Aicardi–Goutières (AGS) syndrome is a rare early-onset subacute encephalopathy, usually inherited by autosomal recessive trait. The disease commonly manifests in the first year of life. It is genetically heterogenous disorder associated with mutations of seven different genes. The pathogenic mechanism is disturbed metabolism of endogenously produced nucleic acids and type I interferon upregulation that activates an immune system response. The main clinical features are encephalopathy, irritability, seizures, truncal hypotonia, peripheral spasticity, dystonic posturing, microcephaly, and intellectual impairment. Some patients have episodes of aseptic febrile illness and chilblain-like skin lesions on fingers and earlobes. In 20% of patients, clinical presentation mimics conatal viral infection (hepatosplenomegaly, elevated aminotransferases, thrombocytopenia); for which the syndrome was previously described as pseudo-TORCH. Characteristic findings on neuro-imaging are basal ganglia calcifications, cystic leukodystrophy, brain atrophy, and lymphocytosis in the cerebrospinal fluid (CSF). The disease is progressive with lethal outcome during early childhood in 40% of the cases. No etiological treatment is available, but there are ongoing clinical trials with antiretroviral and immunomodulatory agents. The objective of this case report is to increase awareness of AGS in the differential diagnosis of early-onset encephalopathies with basal ganglia calcifications and leukodystrophy and in newborns with suspected conatal viral infections.

**Case Presentation** The male patient is the first child of non-consanguinous healthy parents. Delivery was on term, but newborn was small for gestational age (BW 2320 g, BL 46 cm, HC 31 cm), and also had truncal hypotonia, tremor, microcephaly, severe mental retardation, microcephaly with characteristic facial features including micrognathia, protruding forehead, broad and flattened nasal root, long and pronounced philtrum, ear deformities with preauricular pits and/or appendages, high or cleft palate and congenital heart defects, kidney anomalies and genital anomalies in men. It is an unbalanced translocation syndrome caused by a 3:1 meiosis I malsegregation during gametogenesis in a phenotypically normal, balanced translocation carrier parent. The exact incidence of the syndrome is unknown but it is estimated that there are about 500 patients worldwide with this syndrome. We report a male newborn from the mother’s 4th pregnancy and 1st birth in which a diagnostic process, done due to intrauterine growth retardation, raised a suspicion of Dandy Walker malformation. After birth, specific characteristics were noticed that raised suspicion of Emanuel syndrome. The diagnosis of Emanuel syndrome is made by detecting duplication 22q10-22q11 and duplication 11q23-pter on the supernumerary derivative chromosome 22 [der (22)], so extensive diagnostics was performed on our patient, including genetic analysis. Genetic analysis confirmed the karyotype 47, XY, + der (22) t (11; 22) (q23, q11.2) mat; CMA and FISH confirmed that it indeed was Emanuel syndrome. Cytogenetic analysis of family members revealed that the mother was a carrier of a balanced translocation between the long arms of 11th and 22nd chromosome that she inherited from her father, and we found the same translocation in one of the mother’s sisters. The outcomes of future pregnancies of a parent who is a carrier of balanced translocation t(11; 22) are varying from the possibility of having a healthy child, a child who has Emanuel syndrome, a child who is a carrier of balanced translocation t(11; 22), but also having repeated spontaneous miscarriages. Prenatal diagnosis in these cases is highly recommended. It is necessary to make a diagnosis as soon as possible in order to improve the quality of life and prolong the survival of the patient but also to give timely genetic counselling advice to family members.

### Metabolic Disease

**103 ENT CONDITIONS AND DISORDERS IN CHILDREN WITH HUNTER SYNDROME**

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Objective to describe the features of the ENT conditions and disorders in children with Hunter syndrome. Hunter syndrome, also known as mucopolysaccharidosis type II (MPS II),
is a rare X-linked recessive disease. The MPS II is a hereditary metabolic disorder caused by accumulation of glycosaminoglycans (GAG) in organs and tissues due to mutations in the genes, which encode intralysosomal hydrolysis of macromolecules. Hunter syndrome is a progressive, multisystem disease. At the same time a child may have mental retardation and speech development delay, skeletal bone deformities, loss of vision, hearing loss.

**Patients and Methods** The study included 17 boys aged from 2 to 12 years old with genetically confirmed Hunter syndrome. All patients underwent examination by otolaryngologist, also tympanometry, diagnostic nasopharyngolaryngoscopy, registration of otoacoustic emission, audiometry, cardiorespiratory monitoring were performed.

**Results** The accumulation of GAG leads to a gradual narrowing of the nasopharynx and larynx lumen, a thickening of the tongue and vocal folds, laryngeal cartilages deformation, an enlarged of pharyngeal, palatine and lingual tonsils.

11 children (64.7%) had chronic inflammation of the nasal mucosa and pharyngeal tonsil with frequent exacerbations. Pharyngeal tonsil hypertrophy was detected in 10 patients (58.8%).

14 children (82%) had a wide, thickened tongue. Hypertrophy of the tonsils was diagnosed in 8 children (47%).

The voice had changed (hoarseness) in 16 children (94%). Deformation of the epiglottis was detected in 4 people (23.5%), tracheomalacia – in 1 child (5.8%).

Among the complications acute sinusitis and exudative otitis media were detectable in 52.9% of patients. 10 children (58.8%) had obstructive sleep apnea (OSA) syndrome, 2 children (11.7%) had a severe degree of the disease, which was an indication for adenosintonsillectomy. Hearing loss was found in 10 boys (58.8%).

In most patients (82%) a combined pathology of the ear, throat and nose was detected, 2 children (11.7%) had only adenoid hypertrophy, and only 1 child (5.8%) did not have any pathology of ENT organs.

**Conclusion** Functional disorders and diseases of the ear, throat and nose are found in most children with Hunter syndrome, which could be one of its early manifestations. An ENT specialist may suspect MPS type II according to the presence of an ENT pathology that is difficult to treat in a standard manner, combined with the pathology of other organs and systems.

Early diagnosis and the possibility of enzyme replacement therapy can control the disease progression and avoid early disability.