

WHAT IS CLAIMED IS:

1. A device for treating a mitral valve, comprising:
a prosthetic sealing element having an axisymmetrical or elliptical top cross-sectional profile, the sealing element dimensioned to be deployed in an annulus of a native mitral valve of a heart at a position between native mitral valve leaflets to contact the native mitral valve leaflets during ventricular systole to create a seal to prevent regurgitation of blood from the left ventricle to the left atrium, wherein the sealing element comprises a delivery configuration wherein the sealing element is generally elongated and radially collapsed, and further comprising a deployed configuration wherein the sealing element is shortened and radially expanded into an axisymmetrical or elliptical top cross-sectional profile and further dimensioned to permit the native mitral valve leaflets to open and close as the heart beats;
and
an anchoring element adapted for deployment in the heart, the anchoring element coupled to the sealing element and configured to support the sealing element at the desired position between native valve leaflets, wherein the anchoring element is dimensioned to position the sealing element between the native mitral valve leaflets when the anchoring element is deployed in the heart.
2. The device of claim 1, wherein the anchoring element comprises an upper portion configured to extend into contact with heart tissue, and a lower portion configured to extend into contact with heart tissue.
3. The device of claim 2, wherein the anchoring element upper portion is configured to anchor in the heart by extending into contact with atrial tissue adjacent a mitral valve annulus, and the anchoring element lower portion is configured to anchor in the heart by extending into contact with ventricular tissue adjacent the mitral valve annulus.
4. The device of claim 2, wherein the anchoring element upper portion is configured to anchor in the heart by extending into contact with atrial tissue toward a top portion of an atrium, and the anchoring element lower portion is configured to anchor in the heart by extending into contact with atrial tissue adjacent an annulus of the mitral valve.

5. The device of claim 1, wherein the anchor element comprises an expanded diameter between 25 and 70 mm.
 6. The device of claim 1, wherein the sealing element comprises a delivery diameter of less 10 mm or less, and an expanded diameter of 10 to 35 mm.
 7. The device of claim 1, wherein the sealing element when expanded is elongated, and the sealing element comprises a delivery diameter of less 10 mm or less, and an expanded major diameter of 10 to 35 mm and an expanded minor diameter of 5 to 15 mm.
 8. The device of claim 1, wherein the anchoring element is axisymmetric when expanded in the absence of radially compressive forces.
 9. The device of claim 1, wherein the anchoring element comprises a memory material.
 10. A system for treating a heart valve, comprising:
 - a delivery catheter;
 - a prosthetic device comprising:
 - an anchor member configured to engage heart tissue adjacent a native heart valve, wherein the anchor member is collapsible and expandable, wherein the anchor member configured so that when expanded in the absence of radially compressive forces the anchor member is axisymmetrical in top profile; and
 - a prosthetic sealing member that is collapsible and expandable and in an expanded configuration comprises an axisymmetrical or elliptical top profile, wherein the anchor member is configured to expand from a lengthened and radially compressed configuration to a shortened and radially expanded configuration, the sealing member in the expanded state adapted for plugging a gap between leaflets of the heart valve and reducing regurgitation, wherein the sealing member in the expanded state is adapted to engage native valve leaflets during systole while permitting the native valve leaflets to open and close as the heart beats;
- wherein the anchor member and the prosthetic sealing member are configured to be positioned in a collapsed state within the delivery catheter.

11. The system of claim 10, wherein the sealing member is configured to rotate about an axis with respect to the anchor member.
12. The system of claim 11, wherein the sealing member is configured to be selectively rotated with respect to the anchor member, and the prosthetic device comprises a lock configured to selectively lock the sealing member at a selected rotational point with respect to the anchor member.
13. The system of claim 10, wherein the anchor member comprises an upper portion and a lower portion, wherein the upper portion is adapted to engage atrial tissue adjacent the native valve, and the lower portion is adapted to engage ventricular tissue adjacent the native valve.
14. The system of claim 10, wherein the delivery catheter comprises a distal opening, and the anchor member and the prosthetic sealing member are configured to be advanced in and out of the catheter distal opening in a collapsed state.
15. A method for improving the function of a heart valve, comprising:
 - advancing a distal end of a delivery catheter to a position at a heart valve in a heart of a patient, wherein within the distal end is a prosthetic device having an anchor member and a sealing member, the sealing member being configured to expand into a symmetrical configuration to engage native valve leaflets during systole while still allowing the native valve leaflets to open and close as the heart beats;
 - releasing the anchor member portion from the catheter at a position in the heart at or adjacent a native valve annulus to engage heart tissue and anchor the anchor member within the heart;
 - releasing the sealing member from the catheter;
 - expanding the sealing member, wherein the sealing member as it expands shortens in length while increasing in diameter, wherein the sealing member after expansion comprises an axisymmetrical or elliptical top profile; and
 - whereby after release of the anchor member and the sealing member, the sealing member is positioned between leaflets of the valve such that during systole the leaflets coapt against the sealing member and the leaflets can open and close as the heart beats.

