a wide array of differences, the greater cognition of which is indispensable in order to diagnose properly and therefore to implement the suitable treatment. It is particularly crucial in this age group due to an early progression of disability.

DIAGNOSTIC IMAGING AND PROBLEMS OF SCHIZENCEPHALY

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Background. Schizencephaly is a rare developmental malformation of the central nervous system associated with cell migration disturbances. Schizencephaly can be uni or bilateral and is divided into two morphological types. The

cleft is defined as type I ("closed lips") if there are fused clefts in cerebral mantle. In type II ("opened lips") the clefts are separated and filled with cerebrospinal connecting lateral ventricle with the subarachnoid space.

Material and methods. We retrospectively analysed data of patients hospitalized in the Clinical Pediatric Neurology Department of Hospital No 2 in Rzeszów between1998 – 2011. Clinical data and imaging exams were analysed in the group of children with confirmed schizencephaly.

Results. Schizencephaly was recognized in 32 children. Diagnosis was made in children in the ages between 2 weeks and 15 years – the majority of older children were born before the year 2000. Diagnostic imaging, most often magnetic resonance imaging was performed in all of the children. In most cases coexistence of other CSN malformations was discovered. In only one patient there were no neurological symptoms, most of the children presented different developmental disorders and neurological symptoms – most often cerebral palsy and epilepsy. In the group of children with bilateral and type II schizencephaly certain symptoms occurred more often.

Conclusions. Schizencephaly is a rare central nervous system developmental disorder, which is very often associated with other severe brain malformations and in most of the cases subsequent multiple neurological symptoms. The method of choice in diagnosis of schizencephaly is magnetic resonance, which shows the degree and type of cleft, coexisting abnormalities and allows differential diagnosis. With the increased availability of this method it is possible to recognize schizencephaly more often and earlier.

DIAGNOSTICS OF BILIARY DILATATION BY MEANS OF MAGNETIC RESONANCE CHOLANGIOPANCREATOGRAPHY

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Background. Magnetic resonance cholangiopancreatography is a relatively non-invasive imaging technique of biliary and pancreatic ducts. In MRCP technique heavily T2-weighted pulse sequences are used, in which the bile appears of high signal intensity, whilst surrounding tissues are of reduced signal intensity.

The purpose of the thesis was to evaluate the diagnostic value of magnetic resonance cholangiopancreatography in diagnostics of biliary dilatation causes.

Materials and methods. MRCP examinations of 148 patients (48 men and 100 women; the average age was 56) performed on Achieva Philips device of a magnet strength 1.5 Tesla in Provincial Hospital in Rzeszów within the period form November 2011 to April 2013 were submitted to retrospective analysis. The examined group was divided into three subgroups: patients after cholecystectomy, patients with cholecystolithiasis and patients without concrements in the gallbladder. The final reason for biliary dilatation was mainly determined on the basis of MRCP and ECPW examinations, in individual cases after intraoperative cholangiography and laparatomy.

Results. Signal losses assumed as concrements were stated in 34 cases. Mostly (in 45%) the cause of biliary dilatation was cholelithiasis in the group of patients with cholecystolithiasis. The image in MRCP examination was typical in 4 cases out of 9 malignant causes. Mostly (20%) the cause of biliary dilatation was neoplasm in the group of patients without gallstones in the gallbladder. Benign causes of biliary dilatation, apart from cholelithiasis, were stated in 16 individuals, including 4 cases in which the diagnosis was identified in MRCP, whereas in the remaining 12 cases in the final diagnosis ECPW examination turned out to be definite.

Conclusions. Magnetic resonance cholangiopancreatography enables reliable imaging of causes of biliary dilatation as long as these are deposits in the gallbladder and tumors. In cases of benign causes of biliary dilatation apart from cholelithiasis, MRCP images are often unusual and therefore the final specification of the cause of biliary dilatation is possible when this imagining method is combined with ECPW examination and additional tests.

CLINICAL AND MORPHOLOGICAL ASPECTS OF GRAY MATTER HETEROTOPIA TYPE DEVELOPMENTAL MALFORMATIONS

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Background. Grey matter heterotopia (GMH) is a malformation of the central nervous system characterized by interruption of normal neuroblasts migration between 7th and 16th week of fetal development.

The aim of the study was analysis of clinical symptoms, prevalence rate and the commonest concurrent central nervous system (CNS) developmental disorders as well as assessment of characteristic morphological changes of gray matter heterotopia in children hospitalized in our institution between the year 2001 and 2012.

Materials and methods. We made a retrospective analysis of patients' data, who were hospitalized in our institution between the year 2001 and 2012. We assessed clinical data and imaging exams in children diagnosed with grey matter heterotopia confirmed in MRI (magnetic resonance imaging).

Results. GMH occurred in 26 children hospitalized in our institution between the year 2001 and 2012. Among children with grey matter heterotopia most common clinical symptoms were: epilepsy, intellectual disability and hemiparesis.

The commonest location of heterotopic gray matter were fronto-parietal areas of brain parenchyma, mostly subependymal region.