Preface

In the present era of non-operative management of solid organ injuries, operative control of hemorrhage from liver injury has become an increasingly rare phenomenon. Damage control operations with liver packing and subsequent angio-embolization, even in situations when they may not be the most optimal approach, have become the popular methods of care. Consequently, the younger trauma surgeon has minimal experience in advanced surgical techniques of controlling hemorrhage. This surgical immaturity and inexperience are a tremendous handicap when faced with an unstable patient exsanguinating from a complex liver injury. The critical surgical skills in treating a crushed liver are now a lost art. Other factors also seem to contribute to this loss of surgical expertise. Several studies have now established that the operative experience of the surgical residents has declined due to restriction of duty hours. For instance, Lucas reported that recent graduating chief surgical residents performed a mean of 1.2 operations for hemostasis with liver injuries with most having no experience with complex techniques of liver injury management such as tractotomy or hepatic resection [1]. This becomes a serious issue when the inexperienced surgeon is faced with high grade solid organ injury in the hemodynamically unstable patient. Perihepatic packing, damage-control laparotomy, and angio-embolization are valuable ancillary techniques in such situations but are only ancillary to skillful operative techniques of bleeding control.

It is apparent, therefore, that the students and practitioners of trauma surgery must be prepared for the intra-operative challenge of uncontrollable hemorrhage from a ruptured liver or a torn retrohepatic vein. Unfortunately, our current training programs are more complete in the education of pre- and post-operative affairs rather than intra-operative techniques themselves.

Several options are currently under way to remedy this situation. Simulators, animal laboratories, and cadaveric dissections are being incorporated into the curriculum of the trainee in an attempt to give the students of trauma the necessary skills and confidence. What is perhaps equally important is the prelude for these hands-on exercises by "how-I-do-it" tutorials from seasoned "master surgeons" who gained their expertise from their everyday experience on the battle field of civilian trauma.

This book on the surgical approaches to the severely injured liver is a collection of these tutorials narrated by the masters themselves. It aims to bring all available techniques of hemostasis of a complex liver injury into one detailed volume. Their text is supplemented with line drawings, operative

pictures, cadaveric dissections, and even images of simulation. Videos of important techniques bring to life the static text of descriptions. It is hoped that the reader will find these helpful to consult, even in the middle of a difficult operation. The final chapters of the book discuss the future of training in operative trauma surgery: animal lab, simulators, and time on hepatobiliary and/or transplantation services to correct a critical deficiency in our surgical training.

The distinguished authors of this volume were asked to describe their approach to liver injury as a personal account ("this is all about you in the O.R.") and they contributed their time and expertise very generously. The readers will note that some steps in liver injury management are repeated in multiple chapters. This is deliberately allowed so that the authors can set the stage for their step-wise, escalating maneuvers for the control of complex injuries. The personalized individual "tricks" of these brilliant surgeons are worth noting carefully by reading between the lines of what appears to be a repetitive description. I owe much credit and many thanks to my young and brilliant colleague Francisco Collet M.D. for his crisp videos of operating techniques. I have admired his skill for a long time and his real-time videos of life-threatening situations in the operating room are an inspiration. Gautam Ivatury lent his time and voice very graciously for the videos. My thanks also to Joni Fraser at Springer for her immense help in seeing this work to completion. First and last, this book would not have been completed without the encouragement and patience of Leela, my spouse and partner.

The painful memories of lost battles with severe liver injury in the operating room are the inspiration behind this work. This labor of love would be entirely worth it, if *one* life can be saved by timely and appropriate surgical intervention.

Reference

1. Lucas CE, Ledgerwood AM. The academic challenge of teaching psychomotor skills for hemostasis of solid organ injury. J Trauma. 2009;66:636–40.

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