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Developing a Concept

Successful surgery requires study, advance planning, clear thinking, and technical skill. Brilliant execution of the wrong operation at the wrong time can only lead to disaster. To achieve consistently good results for each surgical condition, the surgeon must develop a concept that combines analysis of the literature, study of the disordered physiology, and comprehension of the hypothesis underlying the contemplated operation.

To develop a concept properly, a surgeon must:

- *Know* the normal and pathologic physiology and anatomy.
- *Explore* the relative merits of alternative operations and treatment options.
- *Analyze* the operation selected for the problem at hand: Are there *valid data* to demonstrate that it can accomplish the desired goal? Is the mortality rate for the procedure such that the benefit outweighs the risk? Are there alternative treatments that may offer lower morbidity and potential mortality?
- *Reflect on personal experience* with complications and deaths following the operation selected. This information is more relevant than are the results that may be reported from some renowned medical center, where one surgeon may have developed expertise in a particular operation. Superior results under such circumstances obviously do not indicate that less-experienced surgeons are as successful. Participation in national databases such as NSQIP (the National Surgical Quality Improvement Project) (American College of Surgeons National Surgical Quality

Improvement Program 2011) as well as efforts at your own hospital facilitate tracking results compared with national and local norms. The American Board of Surgery requires such activities as part of Maintenance of Certification (The American Board of Surgery 2011).

- *Review* postoperative complications and poor results. When a complication or a death occurs, analyze the case carefully and attempt to make an objective appraisal of what went wrong. Was there poor judgment regarding the choice of operation? Was the diagnosis inaccurate? Was the assessment of the risk incorrect? Was there an error of technique? Did the surgeon lack the technical expertise required to undertake the procedure?
- *Keep records* of mortality and morbidity for each operation. Frequent analysis of results increases the database of the surgeon's own experience. Knowledge the surgeon gains leads to self-renewal and improved performance: Without it the surgeon learns nothing from experience.
- *Persist* in a lifetime study of the published literature in basic science and clinical surgery. Only in this way could one become aware that the trauma of surgery induces the release of inflammatory mediators that make the patient feel weak and ill after surgery; that long abdominal incisions, large retractors, and rough surgical technique produce more mediators; and that gentle dissection and minimally invasive techniques with 5- or 10-mm incisions and "retraction" by 15 mmHg CO₂ reduce the mediator cascade and minimize postoperative pain and malaise. These scientific advances support the development of laparoscopic surgery.

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Establishing Strategy

Establishing an *operative strategy*—advance planning of the technical steps of the operation—is vital to the safety and efficiency of complex surgical procedures. The operative

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strategy is what the surgeon ponders the night before the operation: What are the major steps of the procedure? How should it be modified for this particular case? Where are the potential pitfalls? How can they be avoided? In some ways, this exercise is similar to the visualization employed by highly skilled athletes. The thesis of this book is that by creating a strategy, the surgeon can reduce the incidence of operative misadventures and postoperative complications.

Anticipating and analyzing potential problems and danger points before an operation leads to success more surely than does frenzied activity in the operating room after the surgeon and patient are in deep trouble. Anticipation enhances the surgeon's capacity for prompt decision making in the operating room.

Making the Operation Easy

The main goal of any successful operative strategy is to make the operation easy. The main goal of this book is to show how to develop such strategy. Easy operations are safe operations. A prime requirement for making an operation simple is good exposure with excellent light. Strategy also means planning the sequence of an operation to expose vital structures clearly early during the dissection to avoid damaging them.

Even more important is to *do the easy steps of any operation first*. This practice often makes the next step easy. If the surgeon continues to do easy steps, there may never be any difficult steps with which to contend. Another aid to making an operation easy is for the surgeon to adopt the proper foot and body position for each surgical maneuver (see Chap. 2).

The reputation for being a rapid operator is highly prized by some surgeons. More important than speed, however, are accuracy and delicacy of technique, especially when good anesthesia and patient support technology are available. Nevertheless, time should not be wasted. A reduction in

operating time is not achieved merely by performing rapid hand motions. An operation can be expedited without sacrificing safety only when thoughtful advance planning, anticipation, and alert recognition of anatomic landmarks are combined with efficiency of execution. Together, they eliminate wasted motion and wasted time.

The surgeon in difficulty should stop cutting and start thinking. Why is the step difficult? Poor exposure? Bad light? Bloody field? The good surgeon makes operations look easy because of good operative strategy, rarely needing to resort to spectacular maneuvers to extricate the patient from danger.

The surgeon in real trouble should call for help from a senior colleague. Situations such as hemorrhage from the vena cava or laceration of the common bile duct are best managed with the calming influence of an experienced consultant who is not burdened by the guilt and anxiety of having caused the complication.

The chapters that follow in Part I discuss in detail the general principles that underlie successful open and laparoscopic surgery. Subsequent sections work through the anatomic regions and operations that are the familiar terrain of the general surgeon. The "concepts" chapter introduces each section. The technical chapters that then follow deal with specific surgical procedures. No procedure, however, rarely used, has been omitted. These uncommon procedures are labeled "legacy" material. In each technical chapter, a discussion of the concept underlying the operation and the operative strategy precedes the description of each operative technique.

References

- American College of Surgeons National Surgical Quality Improvement Program. <http://www.acsnsqip.org/>. Accessed 8 Oct 2011.
- The American Board of Surgery. ABS MOC requirements. <http://home.absurgery.org/default.jsp?exam-mocreqs>. Accessed 8 Oct 2011.