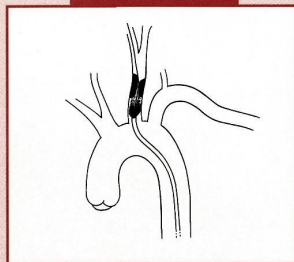
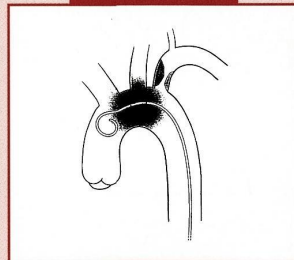
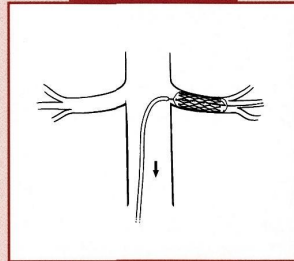
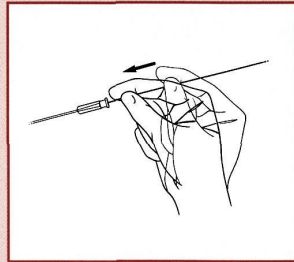


Endovascular Skills



*Guidewire and
Catheter Skills for
Endovascular
Surgery*

Second Edition
Revised and Expanded

Peter A. Schneider

Edwards Exhibit 1036, pg. 1

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Guidewire–Catheter Skills Are the Basis of Endovascular Surgery

Guidewires and catheters comprise the foundation of endovascular intervention, both technically and conceptually. Guidewire–catheter skills are not necessarily intuitive but must be developed. Once acquired, these skills permit a different way of considering and treating vascular problems. Guidewires and catheters are useless without each other. However, the guidewire–catheter apparatus plays a role similar to that of the arterial clamp. It provides control and permits access to the vasculature. Although understanding the various types of guidewires and catheters is important, the specific function of each does not ring true until the clinician handles the apparatus and puts it to use. Although there are many correct choices, the wrong choice of a guidewire–catheter apparatus may become painfully obvious, often at the worst time, and may threaten the success of the procedure.

Mastering Guidewires

Guidewires are the simplest tool available in the vascular specialist's workshop. Yet, nothing can happen without them. Mastering guidewires involves developing facility and understanding in guidewire choices, guidewire-handling techniques, and guidewire–lesion interactions.

Guidewire choices. Successful guidewire deployment requires a knowledge of choices. The goal is to choose the most appropriate guidewire first as often as possible and to know what to do next if the first choice turns out to be a bust. There are a full range of guidewires available. Rather than use them all, most vascular specialists develop a quiver of guidewires, that works for them in most situations.

Guidewire-handling techniques. Mastering the use of guidewires requires learning specific maneuvers. The facility and speed with which the specialist manipulates guidewires often determines the pace and success of the case.

Guidewire–lesion interactions. An essential step in the process of mastering guidewires is to understand the interaction between the guidewire's leading edge and the lesion with fluoroscopic imaging as the intermediary (Fig. 1). Observation of guidewire behavior in vivo requires patience. As the operator gains experience, the guidewire–lesion interaction becomes more predictable. A large proportion of guidewire–lesion interactions are predictable. The interactions that are not

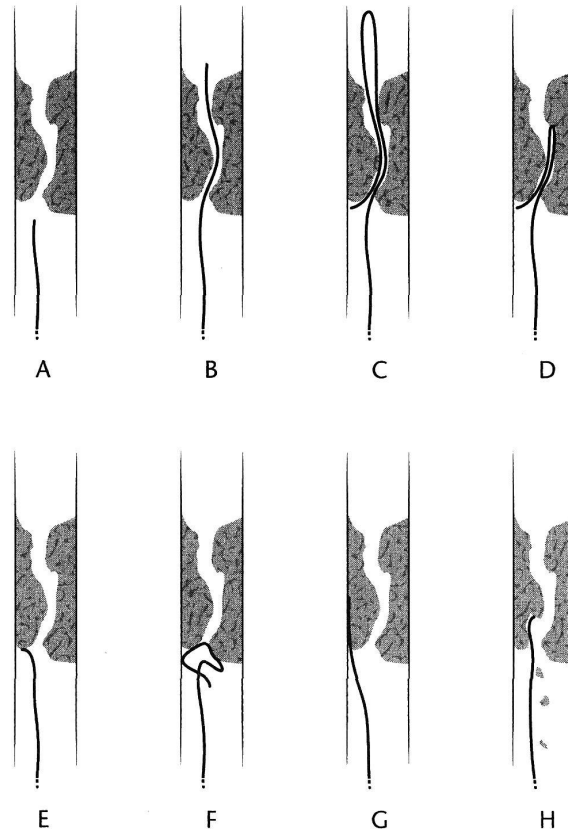


Fig. 1 Guidewire-lesion interactions. Several possible outcomes may result from interaction between the tip of the guidewire and an occlusive lesion. **A**, A guidewire tip approaches a lesion. **B**, The guidewire traverses the lesion on its first pass. **C**, The guidewire's leading edge catches on the proximal end of the stenosis. The floppy tip buckles allowing an elbow of guidewire to traverse the lesion. **D**, The floppy tip begins to buckle but catches on a ledge of plaque and is unable to cross the lesion. **E**, The guidewire tip hits plaque and is unable to find the eccentric lumen. **F**, The guidewire piles up proximal to the lesion. **G**, The guidewire finds a subintimal plane. **H**, The guidewire disrupts plaque, which results in embolization of atherosclerotic material.

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