

CLAIMS

1. A system comprising:

an implantable device having a pair of anchors that are movable between an open position and a closed position to secure the implantable device to a native valve;

a delivery catheter;

a coupler disposed at a distal end of the delivery catheter;

a collar attached to the device;

an actuation element which extends through the delivery catheter and into the device; and

wherein the coupler and the collar are tied by a coupling tether which can recouple the device to the coupler after the actuation element has been removed from the device.

2. The system of claim 1 wherein the coupling tether is looped around the actuation element.

3. The system of any of claims 1-2 wherein a looped end of the coupling tether extends from the coupler through the collar and extends back through the collar into the coupler.

4. The system of any of claims 1-3 wherein the coupling tether extends from the coupler through the collar and extends back through the collar into the coupler.

5. The system of any of claims 1-4 wherein the coupling tether is a first coupling tether, and the coupler and the collar are tied by a second coupling tether.

6. The system any of claims 1-5 wherein a first passage for the coupling tether in the delivery catheter is offset by about 180 degrees from a second passage for the coupling tether in the delivery catheter.

7. The system of claim 5 wherein a first passage for the first coupling tether in the delivery catheter is offset by about 180 degrees from a second passage for the coupling tether in the delivery catheter and wherein a third passage for the second coupling tether in the delivery catheter is offset by about 180 degrees from a fourth passage for the second coupling tether in the delivery catheter.

8. The system of claim 7 wherein the first passage and the third passage are offset by about 90 degrees.
9. The system of any of claims 1-8 wherein the collar extends into the coupler.
10. The system of any of claims 1-8 wherein the coupler extends into the collar.
11. The system of any of claims 1-10 wherein the coupling tether extends from an end of the coupler.
12. The system of any of claims 1-10 wherein the coupling tether extends from a side of the coupler.
13. The system of any of claims 1-12 wherein the coupling tether extends into an end of the collar.
14. The system of any of claims 1-12 wherein the coupling tether extends into a side of the collar.
15. The system of any of claims 1-14 further comprising a compressible sleeve around the coupling tether between the coupler and the collar.
16. The system of claim 15 wherein the compressible sleeve is tapered.
17. The system of claim any of claims 15-16 wherein an outer diameter of the compressible sleeve is less than or equal to an outer diameter of the coupler when the compressible sleeve is compressed between the coupler and the collar.
18. The system of any of claims 1-17 further comprising a telescoping actuator coupled to the pair of anchors.
19. The system of any of claims 1-18 wherein the coupling tether is connected to the implantable device by a releasable knot.
20. The system of claim 19 wherein the releasable knot is configured such that pulling a first end of the coupling tether tightens the releasable knot and pulling a second end of the coupling tether unties the releasable knot.

21. The system of any of claims 1-20 wherein the actuation element includes a tapered recapturing feature.
22. The system of any of claims 1-21 wherein the collar includes a plurality of recapturing holes.
23. The system of any of claims 1-21 wherein the collar includes a penetrable recapturing surface that is configured to be penetrated by the actuation element.
24. The system of claim 23 wherein the penetrable recapturing surface comprises a wire mesh.
25. The system of any of claims 1-21 wherein the collar includes a coupling tether routing passage.
26. The system of claim 25 wherein the tether routing passage comprises a tube.
27. The system of claim 25 wherein the tether routing passage is defined inside the collar.
28. The system of claim 25 wherein the collar comprises a plurality of stacked plates.
29. The system of any of claims 1-28 wherein the coupler, the collar, and coupling tether are configured such that pulling two ends of the coupling tether results in a 2:1 ratio of movement of the two ends to a longitudinal change in position of the collar.