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ЖУРНАЛ ГЕПАТО-ГАСТРОЭНТЕРОЛОГИЧЕСКИХ ИССЛЕДОВАНИЙ

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KOMMEREL'S DIVERTICULUM AS A RARE CAUSE OF DYSPHAGIA IN A NEWBORN

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ANNOTATION

An example of a rare cause of esophageal dysphagia in the neonatal period is lusuric dysphagia, which occurs in patients with Commerel's diverticulum. This anomaly is a conical expansion of the proximal part of the aberrant subclavian artery near its origin from the aorta. Manifesting dysphagic and respiratory disorders, it requires the exclusion of other causes and pathological conditions, including those with diencephalic syndrome of various etiologies, malformations of the gastrointestinal tract and lungs. The main diagnostic methods are computed tomography and magnetic resonance angiography. The choice of surgical tactics depends on the anatomical features of the pathology in a particular patient.

Key words: esophageal dysphagia, aortic anomaly, Kommerel's diverticulum, newborn.

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ДИВЕРТИКУЛ КОММЕРЕЛЯ КАК РЕДКАЯ ПРИЧИНА ДИСФАГИИ У НОВОРОЖДЕННОГО

АННОТАЦИЯ

Примером редкой причины эзофагеальной дисфагии в периоде новорожденности является лузурическая дисфагия, встречающаяся у пациентов с дивертикулом Коммереля. Данная аномалия представляет собой коническое расширение проксимальной части аберрантной подключичной артерии вблизи ее отхождения от аорты. Проявляясь дисфагическими и респираторными расстройствами, требует исключения других причин и патологических состояний, в том числе с диэнцефальным синдромом различной этиологии, пороками развития желудочно-кишечного тракта и легких. Основными методами диагностики является компьютерная томография и магнитно-резонансная ангиография. Выбор хирургической тактики зависит от анатомических особенностей патологии у конкретного пациента.

Ключевые слова: эзофагеальная дисфагия, аномалия аорты, дивертикул Коммереля, новорожденный.

Introduction

Dysphagia is a clinical symptom of swallowing dysfunction, in which there are difficulties in swallowing food or discomfort when moving the food bolus from the mouth to the stomach. One of these types of dysphagia is esophageal dysphagia, which is a difficult passage of food through the esophagus. It is the result of either mechanical obstruction or dysmotility. An example of a rare cause of esophageal dysphagia in newborns is lusuric dysphagia, which occurs in patients with Commerel's diverticulum [11, 12]. A diverticulum is a conical expansion of the proximal part of the aberrant subclavian artery near its origin from the aorta. It is known in literature as "lusoria diverticulum" or "lusoria root". The diverticulum was first described by B.F. Kommerel in 1936 [5, 9, 10, 12]. In this type of aortic anomaly, the first branch from the aortic arch is the left common carotid artery, followed by the right common carotid, right subclavian, and left subclavian arteries. The aberrant left subclavian artery arises from Kommerel's diverticulum, located behind the trachea and esophagus. At the same time, in half of the patients, this pathology is combined with the right aortic arch and forms a vascular ring. The right aortic arch occurs in 0.05-0.1% of cases during radiological studies and in 0.04-0.1% according to autopsy data [2, 4, 5]. An incomplete vascular ring can also form in the left aortic arch and aberrant right subclavian artery, which occurs in 0.5% of autopsies [2, 4, 5]. In this case, the aberrant right subclavian artery departs from the left side of the aortic arch, sometimes starting from Kommerel's diverticulum, goes around the posterior surface of the esophagus in 80% of cases, passes between the trachea and esophagus - in 15% of cases, in front of the trachea - in 5% of cases [5]. The ring, which is clinically formed due to the described vascular anomaly, can be manifested not only by dysphagia, but also by other dyspeptic disorders (regurgitation and vomiting), respiratory disorders (shortness of breath, stridor breathing, cough, asthma attacks, recurrent pneumonia). Prenatal diagnosis of congenital malformations of the fetus, including congenital malformations of the heart and blood vessels (CHD) is a priority task of modern medicine. However, at present, the number of anomalies of the heart and blood vessels diagnosed prenatally in fetuses does not exceed 18-55% [1, 3, 5, 7, 8]. Verification of such a rare pathology of the aortic arch as Kommerel's diverticulum in combination with an aberrant subclavian artery is currently possible only postnatally. At the current time, the main diagnostic method is computed tomography (CT). To clarify the architectonics of blood vessels, magnetic resonance angiography is used [5, 9]. There are several approaches to the surgical treatment of this pathology. The hybrid method of surgical treatment has proven itself from the best side. The first step is a subclavian-carotid switch: carotid-subclavian bypass using a synthetic conduit or implantation of the aberrant left subclavian artery into the left common carotid artery. The second stage is endovascular, which involves arthroplasty of the distal aortic arch. The most radical technique for correcting the malformation is transthoracic resection of Kommerel's diverticulum with prosthesis of the aortic arch segment under cardiopulmonary bypass and implantation of the aberrant left subclavian artery into the left common carotid artery [5, 9]. The choice of surgical tactics for patients with combined congenital anomalies of the aortic arch and its branches should be based on a comprehensive examination and depend on the anatomical features of the pathology in a particular patient.

