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## Preface

Functions of the liver are highly dependent on its vascular connections to the “outside world” (the gut and the splanchnic circulation) and the “inside world” (the heart and the systemic circulation). These connections not only allow the liver to process nutrients and store vitamins that are absorbed from the gut, but also permit removal of bacteria that come from the gut before they reach the systemic circulation. The liver detoxifies and metabolizes endogenous toxins (e.g., ammonia) and, importantly, exogenous substances such as alcohol and most medications that arrive to the liver via the systemic or splanchnic circulations. Additionally, the liver synthesizes substances such as albumin and clotting factors that are secreted into the systemic circulation and produces bile acids that are secreted through the biliary ducts into the gut, facilitating fat absorption.

It follows that abnormalities that directly or indirectly affect the hepatic vasculature will lead to significant disease. These abnormalities can be microscopic, at the level of the hepatic sinusoids, or can affect the larger afferent or efferent vessels. This book approaches all of these disease entities and includes the mechanisms and management of intrahepatic vascular disease, including the most common cause of intra- and extrahepatic vascular disease of the liver, cirrhosis, and also reviews the mechanisms and management of less common diseases of the liver vasculature such as sinusoidal obstruction syndrome (previously known as veno-occlusive disease), portal vein thrombosis, the Budd-Chiari syndrome, and congenital vascular malformations. The very fact that these entities are rare increases the challenge to physicians and physician scientists; the low incidence complicates the accrual of patients for clinical research and reduces physician experience in managing patients with these disorders.

Although many textbooks have been written on the consequences of cirrhosis on the liver vasculature, this is the only textbook that focuses on the liver vasculature as a separate entity. The authors are authorities in their field, from six different countries – one-third of the chapters are from authors outside of the United States (United States, Australia, Italy, Switzerland, Spain, and France).

The book is organized in three sections. The first section examines the pathophysiology of circulatory liver diseases. It examines the cellular and biochemical changes of the hepatic microcirculation in aging (Chap. 2), with fibrosis (Chaps. 2 and 4), and toxic injury (Chap. 2) and discusses general and

liver-specific mechanisms involved in hemostasis and thrombosis (Chap. 1). Pathogenic factors underlying circulatory injury in liver transplantation (Chap. 5) and the mechanisms leading to portal hypertension (Chaps. 6 and 7) are also discussed. This section will be of particular interest to basic scientists and clinical investigators interested in the liver circulation, and to gastroenterologists, hepatologists, and hepatobiliary surgeons who would like to read about new developments in the field.

Section 2 provides in-depth information on the clinical approach to vascular liver diseases. Chapters 8 and 9 provide descriptions and images of the histology and radiological appearance of vascular liver disease, as well as discussions of the utility of liver biopsy and imaging modalities in diagnosis. The remaining five chapters discuss diagnosis and medical treatment of various vascular liver diseases.

Finally, the three chapters in Sect. 3 discuss the interventional radiology and surgical approaches to portal hypertension (Chaps. 15 and 16, respectively) and the indications for liver transplantation in patients with vascular liver disease (Chap. 17). Sections 2 and 3 will be of particular interest to gastroenterologists and hepatologists, to hepatobiliary surgeons and transplant surgeons, and to interventional radiologists with a particular interest in the liver, who will use this as a reference in patient management.

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