

Positive Pressure Hydraulic Aspiration Syringe

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Technology description

Introduction

Medical professionals, such as nurses, physicians, and anesthesiologists, use syringes to aspirate fluid or air during various medical procedures. A standard syringe aspirates from its terminal orifice when the plunger is withdrawn, which creates negative pressure within the lumen of the syringe. During blood draws, pneumothorax needle decompression, and insertion of an invasive vascular access, such as a central line placement, a needle attached to a syringe is inserted into the patient while withdrawing on the plunger. This motion creates a negative pressure vacuum that will aspirate blood upon entering a vessel, thereby confirming the presence of the needle tip within a vascular lumen. The one-handed insertion of a needle/syringe apparatus while simultaneously withdrawing the plunger is difficult to master and does not provide for optimal fine motor control. Therefore, it is desirable to have a more ergonomic syringe for one-handed aspiration.

Technology Description

Dr. Ali Qaderi, a physician in the Department of Anesthesiology at the Cedars-Sinai Medical Center, has developed a positive pressure syringe that can aspirate fluids with one-handed compression of the syringe plunger.

Application area

- Ergonomic aspiration using a syringe

Advantages

- Improves ergonomic functionality and anatomic dexterity during aspiration with a syringe
- Increases fine motor control when aspirating with a syringe, which could increase patient safety
- Decreases physician injury from unnatural, repetitive movements

Institution

[Cedars-Sinai Medical Center](#)

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