Below is a clinical case.

Boy B., born from I-pregnancy, which proceeded with the phenomena of a viral infection in the first trimester. According to the ultrasound examination (ultrasound) of the fetus at a gestational age of 19 weeks, congenital heart disease (CHD) is suspected: transposition of the great vessels. The re-examination was carried out in the conditions of the Ryazan Regional Clinical Perinatal Center for a period of 21-22 weeks of gestation and in the National Medical Research Center for Cardiovascular Surgery named after A.N. Bakulev the age of 31-32 weeks of gestation. Dynamic observation of the fetus made it possible to exclude gross congenital heart disease, but revealed the right aortic arch with the formation of a vascular ring.

Delivery 1 urgent, by caesarean section, due to the onset of acute intrauterine hypoxia of the fetus in the conditions of the Ryazan Regional Clinical Perinatal Center. A full-term boy was born (weight 2160 grams, body length 50 cm). In the first minute of life, the child's condition was regarded as severe due to respiratory disorders: irregular breathing with retraction of compliant chest areas, swelling of the wings of the nose, cyanosis of the face, acrocyanosis, SpO2 56%. Apgar score 5/6/8 points. According to the protocol for providing basic medical care to newborns in the delivery room, the child's condition is stabilized: spontaneous, regular breathing, SpO2 92% without oxygen supplementation. During the child's stay in a medical institution, respiratory disorders did not increase, he was compensated for by the gas composition of the blood. However, he sucked the dummy on his own sluggishly, swallowing was difficult, the child burped up when trying to feed, nutritional sucking was impossible. Probe feeding has been established. During the examination, signs of bilateral pneumonia were revealed on the roentgenogram of the chest cavity. According to neurosonography (NSG), abdominal ultrasound and echocardiography (ECHO-KG), no pathology was detected. The child received treatment for congenital pneumonia according to clinical guidelines. During therapy, the boy retained acrocyanosis and purple-cyanotic coloration of the face, its pastyness with sufficient diuresis, self-sucking is not effective, swallowing is difficult, tube feeding.

