THE CLAIMED INVENTION IS:

1. A cerebrovascular apparatus for at least partial insertion into a cerebrovasculature, the apparatus comprising:

a sheath catheter, including:

an elongate body, comprising an elongate outer body and an elongate inner body having a smaller outer periphery than an outer periphery of the outer body, an inflation lumen defined between the outer body and the inner body, an internal working lumen defined within the inner body, the working lumen extending between a proximal portion and a distal portion of the elongate body of the sheath catheter;

an inflatable inflation balloon, located toward a distal portion of the elongate body of the sheath catheter, the balloon proximally attached to the elongate body of the sheath catheter via at least one of the outer periphery or a distal face of the outer body, the balloon distally attached to the elongate body of the sheath catheter via at least the outer periphery of the inner body so as to be dimensionally stepped-down laterally relative to a more proximally attached portion of a distal cuff of the inflation balloon;

wherein the inflation lumen extends between the proximal portion of the elongate body of the sheath catheter and the balloon to provide fluid communication to the balloon to permit inflation of the balloon; and

wherein a distal end of a distal cuff of the balloon is offset, by the internal working lumen being a single fluid-communicating lumen tube, from a distal tip of the sheath catheter.

2. The apparatus of claim 1, wherein a distal end of a distal cuff of the balloon is offset, by the internal working lumen being a single fluid-communicating suction lumen tube, from a distal tip of the sheath catheter by an offset distance of at least 8 millimeters to provide additional cerebrovascular access, beyond the balloon, via the working lumen of the inner body.

3. The apparatus of claim 2, wherein an inner lateral dimension of the working lumen at or near the distal tip of the sheath catheter is larger than in a more proximal region of the working lumen.

4. The apparatus of claim 2, wherein a lateral outer dimension of an outer periphery of the distal tip of the sheath catheter is equal to a lateral outer dimension of the outer periphery of the outer body of the sheath catheter.

5. The apparatus of claim 1, wherein the inner body includes a stretched cylindrical metal tube, including extending under the balloon, to inhibit collapse and maintain patency of the working lumen when an inflation pressure is applied to inflate the balloon.

6. The apparatus of claim 5, wherein the tube includes variable spacing laser cuts in the stretched cylindrical metal tube to increase its bending flexibility.

7. The apparatus of claim 6, including more closely spaced laser cuts in a relatively more distal portion of the stretched cylindrical metal tube than in a relatively more proximal portion of the stretched cylindrical metal tube to provide relatively more bending flexibility in the relatively more distal portion of the stretched cylindrical metal tube than in the relatively more proximal portion of the stretched cylindrical metal tube.

8. The apparatus of claim 7, wherein a relatively more distal portion of the stretched cylindrical metal tube is stretched thinner than a relatively more proximal portion of the stretched cylindrical metal tube to yield wider laser cuts in the relatively more distal portion of the stretched cylindrical metal tube than in the relatively more proximal portion of the stretched cylindrical metal tube.

9. The apparatus of claim 5, wherein a relatively more distal portion of the stretched cylindrical metal tube is stretched with respect to a relatively more proximal portion of the stretched cylindrical metal tube to provide relatively more bending flexibility in the relatively more distal portion of the stretched cylindrical metal tube than in the relatively more proximal portion of the stretched cylindrical metal tube.

10. The apparatus of claim 5, wherein the inner body further comprises a liner within the tube along at least a portion of the tube to provide a desired lubricity to the inner working lumen of the sheath catheter, and in which a relatively more distal portion of the liner is stretched with respect to

a relatively more proximal portion of the liner to provide relatively more bending flexibility in the relatively more distal portion of the liner than in the relatively more proximal portion of the liner.

11. The apparatus of claim 5, wherein the inner body includes:

at least one of a metal braid or a metal coil in a more proximal region of the inner body than the tube;

a polymer outer covering adjacent to the tube and adjacent to the at least one of a metal braid or a metal coil; and

a liner within the tube along at least a portion of the tube to provide a desired lubricity to the inner working lumen of the sheath catheter, and wherein the polymer outer covering is reflowed to bond with the liner through engagement of the liner via a surface morphology of at least one of the tube or the braid.

