Features of the Restoration of Arterial Circulation in Liver Transplantation

Khubutia M.SH.[1], Gulyaev V.A.[1], Novruzbekov M.S.[1], Olisov O.D.[1], Lutsyk K.N.[1], Zhuravel A.V.[1], Lemenev B.L.[1], Magomedov K.M.[1], Mironov A.S.[1], Yaremin B. I.[1], Dydykin S.S.[2], Vasil'ev Yu.L.[2,3], Kapitonova M.[4], Gupalo S.[5]

1. N.V. Sklifosovsky First Aid Research Institute, Moscow, Russia.
2. Department of Operative Surgery and Topographic Anatomy, I.M. Sechenov First Moscow State Medical University (Sechenov University), Moscow.
3. Yuriy Vasil'ev — Kazan state medical university
4. Universiti Malaysia Sarawak, Department of Basic Medical Sciences, Faculty of Medicine and Health Sciences, Kota Samarahan, Sarawak, Malaysia.
5. Universiti Sultan Zainal Abidin, Faculty of Medicine, Kuala Terengganu, Terengganu, Malaysia.

Abstract

Objectives. Violations of tissue blood supply remain one of the most serious complications after liver transplantation.

Design. To improve the surgical technique of performing reconstructive interventions on the arteries of the donor and the recipient in order to reduce the frequency of its thrombosis after liver transplantation.

We studied 25 donors, 20 men and 5 women, the mean age was 56± 4 years, eighteen of them had left aberrant supplementary artery, which in fifteen departed from the left gastric artery and in three from the aorta above the ventricular stem. Seventeen had the right aberrant artery moving away from the upper mesenteric artery. Twenty recipients with liver cirrhosis (eleven with primary biliary cirrhosis, five with primary sclerosing cholangitis, five with viral etiology C cirrhosis, and three of the lower cirrhosis-cirrhosis disseminated within the Milan criteria. All recipients had standard anatomical branching of the arteries of the liver. The average age was 50±6.

All recipients had standard anatomical branching of the liver arteries. Patients underwent liver transplantation with new methods of reconstructive interventions on the donor and recipient arteries.

The developed technique provides the shortest pathway of the recipient's arterial blood to the liver transplant, through the superior mesenteric artery provides an alternative source of arterial blood supply from the aorta in which this transplant additionally needs.

Presented method of blood circulation restoration at liver transplantation at abnormal structure of arterial channel of the liver transplant is performed inside the recipient's abdominal cavity. At first, blood flow is restored along the reconstructed common hepatic artery, after the right or left aberrant arteries liver transplant. Such technique provides the shortest route of the recipient's arterial blood to the liver transplant, through the upper mesenteric artery provides an alternative source of arterial blood supply from the aorta for which the transplant is additionally needed. This new method of blood circulation restoration provides an opportunity to avoid the formation of "kinking" syndrome, in the occurrence of which the blood vessels are lengthened, the angulation and location of the blood vessel in relation to the grafts and other abdominal organs. This reduces the risk of thrombosis of the arteries of the transplanted liver.

Clinical article (J Int Dent Med Res 2021; 14(3): 1202-1209)

Keywords: Liver transplantation, superior mesenteric artery, blood supply.

Received date: 16 June 2021 **Accept date:** 23 July 2021

Corresponding author:
Vasil'ev Yu.L.
Department of Operative Surgery and Topographic Anatomy, I.M. Sechenov First Moscow State Medical University (Sechenov University), Moscow.
E-mail: y_vasiliev@list.ru

Introduction

Violations of tissue blood supply remain one of the most severe complications after liver transplantation and are often associated with irreversible ischemic damage of the transplanted organ, causing massive necrosis of hepatocytes,