Basic knowledge of interest

Lymphatic drainage of the gallbladder

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Abstract: Based upon detailed dissections of the lymphatic system in adult cadavers, the lymphatic drainage of the gallbladder was divided into three pathways: (1) The cholecysto-retropancreatic pathway, which had two routes, one running spirally from the anterior surface of the common bile duct to the right rear, and the other running almost straight down from the posterior surface of the common bile duct. These routes converged at the principal retroportal node at the posterior surface of the head of the pancreas. (2) The cholecysto-celiac pathway; this was the route running to the left through the hepatoduodenal ligament to reach the celiac nodes. (3) The cholecysto-mesenteric pathway; this was the route running to the left in front of the portal vein to connect with the nodes at the superior mesenteric root. The cholecysto-retropancreatic pathway can be regarded as the main pathway, and the principal retroportal node appeared to be critical as the main terminal node in the visceral lymphatic system of the gallbladder. These three pathways converged with the abdomino-aortic lymph nodes near the left renal vein, and the nodes in the interaortico-caval space were considered to be of particular importance.

Key words: gallbladder, lymphatic system, macroscopic anatomy, carcinoma, lymph node dissection

Introduction

In recent years, large-scale lymph node removal, combined with partial resection of the liver, has come to be the standard procedure for advanced carcinoma of the gallbladder. Further, pancreaticoduodenectomy is sometimes performed to completely remove the lymph nodes along the superior mesenteric root. Therefore, comprehensive elucidation of the lymphatic systems of all upper abdominal organs is necessary to provide basic information for the more complete treatment of gallbladder cancer.

Materials and methods

We have already reported the lymphatic drainage of the gallbladder, based on detailed dissections of four adult cadavers. Our method of macroscopic dissection did not directly demonstrate the direction of lymph flow; however, it is possible to determine the lymphatic drainage by comparing the lymphatic systems of neighboring organs, on the assumption that lymphatics converge from the periphery to the thoracic duct. In this article, we briefly present the findings of a typical case, and discuss further problems with the lymphatic system of the gallbladder, as well as its relation to the neighboring organs, blood vessels, and autonomic nerves, referring to our previous report.

Results (Figs. 1a,b, 2a,b)

Many lymphatics were found in the left half of the gallbladder, forming dense lymphatic networks at the neck, but the cystic node was missing in this specimen. At Calot’s triangle, the lymphatics from the gallbladder ran along the cystic artery and vein, and anastomosed with the lymphatics from the liver (Figs. 1a, 2a).

From the anterior surface of the gallbladder, the collecting lymphatics reached the right margin of the common bile duct, and anastomosed with the lymphatics from the porta hepatitis. These lymphatics descended spirally to the right rear margin, and terminated at the superior retropancreaticoduodenal...
node (node B). Node B was located to the right of the common bile duct in the angle between the first and second portions of the duodenum. Lymphatics from the inferior and posterior surfaces of the gallbladder drained to node B, either directly or via the node of the foramen of Winslow (node C), located in the front center of the foramen of Winslow (Fig. 2a).

Node D, the principal retroportal node, a large lymph node at the superior border of the head of the pancreas behind the portal vein, received the lym-