12. The apparatus of claim 1, further comprising:

a forward-viewing fiberoptic angioscope sized and shaped to be inserted from a proximal portion of the sheath catheter into the working lumen of the sheath catheter to allow a distal portion of the angioscope to be extended to, near, or beyond a distal opening of the working lumen of the sheath catheter to forwardly view and inspect a cerebrovascular pathology using the angioscope, wherein the angioscope comprises:

a coherent fiber bundle of imaging optical fibers extending between proximal and distal portion of the angioscope, individual ones of the imaging fibers having an outer diameter of about 2.5 micrometers;

an uncladded arrangement of illumination fibers, concentrically arranged around the imaging fibers, individual ones of the illumination fibers having an outer diameter between 25 micrometers and 50 micrometers; and

wherein an outer diameter of the angioscope is less than or equal to 2.4 French.

13. The apparatus of claim 1, comprising a valve located toward a proximal portion of the sheath catheter, configured to allow a vacuum to be built up behind the valve and then applied to the working lumen of the sheath catheter upon opening the valve to permit sudden suction at a distal end of the working lumen of the sheath catheter.

14. The apparatus of claim 12, further comprising a cerebrovascular pathology treatment catheter sized and shaped to extend through the working lumen of the sheath catheter while allowing at least a portion of the angioscope to remain within the working lumen of the sheath catheter.

15. A cerebrovascular apparatus for at least partial insertion into a cerebrovasculature, the apparatus comprising:

a sheath catheter, including:

an elongate body, comprising an elongate outer body and an elongate inner body having a smaller outer periphery than an outer periphery of the outer body, an inflation lumen defined between the outer body and the inner body, an internal working lumen defined within the inner body;

an inflatable balloon, located toward a distal portion of the elongate body of the sheath catheter; and

wherein the inflation lumen extends between a proximal portion of the elongate body of the sheath catheter and the balloon to provide fluid communication to the balloon to permit inflation of the balloon; and

wherein the working lumen extends between the proximal portion and the distal portion of the elongate body of the sheath catheter and the working lumen further extends to a distal tip of the sheath catheter that is offset by the internal working lumen being a single fluid-communicating lumen tube from a distal end of a distal cuff of the balloon by an offset distance of at least 8 millimeters to provide additional cerebrovascular access beyond the balloon via the working lumen of the inner body.

16. The apparatus of claim 15, wherein the balloon is proximally attached to the elongate body of the sheath catheter via at least one of the outer periphery or distal face of the outer body, the balloon distally attached to the elongate body of the sheath catheter via at least the outer periphery of the inner body so as to be dimensionally stepped-down laterally relative to a more proximally attached portion of the distal cuff of the inflation balloon.

17. The apparatus of claim 15, wherein an inner lateral dimension of the working lumen at or near the distal tip of the sheath catheter is larger than in a more proximal region of the working lumen.

18. The apparatus of claim 16, wherein a lateral outer dimension of an outer periphery of the distal tip of the sheath catheter is equal to a lateral outer dimension of the outer periphery of the outer body of the sheath catheter at a location proximal to the balloon.

19. A cerebrovascular apparatus for at least partial insertion into a cerebrovasculature, the apparatus comprising:

a sheath catheter, including:

an elongate body, comprising an elongate outer body and an elongate inner body having a smaller outer periphery than an outer periphery of the outer body, an internal working lumen, defined within the inner body, that extends between a proximal portion and a distal portion of the elongate body of the sheath catheter; and

wherein at least one of the inner body or the outer body includes at least a cylindrical metal tube portion that is stretched relative to another cylindrical metal tube portion of said at least one of the inner body or the outer body to provide greater relative bending flexibility in the stretched cylindrical metal tube portion relative to the another cylindrical metal tube portion.

20. The apparatus of claim 19, comprising:

an inflation lumen defined between the outer body and the inner body; and

an inflatable balloon, located toward a distal portion of the elongate body of the sheath catheter, wherein the inflation lumen extends between the proximal portion of the elongate body of the sheath catheter and the balloon to provide fluid communication to the balloon to permit inflation and deflation of the balloon, wherein the balloon is proximally attached to the elongate body of the sheath catheter via at least one of the outer periphery or distal face of the outer body, and wherein the balloon is distally attached to the elongate body of the sheath catheter via at least the outer periphery of the inner body so as to be dimensionally stepped-down laterally relative to a more proximally attached portion of a distal cuff of the inflation balloon.

