Some Pathophysiological Effects of the Insufficiency of Bauhinia Valve

Introduction

More than four centuries have passed since Caspar Baugin described the existence of a valve between the small and large intestines in 1579, which was later named after him in Bauhinia's honor. The function of the bauhinia valve is, first of all, the barrier function, and it consists in preventing the reflux of colonic contents into the ileum. An important component of the ileocecal barrier is the cecum. Its meaning is that anti-peristalsis transports the contents of the intestine past the confluence of the small intestine. Thus, the maximum mechanical load falls on the cecum, which is a sort of “outlet” that protects the Bauhinia valve from direct mechanical action. If the small intestine had fallen into the bottom of the cecum, then the mechanical load on the ileo-cecal locking device would have increased many times and led to reflux in most people. According to L. G. Peretz (1975), in 1 ml of the enteric contents there are up to 5,000 microbes, and in 1g of the contents of the large intestine there are about 30-40 billion. When the barrier function of the bauhinia valve is lost, colonization of the small intestine with foreign microbes from another habitat occurs with the development of dysbiosis and certain pathological consequences. The fact that the failure of the Bauhinia Damper (NBZ) is of great importance for clinicians, said V.D. Fedorov: “Many diseases of the ileocecal region, including the deficiency of the bauhinia valve, which is still the subject of discussion in the literature, are under the flag of acute appendicitis.” I. Cohn (1970) emphasizes that the ileocecal valve and the ileum control the flora of the small intestine. The presence of fecal microflora in the small intestine per se during the development of NBZ is harmful, even if it does not cause clinical pathology in some patients. Violation of the intestinal microbiology leads to a breakdown of its absorption function. Bacterial colonization of the small intestine is accompanied by a breakdown of the absorption processes. It is not accidental that microbial colonization of the small intestine has a particularly harmful effect on protein, carbohydrate, fatty, aqueous, vitamin, electrolyte, immune exchanges and exchange of bile acids. With bacterial colonization of the small intestine, the serious consequences are connected with the fact that microbes can compete with the host for utilization of the nutritional components of food and secretions of the intestine, thus disrupting the process of intracavitary digestion, as well as directly affect the enterocytes, especially their brush border and glycocalyx, reducing absorption capacity of the mucous membrane of the small intestine.

However, pathophysiological disorders are mainly associated with the manifestation of anaerobic bacteria. Absorption of metabolic products of microbes creates an increased detoxification load on the liver. Bacterial amino acid metabolites are transferred to the blood and cannot be sufficiently neutralized. According to many authors, it is important to permanently reflux the large intestinal contents into the small intestine, which violates not only the function, but also the structure of this organ. M. Brotman found that about 95% of bile acids that re-enter the liver are normally absorbed in the ileum, G. G. Nemsadze and E. P. Rybin revealed a significant increase in bile acid excretion in a group of 192 colon cancer patients the insolvency of the bauhinia valve in comparison with its normal function. Some authors suggest that through the formation of carcinogenic substances from bile acids, bacteroids may contribute to an increased incidence of colon cancer. Other authors definitely believe that “the elimination of the NBZ and the use of the antireflux anastomosis open up the possibilities of surgical prevention of the occurrence of pretumor diseases and colon cancer.” In the development of the secretory immune system of the gastrointestinal tract an important role belongs to the normal microflora of particular importance is the microflora for the synthesis of secretory immunoglobulin A. Non-pathogenic microorganisms have high immune properties, which determines their importance for the development of local immunity, maturation of the lymphoid apparatus of the intestine. In the light of modern ideas about the local immune system of the gastrointestinal tract, the well-known theory of the great Russian scientist I. I. Mechnikov about self-poisoning by auto flora and its metabolic products, and the effect of the intestine on the life span can be developed. One of the methods of diagnosis NBZ is irrigoscopy. The height of
the injection of the contrast substance into the small intestine has a definite clinical significance - the higher the reflux, the brighter and longer the clinical picture. This symptom Ya. D. Vitebsky called “the act of defecation in his own small intestine.” N. Dubyg and B. K. Gibert conduct irrigoscopy with tight filling of the cecum and after defecation. V.M. Guts and G.N. Lukin note that during an act of defecation, the value of intra-intestinal pressure is significantly higher than with tight filling of the colon with barium. According to I. A. Alekseev - Berkman, the so-called imperative urge occurs when the intraintestinal pressure is 20-60 mm Hg.

I. I. Grekov expressed a position that retained its relevance: “Despite a number of works devoted to the proximal part of the large intestines, the pathology of this department is still not sufficiently explained because in these works the role of the Bauhinium valve was completely ignored.”

The study of the function and consequences of the failure of the bauhinia valve is an important promising scientific and practical directi.