

CLAIMS

What is claimed is:

1. A valve repair device for repairing a native valve of a patient, the valve repair device comprising:

first and second paddle portions, wherein the first and second paddle portions are moveable between an open position and a closed position and are configured to attach to the native valve of the patient;

a first clasp attached to the first paddle portion, wherein the first clasp is moveable between an open position and a closed position and is configured to attach to the native valve of the patient;

a second clasp attached to the second paddle portion, wherein the second clasp is moveable between an open position and a closed position and is configured to attach to the native valve of the patient;

a first flexible portion that attaches the first paddle portion to a central portion of the device; and

a second flexible portion that attaches the second paddle portion to the central portion;

wherein the attachment between the first clasp and the first paddle portion causes a pulling force to be applied to the first paddle portion when a pulling force is applied to the first clasp to move the first clasp from the closed position to the open position;

wherein the first flexible portion is configured such that the pulling force applied to the first paddle portion as a result of the pulling force being applied to the first clasp causes the first flexible portion to flex and the first paddle portion to move from the closed position to the open position; and

wherein the first paddle portion is configured to be moved from the closed position to the open position as a result of the pulling force being applied to the first clasp while the second paddle portion is maintained in the closed position.

2. The valve repair device of claim 1, wherein the first clasp is moved from the closed position to the open position by pulling on a moveable portion of the first clasp.

3. The valve repair device of any of claims 1-2, further comprising:
a shaft;

a collar that the shaft extends through, the collar being attached to the central portion;
and

a cap attached to the shaft such that the cap can be moved by the shaft away from the collar;

wherein movement of the cap toward the collar causes both the first paddle portion and the second paddle portion to move to the closed position, and movement of the cap away from the collar causes both the first paddle portion and the second paddle portion to move to the open position.

4. The valve repair device of claim 3, wherein the first clasp comprises a fixed portion attached to the first paddle portion, a moveable portion having a barbed portion, and a hinge portion hingeably connecting the fixed portion to the moveable portion.

5. The valve repair device of claim 4, further comprising an actuation line attached to the moveable portion of the first clasp.

6. The valve repair device of claim 4, wherein applying tension to the actuation line causes the clasp to open and the paddle portion to open.

7. The valve repair device of claim 6, wherein a distance between the cap and the collar remains constant while tension is applied to the actuation line.

8. The valve repair device of any of claims 1-7, wherein the central portion, the first paddle portion, the second paddle portion, the first flexible portion, and the second flexible portion are formed from a strip of material.

9. The valve repair device of claim 8, wherein the strip of material comprises metal strands that are woven together.

10. The valve repair device of claim 8, wherein the strip of material comprises an electrospun material.

11. The valve repair device of claim 8, wherein the strip of material extends from a beginning in the central portion to an end in the central portion.

12. The valve repair device of claim 8, wherein the strip of material is folded to form a plurality of layers.

13. The valve repair device of claim 12, wherein the central portion comprises a coaption element formed from four layers of the strip of material.

14. The valve repair device of claim 12, wherein the flexible portions are formed from a single layer of the strip of material.

15. The valve repair device of any of claims 1-14, wherein the paddle portions are disposed over paddle frames.

16. The valve repair device of claim 15, wherein the paddle frames comprise a hoop and the strip of material is folded around the hoop.

17. The valve repair device of any of claims 1-16, further comprising a coaption element configured to close a gap in the native valve of the patient when the valve repair device is attached to the native valve.