

Claims

1. A valve repair device for repairing a native valve of a patient, the valve repair device comprising:
 - a single strip of material;
 - a coaption element comprising two or more folded layers of the single strip of material;
 - a collar attached to the coaptation element;
 - wherein the coaption element is configured to be positioned to fill a portion of the native heart valve orifice;
 - a pair of paddles comprising two or more folded layers of the single strip of material and connected to the coaption element;
 - a cap attached to the pair of paddles;
 - wherein movement of the cap toward the collar causes the pair of paddles to move to a closed position, and movement of the cap away from the collar causes the pair of paddles to move to an open position;
 - wherein the paddles are configured to attach to the native valve of the patient.
2. The valve repair device of claim 1, wherein at least a portion of the strip of material comprises metal strands that are woven together.
3. The valve repair device of any of the preceding claims, wherein the single strip of material comprises an electrospun material.
4. The valve repair device of any of the preceding claims, wherein the single strip of material comprises electrospun metal fibers.
5. The valve repair device of any of the preceding claims, wherein the paddles comprise an inner paddle portion and an outer paddle portion.
6. The valve repair device of any of the preceding claims, wherein the coaption element and the pair of paddles comprise a plurality of folded layers of the single strip of material.
7. The valve repair device of claim 6, wherein the coaption element comprises four layers of the plurality of folded layers of the single strip of material.

8. The valve repair device of claim 6, wherein the paddles comprise an inner paddle portion and an outer paddle portion, and the inner paddle portion comprises two folded layers of the plurality of folded layers of the single strip of material.
9. The valve repair device of any of the preceding claims, wherein the paddles are disposed over an extension member.
10. The valve repair device of claim 9, wherein the extension member comprises a hoop and a first portion of the single strip of material is folded around the hoop.
11. The valve repair device of claim 10, wherein the paddles comprise an inner paddle portion and an outer paddle portion and the fold of the single strip of material around the hoop is arranged between the inner and outer paddle portions.
12. The valve repair device of any of the preceding claims, wherein the single strip of material extends from a beginning in the paddle portion to an end in the paddle portion.
13. The valve repair device of claim 12, wherein the paddles comprise an inner paddle portion and an outer paddle portion, and wherein the beginning and end of the single strip of material are located in the paddle portions.
14. The valve repair device of any of the preceding claims, further comprising a base assembly that comprises:
 - a shaft that extends through the collar;
 - wherein the cap is attached to the shaft such that the cap can be moved by the shaft away from the collar.
15. A method of manufacturing a valve repair device for repairing a native valve of a patient, the method comprising:
 - folding a single strip of material to form a coaption element and a pair of paddles connected to the coaption element, wherein the paddles are movable between an open position and a closed position and are configured to attach to the native valve of the patient; and
 - wherein the coaption element is configured to be positioned to fill a portion of the native heart valve orifice;

attaching the portion of the single strip of material forming the coaption element to a collar; and

attaching the portion of the single strip of material forming the paddles to a cap, wherein movement of the cap toward the collar causes the pair of paddles to move to the closed position, and movement of the cap away from the collar causes the pair of paddles to move to the open position.

16. The method of claim 15, wherein the single strip of material comprises metal strands that are woven together.
17. The method of any of claims 15 and 16, wherein the single strip of material comprises an electrospun material.
18. The method of any of claims 15–17, wherein the single strip of material comprises electrospun metal fibers.
19. The method of any of claims 15–18, wherein the paddles comprise an inner paddle portion and an outer paddle portion.
20. The method of any of claims 15–19, wherein the coaption element and the pair of paddles comprise a plurality of folded layers of the single strip of material.
21. The method of claim 20, wherein the coaption element comprises four layers of the plurality of folded layers of the single strip of material.
22. The method of claim 20, wherein the paddles comprise an inner paddle portion and an outer paddle portion, and the inner paddle portion comprises two folded layers of the plurality of folded layers of the single strip of material.
23. The method of any of claims 15–22, wherein the paddles are disposed over an extension member.
24. The method of claim 23, wherein the extension member comprises a hoop and a first portion of the single strip of material is folded around the hoop.

25. The method of claim 24, wherein the paddles comprise an inner paddle portion and an outer paddle portion and the fold of the single strip of material around the hoop is arranged between the inner and outer paddle portions.
26. The method of any of claims 15–25, wherein the single strip of material extends from a beginning in the paddle portion to an end in the paddle portion.
27. The method of claim 29, wherein the paddles comprise an inner paddle portion and an outer paddle portion, and wherein the beginning and end of the single strip of material are located in the inner paddle portions.
28. The method of any of claims 15–27, further comprising a base assembly that comprises:
 - a shaft that extends through the collar;
 - wherein the cap is attached to the shaft such that the cap can be moved by the shaft away from the collar.