Bioresorbable Intestinal Stent

The system is a bioresorbable internal tubular stent to be placed inside the intestine to minimize anastomotic leaking in gastrointestinal surgical patients. The device is secured with micro-barbs, with an accompanying external compressive ring on the outside, and is surgically placed between the two organs.

What is the Problem?

Gastrointestinal (GI) anastomoses are surgical connections that are created between two organs in the GI tract. These surgical connections are necessary to reestablish continuity following the removal of intestinal and bowel segments, yet traditional methods of creating them often result in leaking of GI content which leads to severe health issues, including infection, pain, and death. Among the approximately 700,000 GI surgeries performed worldwide involving anastomosis, leaking can occur in up to 30% of patients, and mortality rates from these leaks can be as high as 39%. Anastomoses are commonly made with staples, sutures, but these techniques fail to consistently create a sufficient watertight seal and prevent leaking. Skin glues, such as fibrin glue have been identified as a possible solution for cases of leakage; however, recent studies have shown them to be ineffective at treating leaks in GI anastomoses. Because of this, surgical reoperation is the most common method of addressing leakage; however, this presents additional risks and costs to the patients and requires additional resources from surgeons and the hospital. Thus, there is an unmet need for a way to minimize anastomotic leaking in GI surgical patients.

What is the Solution?

The solution to address this unmet need is a bioresorbable internal tubular stent to be placed inside the intestine and secured with micro-barbs, with an accompanying external compressive ring on the outside. The stent is placed inside and between the two organs that need to be surgically connected to each other, and the barbs on the exterior of the stent will secure the stent to the interior of the intestine and prevent migration of the tube. The diameter of the tube is designed so that it is slightly bigger than or the same diameter of the portion of the GI tract that it will be placed in, which is a measurement that can be done prior to the procedure using imaging techniques. Once placed inside, the external compressive band will be placed on the outside to the intestine, centered at the anastomotic site. The purpose of the band is to fix the stent in place and to also act as an additional barrier and further prevent leaking of the GI contents from the anastomotic site. Once fixed into place, the opening of the tube can allow for normal flow of GI content through the GI tract and allow for normal function as the wound heals. Once the wound has healed, the internal tube and compressive band, which are both made from bioresorbable materials, degrade over time, leaving just the new tissue growth over

Technology ID

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Category

Device/Other

Selection of Available Technologies

Authors

Eric Seibel

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the anastomotic site.

What Differentiates it from Solutions Available Today?

Current solutions do not consistently create a sufficient watertight seal, which can lead to leaking. The solution can reduce leakage rates, post-operative complications, and mortality rates associated with these complications.

Patent Information:

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