Claims:

1. A suture clip deployment device for successively deploying a plurality of preloaded suture clips onto sutures, comprising:

a proximal handle portion comprising an actuation mechanism;

a mandrel having an inner lumen for receiving sutures, a proximal end portion coupled to the actuation mechanism, and a distal end portion having a distal opening in communication with the inner lumen, wherein the mandrel defines an axial dimension extending between the distal end portion and the proximal end portion, and a radial dimension perpendicular to the axial dimension, and wherein the mandrel is configured to receive at least one suture extending through the distal opening and into the inner lumen;

wherein a plurality of annular suture clips is mountable around the distal end portion of the mandrel, the annular suture clips being generally disk shaped and, when mounted around the mandrel, having a diameter oriented in the radial dimension and a thickness oriented in the axial dimension, wherein the thickness is smaller than the diameter;

characterized by

a retainer positioned at least partially around the mandrel and coupled to the actuation mechanism independently of the mandrel, the retainer configured to restrict the suture clips from moving proximally relative to the handle portion when the mandrel moves proximally relative to the handle portion;

wherein the actuation mechanism is configured to cause the mandrel to move proximally relative to the suture clips, such that a distal-most one of the suture clips slides off of a distal end of the mandrel and onto one or more sutures extending into the distal opening of the mandrel; and

wherein, after the distal-most one of the suture clips is deployed onto one or more sutures, the actuation mechanism is configured to cause the mandrel and a remaining portion of the suture clips to move distally relative to the handle portion such that a distal-most one of the remaining portion of the suture clips is ready to be successively deployed.

2. The device of claim 1, wherein the actuation mechanism is configured to cause the retainer to rotate relative to the mandrel and the suture clips, and wherein the rotation of the retainer causes cutting of the one or more sutures.

3. The device of claim 1 or claim 2, wherein the actuation mechanism is configured to cause the retainer to rotate relative to the mandrel and the suture clips, and wherein the rotation of the retainer allows the suture clips to move distally along with the mandrel relative to the handle portion.

4. The device of any one of claims 1 to 3, wherein the retainer comprises at least one axially extending slot that includes a plurality of circumferentially extending notches.

5. The device of any one of claims 1 to 4, further comprising an electrical heating element positioned at a distal end of the mandrel, the heating element configured to cut a suture after a suture clip is deployed onto the suture.

6. A suture clip deployment assembly for successively deploying a plurality of preloaded suture clips onto sutures, comprising a suture clip deployment device of claim 4, and a plurality of annular suture clips comprising:

an annular outer body;

one or more resiliently deformable flaps that project radially inwardly from the annular outer body and define a suture engagement aperture for frictionally engaging one or more sutures passing therethrough, and

at least one tab that is configured to project radially outwardly from the annular outer body into the axially extending slot in the retainer and to be positioned in one of the circumferentially extending notches;

wherein the suture clip is generally disk-shaped with the outer body, flaps, and the at least one tab being coplanar when the suture clip is in its natural configuration.

7. The assembly of claim 6, wherein the annular outer body has a generally circular outer perimeter and the at least one tab projects radially outwardly from the outer perimeter of the annular outer body.

8. The assembly of claim 6 or claim 7, wherein the suture clip has a resiliently deformed configuration, wherein the one or more resiliently deformable flaps are deflected out of a plane defined by the annular outer body and the at least one tab, such that the suture engagement aperture enlarges sufficiently to receive one or more sutures.

9. The assembly of claim 6, wherein the suture clips are comprised of a shape-memory material and wherein the one or more resiliently deformable flaps are held in a resiliently deformed configuration when loaded onto the mandrel, the flaps extending axially toward the handle portion along a side of the mandrel when in the resiliently deformed configuration, and wherein the flaps resiliently return toward a natural configuration projecting radially inwardly when deployed onto a suture, such that the suture clip has a flat, disk shape when deployed onto a suture.

10. The assembly of claim 9, wherein the retainer has a first rotational position, wherein the at least one tab of each suture clip is positioned in a respective one of the notches such that axial motion of the suture clips relative to the retainer is restricted, and wherein the retainer has a second rotational position wherein the at least one tab of each suture clip is not positioned in one of the notches and the suture clips are allowed to move axially relative to the retainer.