At the age of 7 days, in a state of moderate severity, for the continuation of treatment and additional examination, the newborn was admitted to the Regional Children's Clinical Hospital named after N.V. Dmitrieva. At the control examination data for the inflammatory process in the lungs and pathology of the brain were not revealed. Moderate hypoxia and moderate respiratory acidosis were found in the capillary blood; therefore, the oxygen supply was adjusted at a rate of 0.3 l/min. Self-sucking remained ineffective, tube feeding was prolonged. To exclude congenital malformations of the gastrointestinal tract and clarify the anatomical and physiological characteristics of the child,

fibrogastoduodenoscopy was performed. A picture of moderate deformation of the esophagus in the middle third without narrowing of the lumen was revealed. Contrast-enhanced CT scan of the chest revealed a right aortic arch, Kommerel's diverticulum with a left aberrant subclavian artery branching off from it. After a telemedicine consultation at the age of 28 days, in a state of moderate severity, with a weight of 2900 grams, with continued oxygen dependence and tube feeding, for further treatment, the child was transferred to the National Medical Research Center for Cardiovascular Surgery named after A.N. Bakulev . The surgical intervention to separate the vascular rings allowed the boy to be discharged home at the age of 38 days in a satisfactory condition, without signs of hemodynamic disturbances, on independent enteral nutrition, with weight gain. Recommended observation in the conditions of the National Medical Research Center for Cardiovascular Surgery named after A.N. Bakulev for dynamic control. At present, the child is 18 months old, he has been transferred to the general table, there is no dysphagia. The nutritional status is satisfactory, the physical development of the boy is average, harmonious (BMI 14.88), there is no neurological deficit, there are no signs of circulatory disorders.

