

proximal opening 30. Outer catheter proximal opening 30 may be an opening of outer catheter lumen 16 at a proximal end of outer catheter 12. Outer catheter proximal opening may be configured to receive inner catheter 14, such that at least a portion of inner catheter 14 may be positioned outside outer catheter lumen 16. This portion of inner catheter 14 proximal to outer catheter proximal opening 26 may, for example, be used by a clinician to operate a position of inner catheter 14 relative to outer catheter 12. As such, a length of inner catheter 14 may be sufficiently longer than outer catheter 12 to extend past outer catheter distal opening 18 to provide suction and continuous flow into inner catheter lumen 20 and to extend past outer catheter proximal opening 30 to provide a surface for a clinician or other operator to use to operate inner catheter 14 relative to outer catheter 12.

[0061] In some examples, one or more portions of an inner surface of outer catheter 12 may be lubricious to facilitate the introduction and passage of inner catheter 14, a therapeutic agent, or the like, through outer catheter lumen 16. Examples of therapeutic agents include, but are not limited to, an oxygenated medium or a pharmaceutical agent, which may be, for example, a vasodilator such as nifedipine or sodium nitroprusside, or a tissue plasminogen activator (t-PA), which can be used to break down blood clots. In some examples, the material from which portions of the inner surface is formed may itself be lubricious (e.g., PTFE). For example, a lubricious inner surface that may allow relatively easy movement of inner catheter 14 and/or fluid through outer catheter lumen 16. In addition to, or instead of, being formed from a lubricious material, in some examples, an inner surface of may be coated with a lubricious coating such as a hydrophilic coating. The inner surface may be formed from any suitable material including, but not limited to, polytetrafluoroethylene (PTFE), expanded PTFE a fluoropolymer, perfluoroalkoxy alkane (PFA), fluorinated ethylene propylene (FEP), polyolefin elastomer, and the like.

[0062] Inner catheter 14 defines an inner catheter lumen 20, an inner catheter distal opening 22, and a plurality of sidewall openings 24A and 24B (collectively “sidewall openings 24”) proximal to inner catheter distal opening 22. Inner catheter 14 may include an inner liner, an outer jacket, and a structural support member, such as a coil and/or or a braid, positioned between at least a portion of the inner liner and at least a portion of the outer jacket. Inner catheter 14 may include other structures, such as an expandable member configured to radially expand within a vessel of a patient, e.g., to engage a clot within the vessel.