21. The apparatus of claim 20, wherein the inner body comprises a stretched cylindrical metal tube including extending under the balloon, to inhibit collapse and maintain patency of the working lumen when an inflation pressure is applied to inflate the balloon.

22. The apparatus of claim 21, wherein the tube includes variable spacing laser cuts in the stretched cylindrical metal tube to increase its bending flexibility.

23. The apparatus of claim 22, including more closely spaced laser cuts in a relatively more distal portion of the stretched cylindrical metal tube than in a relatively more proximal portion of the stretched cylindrical metal tube to provide relatively more bending flexibility in the relatively more distal portion of the stretched cylindrical metal tube than in the relatively more proximal portion of the stretched cylindrical metal tube.

24. The apparatus of claim 23, wherein a relatively more distal portion of the stretched cylindrical metal tube is stretched thinner than a relatively more proximal portion of the stretched cylindrical metal tube to yield wider laser cuts in the relatively more distal portion of the stretched cylindrical metal tube than in the relatively more proximal portion of the stretched cylindrical metal tube.

25. The apparatus of claim 19, wherein a relatively more distal portion of the stretched cylindrical metal tube is stretched with respect to a relatively more proximal portion of the stretched cylindrical metal tube to provide relatively more bending flexibility in the relatively more distal portion of the stretched cylindrical metal tube than in the relatively more proximal portion of the stretched cylindrical metal tube.

26. The apparatus of claim 19, wherein the inner body further comprises a liner within the tube along at least a portion of the tube to provide a desired lubricity to the inner working lumen of the sheath catheter, in which a relatively more distal portion of the liner is stretched with respect to a relatively more proximal portion of the liner to provide relatively more bending flexibility in the relatively more distal portion of the liner than in the relatively more proximal portion of the liner.

27. A cerebrovascular apparatus for at least partial insertion into a cerebrovasculature, the apparatus comprising:

a sheath catheter, including:

an elongate body, comprising an elongate outer body and an elongate inner body having a smaller outer periphery than an outer periphery of the outer body, an internal working lumen, defined within the inner body, that extends between a proximal portion and a distal portion of the elongate body of the sheath catheter; and

wherein at least one of the inner body or the outer body includes at least a region having an inner portion and an outer portion that are bonded together via a reflow bond extending through a surface morphology of an intermediate portion located between the inner portion and the outer portion.

28. The apparatus of claim 27, comprising:

an inflation lumen defined between the outer body and the inner body; and

an inflatable balloon, located toward a distal portion of the elongate body of the sheath catheter, wherein the inflation lumen extends between the proximal portion of the elongate body of the sheath catheter and the balloon to provide fluid communication to the balloon to permit inflation and deflation of the balloon, wherein the balloon is proximally attached to the elongate body of the sheath catheter via at least one of the outer periphery or distal face of the outer body, and wherein the is balloon distally attached to the elongate body of the sheath catheter via at least the outer periphery of the inner body so as to be dimensionally stepped-down laterally relative to a more proximally attached portion of a distal cuff of the inflation balloon; and

wherein the inner body includes a stretched cylindrical metal tube, including extending under the balloon, to inhibit collapse and maintain patency of the working lumen when an inflation pressure is applied to inflate the balloon, wherein the stretched cylindrical metal tube includes laser cuts to increase its bending flexibility.

29. The apparatus of claim 28, including more closely spaced laser cuts in a relatively more distal portion of the stretched cylindrical metal tube than in a relatively more proximal portion of the stretched cylindrical metal tube to provide relatively more bending flexibility in the relatively more distal portion of the stretched cylindrical metal tube than in the relatively more proximal portion of the stretched cylindrical metal tube.

30. The apparatus of claim 29, wherein a relatively more distal portion of the stretched cylindrical metal tube is stretched thinner than a relatively more proximal portion of the stretched cylindrical metal tube to yield wider laser cuts in the relatively more distal portion of the stretched cylindrical metal tube than in the relatively more proximal portion of the stretched cylindrical metal tube.