Device for shunting fluid between two compartments within human body

Published date: March 17, 2017

Technology description

Unmet Need

Ascites (fluid in the peritoneal cavity) can form in patients with some cancer types or cirrhosis of the liver. Current methods to remove the fluid are long term solutions such as dietary changes, diuretic drugs or a clinical procedure called paracentesis to remove the fluid. Paracentesis is an invasive procedure which removes ascites fluid using a large pump. Some patients are unresponsive to therapeutic methods and develop refractory ascites. Such patients usually require recurrent large-volume paracentesis and multiple hospital admissions. Many patients seek emergency treatment in order to have the fluid removed in a timely fashion. There is a need for a way to remove ascites fluid without a hospital stay and to improve patient comfort.

Technology Overview

A JHU scientist has invented an implantable device which reduces ascites fluid buildup using passive pumping system to shunt fluid from the peritoneal cavity to a second body cavity where the fluid can be excreted, such as the bladder. It is a purely mechanical device which harnesses the minimal pressure elevations generated during normal physiology (breathing, cough, etc.) to create a positive driving pressure between two compartments. It is does not require an active electrical pump system for creation of a pressure differential to initiate the movement of fluid. It provides a new less invasive approach of passive peritoneogastric shunting to allow management of patients at home in order to improve their quality of life. This device potentially reduces cost of care and number of emergency room visits.

Institution

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