

Surgery

Spherical implant to improve surgical outcomes for patients with esophageal Atresia

Brief Description of Technology

Spheric endo-luminal traction device helps improve surgical outcomes for individuals with long-gap esophageal atresia

TECHNOLOGY ID

2016-0601

BUSINESS OPPORTUNITY

Exclusive License

TECHNOLOGY TYPE

Medical Device

PATENT INFORMATION

Issued

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Technology Overview

Patients born with esophageal atresia have congenital defects associated the either non-existent lumen from the mouth to the stomach or ending in a fistula, each needing repair. Sometimes there is an additional connection (fistula) to the trachea and airways that puts the patient at risk. This condition requires surgeons to repair the malformation by connecting and suturing both ends of the esophagus, but sometimes the gap is too long to allow that and it's necessary to apply traction to lengthen the lumen and perform an anastomosis of the now lengthened sections. Tension from existing methods of traction frequently ruptures the sutures necessitating multiple surgeries. This novel technology provides an alternative to traditional traction that is more effective. The endo-luminal traction ball is a silicone ball inserted through the mouth which absorbs the force of the sutures preventing them from pulling open and preventing multiple surgeries.

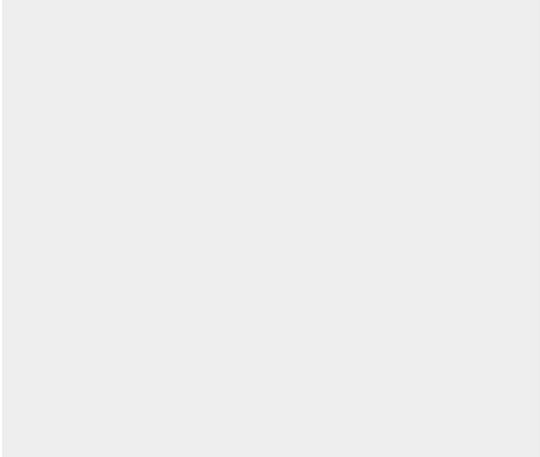
Applications

The innovation describes treatment of esophageal strictures, atresia, and stenosis. The need for a safer and effective treatment to elongate the lumens of the patient is provided through a spherical device tensioned to properly hold the lumen and forcing elongation without additional risk of uneven tension on tissue.

Examples could be augmentation of esophageal tissue for reconstructive surgery.

Advantages

The spherical implant ball has biocompatible properties allowing for implantation to the esophagus through minimally invasive techniques and adjustable tension on the lumen. The tension is delivered through tensile sutures threaded through the implanted sphere and anchored. The anchored sutures are then adjusted to keep applying the appropriate force to elongate the lumen or esophagus. With controlled tension the elongation force allows for precise delivery of force and limiting risk of anchored sutures rupturing from the lumen and esophageal wall.



The design also prevents migration of the implanted sphere further minimizing the risk of tissue damage.

Market Overview

Esophageal atresia is estimated to be 3.5-10 / 100K live births with surgical correction the preferred method of correction. Based on these estimates, a rough estimate of atresia cases requiring elongation surgery could be anywhere between several hundred to a few thousand per year worldwide.

Investigator Overview

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