16. The method of claim 15, wherein the sealing member after expansion comprises an axisymmetrical top profile.
17. The method of claim 15, wherein the heart valve is a mitral valve, and wherein the sealing member after expansion comprises an elliptical top profile.
18. The method of claim 17, further comprising:
 - rotating the sealing member about a central axis thereof and with respect to the native valve annulus to a desired rotational position wherein the sealing member is aligned within the native valve annulus and with the native valve leaflets to improve valve leaflet coaptation against the sealing member; and
 - locking the sealing member at the desired rotational position.
19. The method of 18, wherein rotating the sealing member about its central axis comprises aligning a major axis of the sealing member to be substantially parallel (within 10 degrees) of a line between commissures of the mitral valve.
20. The method of claim 15, further comprising:
 - monitoring valve performance while expanding the sealing element; and
 - setting a final expansion configuration of the sealing element to a configuration where valve performance is maximized.
21. The method of claim 15, wherein the anchor member comprises an upper portion and a lower portion, and the upper portion and the lower portion are separately deployed.
22. The method of claim 21, wherein releasing the anchor member lower portion from the catheter occurs prior to releasing the anchor member upper portion from the catheter.
23. The method of claim 21, wherein releasing the anchor member upper portion from the catheter occurs prior to releasing the anchor member lower portion from the catheter.
24. The method of claim 21, wherein the anchor member upper portion comprises an atrial portion configured to engage atrial tissue adjacent an annulus of a mitral valve, and the

anchor member lower portion comprises a ventricular portion configured to engage ventricular tissue adjacent the annulus of the mitral valve.

25. The method of claim 21, wherein the anchor member is configured to be deployed in an atrium with the anchor member upper portion engaging tissue toward a top portion of the atrium and the anchor member lower portion engaging tissue toward a bottom portion of the atrium and adjacent the native valve annulus.

26. The method of claim 15, wherein the anchor member comprises an upper portion configured to expand into engagement with atrial tissue, a central portion configured to expand to support the sealing member, and a lower portion configured to expand into engagement with ventricular tissue, wherein deploying the anchor member comprises:
releasing the upper portion into engagement with atrial tissue; and
releasing the lower portion into engagement with ventricular tissue.

27. The method of claim 15, wherein the anchor member comprises a self-expandable frame that is mounted in a compressed state within the distal end of the delivery catheter.

28. The method of claim 15, wherein the anchor member and the sealing member are delivered percutaneously through vasculature of the patient.

29. The method of claim 15, wherein the anchor member and the sealing member are delivered transapically to the native valve.

30. The method of claim 15, wherein the anchor member comprises an expanded configuration where, in the absence of radially compressive forces, the anchor member has an axisymmetrical top profile.

31. The method of claim 30, wherein the anchor member comprises an expanded configuration where, in the absence of radially compressive forces, the anchor member has an elongated top profile.

32. The method of claim 15, wherein the prosthetic device after deployment does not expand the native valve leaflets or the native valve annulus outward except for engagement of the native valve leaflets against the sealing member during systole.

33. A sealing element configured for anchoring between native valve leaflets to improve valve function, the sealing element comprising:

a mesh support frame comprising a delivery configuration and an expanded configuration, wherein in the delivery configuration the mesh support frame is substantially tubular with a delivery diameter, and wherein in the expanded configuration the mesh support frame is radially expanded to an expanded central diameter at a center portion thereof while end portions of the mesh support frame remain in the delivery diameter, wherein the expanded diameter is at least twice the delivery diameter; and

a covering over the mesh support frame, wherein the covering prevents passage of blood therethrough.

34. The sealing element of claim 33, wherein the expanded central diameter is at least three times the delivery diameter.

35. The sealing element of claim 33, wherein the expanded central diameter is at least five times the delivery diameter.

36. The sealing element of claim 33, wherein the sealing element in the expanded configuration comprises an axisymmetrical top profile.

37. The sealing element of claim 33, wherein the sealing element in the expanded configuration comprises an elongated top profile.

38. The sealing element of claim 37, wherein the sealing element in the expanded configuration comprises an elliptical top profile.