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Introductory Chapter: Hepatic Surgery

Georgios Tsoulfas

1. Introduction

Hepatic surgery represents one of the more challenging and exciting areas of surgical practice for a variety of reasons. It combines surgical technical expertise with the management of diseases of one of the most vital and elaborate organs of the human organism. Specifically, the liver with its multitude of functions ranging from nutrition, production of energy, clearing and metabolism of a variety of substances and medications, control of the coagulation system, to name a few, represents a human factory with a complex anatomy and physiology. Its various functions make it a central player in a variety of diseases, where irrespective of their benign or malignant nature, can pose significant threats to the whole organism. The main insults faced may include abdominal trauma (with the liver being the second most injured organ), genetic abnormalities, infections, metabolic alterations, and malignancies. The latter can be either primary (hepatocellular carcinoma, cholangiocarcinoma, and hepatoblastoma) or secondary (metastatic hepatic disease from colorectal, neuroendocrine or non-neuroendocrine, and non-colorectal primary). The common feature in all of these diseases is the significant threat that they pose to the human body, as well as the fact that from the multitude of available treatments, surgery is by far the most successful, yet fraught with possible complications and even the possibility of death. This interesting mix allows us to understand the important and challenging nature of hepatic surgery. The liver surgeon needs to possess deep knowledge of hepatic and human physiology, hepatic anatomy, and surgical skill that is a combination of dexterity and patience.

This book with chapters covering the whole spectrum of hepatic surgery represents the cumulative effort of a very experienced group of liver specialists who offer us their distilled experience in areas covering hepatic anatomy with all its significant and often critical variations, an overview of some of the more challenging types of hepatic cancers (such as cholangiocarcinoma), a description of some of the more demanding surgical procedures (such as the extended right hepatectomy), the importance of technology as an extension of the surgeon's eyes and hands (intraoperative hepatic ultrasound), the true meaning of damage control hepatic surgery (typifying the union of understanding hepatic physiology and surgical acumen), and a description of the molecular pathways involved in the evolution and management of liver disease.

The latter carries special weight as we live in the era of precision medicine and patient-targeted treatments. As such, the surgeon should be able to understand the molecular identity of various diseases and how to incorporate that in daily surgical practice. We must learn neither to fear, nor to worship new technology, but rather to objectively and accurately evaluate it and assess its use, and

following the appropriate learning curve, incorporate it into our daily practice. The overall goal is to achieve therapy in a safer and more efficient manner for our patients.

Overall, this book represents a true tour de force of a variety of topics having to do with hepatic surgery, as it befits the nature and significance of the subject. It should be stressed that the intended audiences are scientists and physicians and surgeons of different specialties, which all have in common an interest in liver disease and improving the lives of these patients.

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Author details

Georgios Tsoulfas
Aristotle University of Thessaloniki, Thessaloniki, Greece

*Address all correspondence to: tsoulfasg@gmail.com

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