Abdominal wall closure device with integrated fixation for ease of placement

Published date: Feb. 7, 2019

Technology description

Invention Summary

0017-01 serves to integrate surgical meshes with integration components for procedures such as midline closure. Currently, a surgeon either sutures the edges of the surgical mesh to the inner layers of the abdominal wall or uses tack deployment systems to fix the mesh to the inner layers of the abdominal wall. The new invention allows the surgeon to simply place a suture through the abdominal wall. The tensile forces on the suture then pull the attached surgical tack through the abdominal wall effectively fixing the surgical mesh in place. Afterwards, the surgeon simply closes the midline incision according to normal clinical practice. The technology allows for bioadhesive and biodegradable material incorporation as well as underlay and sublay (recto-rectus) configurations. A face plate helps to integrate these to essential components so deployment is simplified and reproducible.

Market Opportunity

Approximately 4 million laparotomies are performed in the U.S. annually. Significant morbidity outcomes occur in 10 to 20 percent of laparotomies from dehiscence, evisceration or incisional hernia. Prophylactic mesh placement would benefit patients who are at increased risk for hernia formation due to risk factors including obesity, emergency surgery, diabetes, smoking or being elderly. However, many surgeons do not perform prophylactic mesh placement, as it takes an extra 10 to 20 minutes and can be technically challenging. Therefore, a large percentage of patients are considered high risk, and the total addressable market is at least $120 million per annum.

Recent clinical trials have shown that surgical meshes provide sufficient improvements in preventing incision dehiscence, evisceration and hernia formation, and companies are currently evaluating with a temporary billing code through Medicare. If a permanent billing code is assigned, more surgeons will use surgical meshes to prevent hernias. This device provides a competitive advantage to a company who offers surgical meshes.

Advantages

• Allows surgeon to place surgical meshes in patients whose body habitus makes mesh placement challenging

• Simple to perform and falls within the normal work flow

• No new components to create, combines existing technology in a new way
• Potential to decrease costs by reducing operative times

Institution

Sanford Health

Inventors

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