Fig. 1. The white arrow indicates Kommerel's diverticulum.

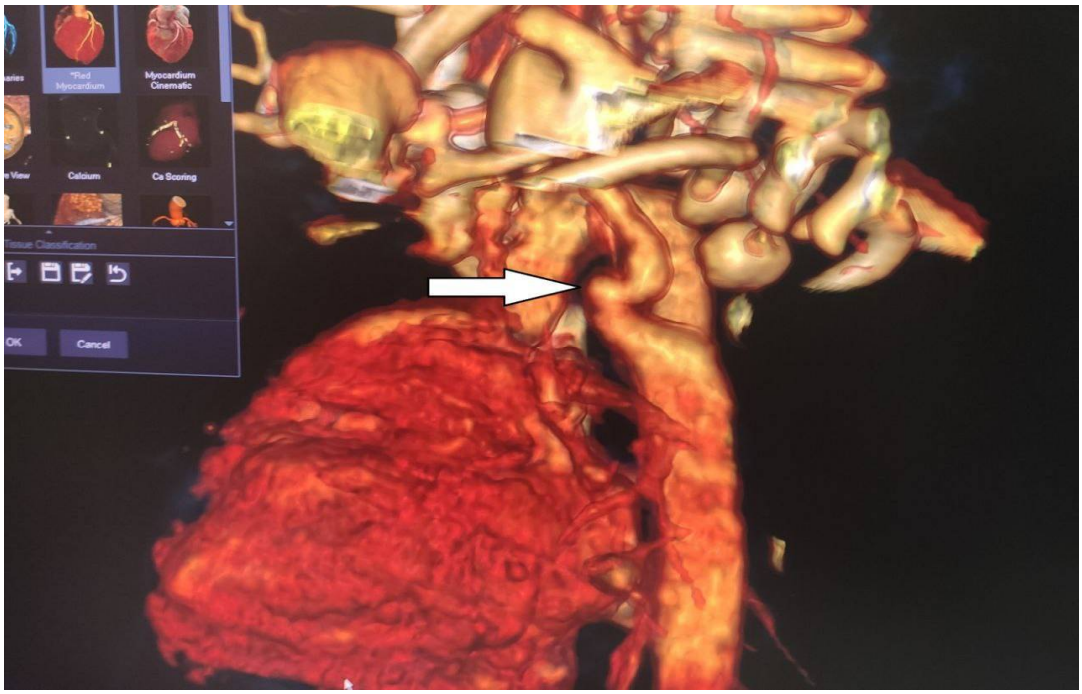
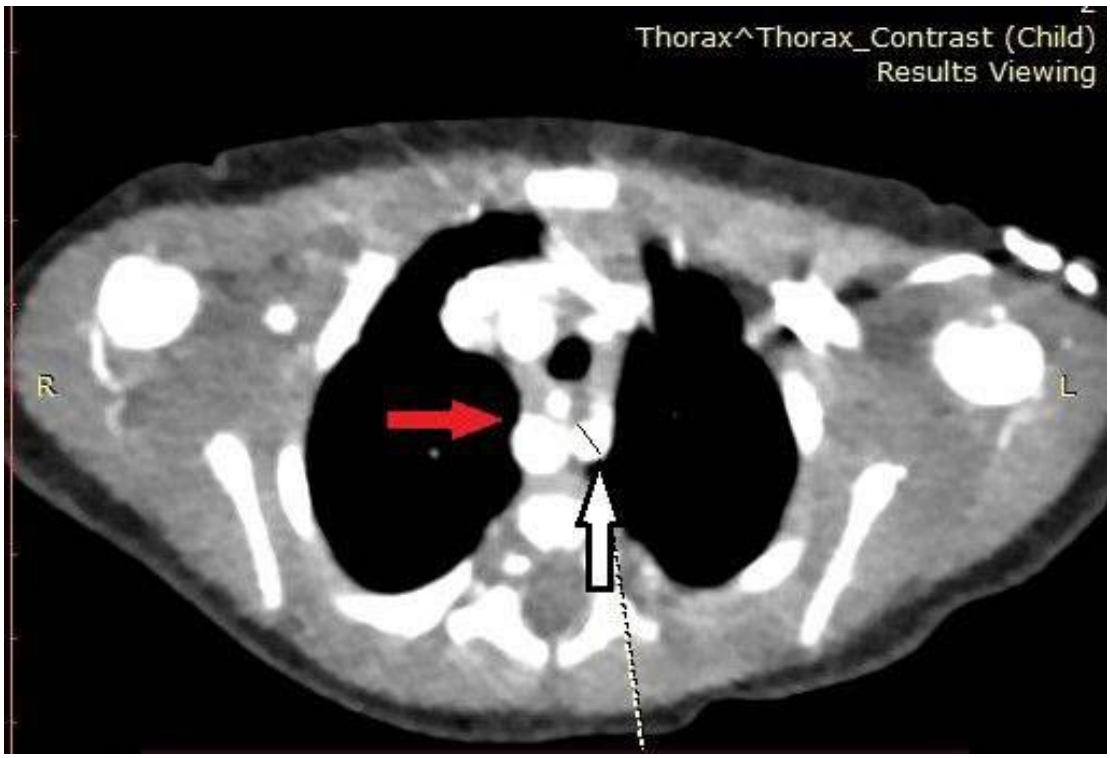


Fig.2. The red arrow indicates the aorta, Kommerel's diverticulum.



Conclusion.

Violation of sucking and swallowing in a newborn is an extremely unfavorable pathological symptom. The most common causes are hypoxic-ischemic or infectious lesions of the central nervous system, its immaturity or congenital malformation. Less commonly, dysphagia is caused by anomalies in the structure of the maxillofacial apparatus, the gastrointestinal tract, or the heart. One of these rare causes of swallowing disorders is an anomaly of the aortic arch with the formation of Kommerel's diverticulum. Modern diagnostic methods make it possible to detect congenital malformations prenatally, but their subsequent verification is possible only after birth. The tactics of managing and treating a patient with an anomaly in the structure of the aortic arch and the formation of Kommerel's diverticulum depends on the individual anatomical and physiological characteristics of the child. To date, the operation of choice is the separation of the vascular ring by dissection of the arterial ligament with resection of the aortic diverticulum with end-to-end anastomosis of the thoracic aorta and reimplantation of the aberrant left subclavian artery. The presented clinical case demonstrates the possibilities of pre- and postnatal diagnostics, as well as the effectiveness of modern methods of surgical treatment in newborns with a rare anomaly of the aortic arch and lusuric dysphagia.

No conflict of interest

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