



## The Phenomenon of Interaction of Contralateral Arterial Flows in Pathology of Various Organs According to Ultrasound Data

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Received: February 21, 2023

Published: March 13, 2023

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### Abstract

Modern achievements in clinical diagnostics are largely determined by the improvement of research methods. A considerable leap forward in this issue has been made due to the development and introduction into practice of fundamentally new methods for obtaining medical images, including the ultrasound method. The ability of echography to visualize the internal structure of parenchymal organs is extremely valuable. thanks to the high information content and reliability of the ultrasound method for diagnosing many diseases and injuries, it has risen to a qualitatively new level. Currently, along with computed tomography and other modern methods, ultrasound diagnostics is used everywhere, being one of the leading diagnostic methods in many areas of clinical medicine [1].

**Keywords:** Organs; Diagnosis; Ultrasound

### Introduction

Despite the growing number of studies, the use of ultrasound in the diagnosis of vascular and surgical pathology, as a scientific problem, not only has kept its relevance, but on the contrary, due to the accumulation of new data and concepts, it is receiving an increasing interest both from researchers and practitioners. The relevance of the problem is justified by the medical axiom: early diagnosis is the key to successful treatment of the disease, and only clinical diagnosis has a higher level of errors [2].

Timely diagnosis is often the main factor determining the patient's prognosis. In recent years, the accuracy of diagnostics

has greatly increased due to the expanded use of both instrumental and laboratory research methods. Nevertheless, even today the percentage of diagnostic errors is quite high, especially in patients with the initial stages of diseases. This is mainly due to a change in the clinical picture of some pathological processes, the rarity of some of them, and absence of striking clinical and laboratory changes. Overestimation of the data of special studies, especially ultrasound, is one of the main reasons for diagnostic errors in various pathologies. Equally important among the causes of diagnostic errors is the "standard" thinking of the doctor, which leads to the fact that the statement of one of the main syndromes is interpreted as a manifestation of the most common pathological

process [3]. On the other hand, improving the quality of ultrasound equipment and improving the skills of ultrasound diagnostics doctors steadily provides visualization of finer anatomical structures, which in turn leads to an ambiguous interpretation of the data obtained, and moreover, a natural question arises: should the echographic picture be considered as a norm or pathology, and what will be the future tactics?

Ultrasound is widely used in the practice of traumatologists and surgeons. The advantages of the method are its informative content, mobility, security, and economic benefits. Also, the ability to perform the study is as close as possible to the patient (in the operating room, in the emergency room, etc.), so portable scanners are most often used. However, the method also has a number of limitations, which under certain conditions can lead to errors in diagnosis and treatment [4].

Ultrasound is much more error-prone than any other diagnostic imaging technique. Ultrasonography is a method that is highly operator-dependent. The operator's skill in ultrasound examination is based on the ability to visualize and obtain maximum diagnostic information, as well as correctly interpret it. Errors in sonography occur for many reasons: scanning errors, recognition errors, and perception errors, which in turn are associated with several psychophysiological factors: the level of alertness of the sonologist, his fatigue, the duration of the study, distractions, for example, frequent mobile phone calls, as well as the influence of the ultrasound protocol performed by the doctor. Previously, a different sonologist and decision-making errors (incorrect interpretation) and others.

The main reasons for these errors are: low level of professional training, absence of professional standards, ignorance of diagnostic ultrasound criteria, neglect of statistical data, information about the sensitivity and specificity of the method, ignorance of possible clinical pathologies and their differential diagnosis [6].

The high frequency of diagnostic errors during ultrasound examination in adults dictates the need for optimization and detailed examination of patients, since an erroneous diagnosis leads to the development of serious complications [5].

This article focuses on the analysis and causes of diagnostic errors of ultrasound examination, which are most often made to

patients with surgical diseases. The authors of the article, based on the analysis of their own observations and literature data, distinguish the main differential diagnostic signs.

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