Delivery Device for a Photo-Crosslinkable Hydrogel to Repair Intervertebral Disc Herniation

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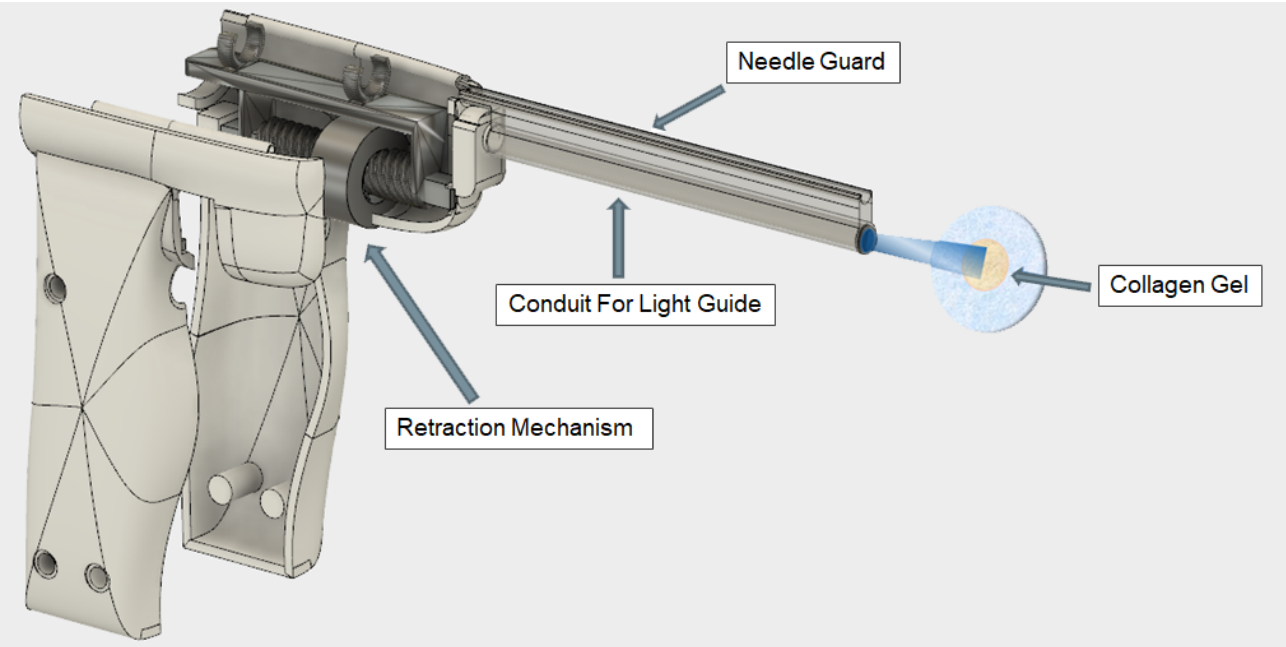
Technology description

A device used in minimally invasive microdiscectomy procedures to amend intervertebral disc herniations by injecting and crosslinking a photo-crosslinkable hydrogel.
Our device, for intervertebral disc herniation repair, is composed of two elements allowing both delivery and curing of a cross-linkable hydrogel solution. The hydrogel would be delivered to the surgical site using a preloaded syringe mounted on a screw driven needle retraction mechanism, thus allowing for a range of motion of the needle. Upon hydrogel delivery, an integrated light source is activated and with the frequency necessary to crosslink the hydrogel.
This device allows for the controlled delivery and activation of a hydrogel solution to initiate tissue regeneration within the intervertebral disc injury site. Current treatments stand only to remove herniated tissue, this delivery device is envisioned to play an essential role in significantly improving the standard of care for discectomy procedures.



The occurrence of subsequent herniations are detrimental to patient health because they elicit the same symptoms of initial herniation, warranting additional surgery. The standard of care in hernia treatment is discectomy and can be executed as minimally invasive discectomy. This invention will act to accurately deliver the hydrogel to the site of the incision in a controlled manner.

Keywords: Diseases & Treatment Areas, Surgical Instruments (non-electronic), endoscope, life sciences, medical devices, musculo-skeletal, orthopedics

Application area

Minimally invasive discectomy

Advantages

Combination device for both delivering and crosslinking of hydrogel
Compatible with current minimally invasive procedures
Potential to minimize occurrence of subsequent herniation of treated disc

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