Suction Device for Normal and Viscous Materials
Ref# RP12-015

Keywords: Device, suction, surgery, suction cannula, other.

Collaboration Research Opportunity: Roswell Park Cancer Institute is seeking partners to help co-develop a surgical device for removing viscous and/or semi-viscous material from an individual using suction.

Summary: Surgical aspirator cannulas and suction devices have been used for many years to remove fluid from the body. These suction devices typically comprise a hollow tube or cannula, having an opening at each end. The distal opening (with respect to the patient) is attached to a source of vacuum. The opposite, proximal end, is introduced into the body and fluid is removed through the cannula by force of the suction. Typically, when a vacuum is provided from the vacuum source, the fluid is sucked into the opening on the proximal end of the tube, through the tube, and into a receptacle disposed “downstream” with respect to the tube. Such suction devices may become clogged, requiring cleaning of the devices. This frequently occurs during surgical procedures involving suction of viscous and/or non-viscous fluid.

Technology: The present invention provides a device for removing viscous or semi-viscous material from an individual using suction. The suction may be provided by a vacuum source. The device comprises a screw mechanism for flow of liquid applying a vacuum, through a suction line (Figure 1). The device provides suction by applying a vacuum through a single line using conventional suction devices available on the market. One end of the device is attached to a suction cannula. The vacuum causes the blade/screw mechanism to freely rotate thereby circulating and breaking down fluid drawn in at the other end (Figures 2 & 3).

Potential Commercial Applications:
- Invention provides a suction device for use in any medical and surgical procedure.
- Present invention provides optimal removal of both viscous and semi-viscous material from an individual.
- Device is scalable for smaller or larger diameter tubes.

Competitive Advantages:
- Invention can be embodied as a device for improving the flow of fluid when applying a vacuum through the suction line.
- Device requires much less cleaning than standard suction devices.
- Device should save time during use.

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Fig. 1. Suction cap mechanism attached to commercially available suction device cannula

Fig. 2. Suction cap mechanism attached to suction device

Fig. 3. Suction cap mechanism attached to suction device

Fig. 4. Suction blade/screw mechanism encapsulated in jacket