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ASCITIS: ETIOLOGY, PATHOGENESIS, AND CLINICAL SIGNIFICANCE OF FLUID ACCUMULATION IN THE ABDOMINAL CAVITY

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ABSTRACT: Fluid accumulation in the abdominal cavity is a clinical condition called ascites in medicine, which is characterized by the pathological accumulation of fluid in the peritoneal cavity. Ascites occurs as a result of various diseases and can cause serious complications. This article analyzes the etiology (causes of occurrence), pathogenesis (mechanisms of fluid accumulation), clinical manifestations and diagnostic principles of ascites. Also, the factors leading to ascites, its mechanisms of action, complications and significance are considered in detail. This article is prepared on the basis of Uzbek literature and international sources and serves as a methodological guide in clinical practice.

Keywords: Ascites, fluid accumulation in the abdominal cavity, etiology, pathogenesis, portal hypertension, clinical signs, diagnostics, therapy

INTRODUCTION: Ascites is the accumulation of fluid in the peritoneal cavity in excess of normal levels, which has negative consequences for the patient's physical condition and quality of life. In a healthy person, there is a very small amount of fluid in the abdominal cavity (up to a few milliliters), but in pathological conditions this amount can be one liter or more. Although ascites is most often associated with liver cirrhosis, other diseases can also cause its occurrence. Ascites is a serious medical problem worldwide, especially in Uzbekistan and Central Asian countries due to the high prevalence of chronic liver diseases. Studying the causes, pathogenesis and clinical manifestations of ascites helps to quickly diagnose the disease, effectively treat it and reduce complications. The main purpose of this article is to present a scientific approach to the etiology and pathogenesis of ascites, as well as to analyze the methods used in clinical practice.

RESEARCH METHODOLOGY: This article was prepared based on open sources of scientific literature, medical electronic resources, Uzbek educational portals and international medical journals. As sources, epidemiological data on ascites, theories of pathophysiology, clinical indicators, articles on diagnostics and treatment were analyzed. Among the sources used for the article are Uzbek resources covering the skulls (Uz. versions of Everaoh, Edhacare, Apollo Hospitals), as well as international sources such as PubMed, StatPearls. The structure of the article was planned based on the principle of scientific consistency: starting from a general medical concept, the final conclusion was drawn by indicating the etiology, mechanisms, clinic and treatment measures.

MAIN PART: Ascites is the accumulation of fluid in the peritoneal cavity, which is often caused by cirrhosis of the liver, heart failure, malignant tumors or infections. Healthy people have only a minimal amount of fluid in the abdominal cavity. The pathological condition is characterized by a significant increase in this amount, which is manifested by a number of severe symptoms. Clinical manifestations of ascites include abdominal swelling, a feeling of heaviness,

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shortness of breath, weight gain and urinary disorders. The enlarged abdominal cavity puts pressure on the diaphragm, making breathing difficult and negatively affecting the patient's general condition. The clinical significance of ascites is that it can be a sign of serious diseases. For example, in cases of liver cirrhosis, the appearance of ascites indicates a significant deterioration in the patient's liver function, and this condition is considered a sign of decompensated cirrhosis. The etiology of ascites depends on many factors, which can be divided into main groups: The most common cause is cirrhosis of the liver, which leads to increased pressure in the portal vein - portal hypertension. Portal hypertension causes fluid to leak from the capillaries into the peritoneal cavity and accumulate. Portal hypertension is the primary mechanism of fluid accumulation. Complications associated with this condition include impaired liver function, splanchnic circulation, altered secretion of vasoactive substances, and increased sodium and water retention. In right heart failure or constrictive pericarditis, venous pressure increases, which affects the portal system and leads to fluid accumulation. This condition is called post-sinusoidal portal hypertension. If the albumin content of the blood plasma is reduced (for example, in nephrotic syndrome), the oncotic pressure decreases and fluid moves out of the capillaries and accumulates in the peritoneal cavity. Inflammation of the peritoneum (for example, in tuberculous peritonitis) leads to increased capillary density and the formation of exudative fluid. Although rare, this can cause ascites. Cancer cells spread to the peritoneal cavity and invade the tumor tissue, causing fluid to accumulate. This type of ascites usually involves impaired lymphatic drainage and accumulation of lymphatic fluid (chylous ascites). Other factors — including pancreatic fluid leakage, complications following abdominal surgery, and in extreme cases, trauma. The pathogenesis of ascites is a complex dynamic process, in which several mechanisms are involved: Increased pressure in the portal system increases capillary filtration, which increases the flow of fluid into the peritoneal cavity. At the same time, vasodilation of splanchnic vessels reduces effective blood volume, which activates the RAAS (renin-angiotensin-aldosterone system) and the sympathetic nervous system, resulting in increased sodium and water retention. In patients with impaired albumin synthesis, the oncotic pressure of blood plasma decreases. This facilitates the passage of fluid into the interstitial space, which in turn accumulates in the abdominal cavity. Cancer and lymph node obstruction impair lymphatic drainage and lead to fluid accumulation. During the inflammatory process, capillary permeability increases, which leads to the release of exudative fluid. Inflammation of the peritoneal mesothelium increases the amount of fluid. Identifying ascites and determining the etiology requires multiple diagnostic approaches: Abdominal distension, percussion (fluid detection), ultrasound, and CT are used to assess the amount of fluid. Paracentesis is used to remove fluid and perform laboratory analysis (SAAG - serum-ascites albumin gradient, protein levels). This is one of the most important diagnostic methods in determining the etiology of ascites. Blood tests (bilirubin, albumin, LEK's levels) are used to evaluate liver, kidney, and heart function. Signs of inflammation in the fluid can also be detected. Ascites manifests itself in various ways: Abdominal swelling: the abdomen becomes larger due to fluid accumulation. Shortness of breath: increased pressure on the diaphragm. Pain or discomfort. Complications include severe conditions such as spontaneous bacterial peritonitis and hepatorenal syndrome.

ANALYSIS AND RESULTS: The causes of ascites are very diverse, with cirrhosis of the liver being the most common factor. Portal hypertension is the main mechanism of fluid accumulation. Among the diagnostic methods, ultrasound, paracentesis, and fluid analysis are the most effective. In complex cases, the cause of ascites may be a combination of several factors (for example, liver disease and impaired lymphatic drainage). In clinical practice, early detection

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of ascites allows patients to quickly begin effective treatment and prevents serious complications. In the conditions of Uzbekistan, the high prevalence of liver diseases, long-term alcohol consumption, and infectious diseases increase the susceptibility to ascites, so prevention and early diagnosis are of great importance.

CONCLUSION: Ascites is a pathological accumulation of fluid in the abdominal cavity, the etiology of which is associated with multifactorial diseases. Although cirrhosis and portal hypertension are the most common causes, heart failure, malnutrition, oncological diseases and infections also cause this condition. Early recognition of ascites and determination of its etiology are important in determining the treatment strategy. Diagnosis by paracentesis and fluid analysis helps to select effective treatment measures by determining the etiology. This article serves as a comprehensive clinical guide to understanding and managing ascites.

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