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The Technique of Mobilization of the Colon for Pull-Through Procedure in Hirschsprung's Disease

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Abstract : With a high rectosigmoid transitional zone in children with Hirschsprung's disease, the upper rectal, sigmoid, left colon arteries are ligated during the pull-through of the descending part of the colon. As a result, the inferior mesenteric artery ceases to participate in the blood supply to the descending part of the colon. As a result, the reduced colon is supplied with blood only by the middle colon artery, which originates from the superior mesenteric artery. Insufficiency of blood supply to the reduced colon is the cause of the development of chronic hypoxia of the intestinal wall or necrosis of the reduced descending colon. Some surgeons prefer to preserve the left colon artery. However, it is possible to stretch the mesentery, which can lead to bowel retraction to anastomotic leaks and stenosis. Chronic hypoxia of the reduced colon, in turn, is the cause of acquired (secondary) aganglionosis. The highest frequency of anastomotic leaks is observed in children older than five years. The purpose is to reduce the risk of complications in the pull-through procedure of the descending part of the colon in patients with Hirschsprung's disease by ensuring its sufficient mobility and maintaining blood supply to the lower mesenteric artery. Methodology and events. Two children aged 5 and 7 years with Hirschsprung's disease were operated under the conditions of the hospital in Nur-Sultan. The diagnosis was made using x-ray contrast enema and histological examination. Operational technique. After revision of the left part of the colon and assessment of the architectonics of its blood vessels, parietal mobilization of the affected sigmoid and rectum was performed on laparotomy access, while maintaining the arterial and venous terminal arcades of the sigmoid vessels. Then, the descending branch of the left colon artery was crossed (if there is an insufficient length of the reduced intestine, the left colonic artery itself may also be crossed). This manipulation provides additional mobility of the pull-through descending part of the colon. The resulting "windows" in the mesentery of the reduced intestine were sutured to prevent the development of an internal hernia. Formed a full-blooded, sufficiently long transplant from the transverse loops of the splenic angle and the descending parts of the colon with blood supply from the upper and lower mesenteric artery, freely, without tension, is reduced to the rectal zone with the coloanal anastomosis 1.5 cm above the dentate line. Results. The postoperative period was uneventful. Patients were discharged on the 7th day. The observation was carried out for six months. In no case, there was a bowel retraction, anastomotic leak, anastomotic stenosis, or other complications. Conclusion. The presented technique of mobilization of the colon for the pull-through procedure in a high transitional rectosigmoid zone of Hirschsprung's disease allows to maintain normal blood supply to the distal part of the colon and to avoid the tension of the colon. The technique allows reducing the risk of anastomotic leak, bowel necrosis, chronic ischemia, to exclude colon retraction and anastomotic stenosis.

Keywords : blood supply, children, colon mobilization, Hirschsprung's disease, pull-through
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