

heart, as well as apparatuses and methods for implanting the same. The prosthetic devices can be used to help restore and/or replace the functionality of a defective native valve.

[007a] An aspect of the present disclosure provides an implantable prosthetic device, comprising, a spacer configured to be ~~adjusted~~inflated in size within a patient's body during an implantation procedure to accommodate a specific patient's anatomical variability, wherein the spacer is configured to be positioned between native heart valve leaflets to reduce regurgitation therebetween, and a frame comprising at least one anchor configured to be placed on one side of one of the native leaflets, and a clasp coupled to the anchor and configured to be placed on the other side of the one native leaflet, wherein the clasp is moveable between an open position and a closed position, wherein when in the closed position the clasp is configured to retain a portion of the one native leaflet to the anchor. The spacer comprises a first side and a second side that is opposite the first side, wherein each of the first side and the second side is configured to be inflated in size between a first width and a second width, and wherein each side is configured to be independently inflated in size between the first width and the second width.

[007b] Another aspect of the present disclosure provides an assembly comprising, a delivery apparatus comprising a catheter, an implantable prosthetic device coupled to the delivery apparatus, wherein the implantable prosthetic device comprises, a spacer configured to be ~~adjusted~~inflated in size within a patient's body during an implantation procedure to accommodate a specific patient's anatomical variability, wherein the spacer is configured to be positioned between native heart valve leaflets to reduce regurgitation therebetween, and a frame comprising at least one anchor configured to be placed on one side of one of the native leaflets, and a clasp coupled to the anchor and configured to be placed on the other side of the one native leaflet, wherein the clasp is moveable between an open position and a closed position, wherein when in the closed position the clasp is configured to retain a portion of the one native leaflet to the anchor. The spacer comprises a first side and a second side that is opposite the first side, wherein each of the first side and the second side is inflatable in size between a first width and a second width, and wherein each side can be independently inflated in size between the first width and the second width.

[008] An implantable prosthetic device can include one or more inflatable spacers and a frame having one or more anchors. The inflatable spacer can be configured to be disposed

between native leaflets of a heart. The anchors can be coupled to the inflatable spacer and can be configured to secure the native leaflets against the inflatable spacer.

[009] In some embodiments, the frame can further comprise a plurality of clasps. The clasps can be coupled to a respective anchor and configured to secure the native leaflets to the anchors. The clasps can be independently movable between an open configuration and a closed configuration.

[010] In one representative embodiment, an implantable prosthetic device comprises an inflatable spacer having an interior cavity, the inflatable spacer being inflatable between an uninflated configuration and an inflated configuration, wherein in the inflated configuration the inflatable spacer is configured to be positioned between native heart valve leaflets to reduce regurgitation therebetween; and a frame comprising at least one anchor configured to be placed on one side of one of the native leaflets, and a clasp coupled to the anchor and configured to be placed on the other side of the one native leaflet, wherein the clasp is moveable between an open position and a closed position, wherein when in the closed position the clasp is configured to retain a portion of the one native leaflet to the anchor, and wherein the inflatable spacer is configured to be inflated from the uninflated configuration to the inflated configuration by filling the interior cavity of the inflatable spacer with an inflation medium or inflation media.

[011] In some embodiments, the inflatable spacer is a balloon or other type of inflatable or fillable element (e.g., a cloth pocket). In such embodiments, the inflatable spacer can be inflatable between an uninflated configuration and a fully or partially inflated configuration. In certain embodiments, the inflatable spacer can be inflated by inflating an interior cavity of the inflatable spacer with an inflation medium or inflation media. The inflation medium can be a fluid and/or a non-fluid. Various fluids can be used such as saline solution, epoxy, blood, and/or other fluid configured for inflating. In some embodiments, the fluid can be a gaseous fluid, such as an inert gas (e.g., a gas that will not undergo chemical reactions, or at least undesired chemical reactions, with the body or components of the prosthetic spacer device under delivery conditions or after implantation). Suitable gasses can include nitrogen,

CLAIMS

1. An implantable prosthetic device, comprising:

a spacer configured to be ~~adjusted-inflated~~ in size within a patient's body during an implantation procedure to accommodate a specific patient's anatomical variability;

wherein the spacer is configured to be positioned between native heart valve leaflets to reduce regurgitation therebetween, wherein the spacer comprises a first side and a second side that is opposite the first side, wherein each of the first side and the second side is configured to be inflated in size between a first width and a second width, and wherein each side is configured to be independently inflated in size between the first width and the second width; and

a frame comprising at least one anchor configured to be placed on one side of one of the native leaflets, and a clasp coupled to the anchor and configured to be placed on the other side of the one native leaflet, wherein the clasp is moveable between an open position and a closed position,

wherein when in the closed position the clasp is configured to retain a portion of the one native leaflet to the anchor.

2. The implantable prosthetic device of claim 1 wherein the spacer is one of elliptical, ovular, cylindrical, and rectangular.

~~3. The implantable prosthetic device of claim 1 wherein a dimension of the spacer can be adjusted from 5-15 mm.~~

~~4. The implantable prosthetic device of any of claims 1-3 wherein a dimension of the spacer can be adjusted to 5 mm, 7.5 mm, and 10 mm.~~

~~5. The implantable prosthetic device of claim 3 wherein the dimension is a diameter of the spacer.~~

~~6. The implantable prosthetic device of claim 3 wherein the dimension is a length L of the spacer.~~

~~7. The implantable prosthetic device of claim 4 wherein the dimension is a diameter of the spacer.~~

~~8. The implantable prosthetic device of claim 4 wherein the dimension is a length L of the spacer.~~

93. The implantable prosthetic device of ~~any of claims 1-8~~ or 2 wherein the spacer is configured to change in shape in situ.

4. The implantable prosthetic device of any one of claims 1-3 wherein the first side and the second side of the spacer are each inflatable in size between a first height and a second height, and wherein each side can be independently inflated in size between the first height and the second height.

5. The implantable prosthetic device of claim 4 wherein the second height is between 5 mm and 15 mm.

6. The implantable prosthetic device of any one of claims 1-5 wherein the first side and the second side of the spacer are each inflatable in size between a first length and a second length, and wherein each side can be independently inflated in size between the first length and the second length.

7. The implantable prosthetic device of claim 6 wherein the second length is between 2.5 mm and 15 mm.

8. The implantable prosthetic device of any one of claims 1-7 wherein the second width is between 2 mm and 10 mm.

9. The implantable prosthetic device of any one of claims 1-8 wherein the spacer comprises a sponge material.

10. The implantable prosthetic device of claim 9 wherein the sponge material forms a matrix.

~~10~~11. An assembly comprising:
a delivery apparatus comprising a catheter;
an implantable prosthetic device coupled to the delivery apparatus, wherein the implantable prosthetic device comprises:

a spacer configured to be ~~adjusted~~inflated in size within a patient's body during an implantation procedure to accommodate a specific patient's anatomical variability;

wherein the spacer is configured to be positioned between native heart valve leaflets to reduce regurgitation therebetween, wherein the spacer comprises a first side and a second side that is opposite the first side, wherein each of the first side and the second side is inflatable in size between a first width and a second width, and wherein each side can be independently inflated in size between the first width and the second width; and

a frame comprising at least one anchor configured to be placed on one side of one of the native leaflets, and a clasp coupled to the anchor and configured to be placed on the other side of the one native leaflet, wherein the clasp is moveable between an open position and a closed position;

wherein when in the closed position the clasp is configured to retain a portion of the one native leaflet to the anchor.

~~11~~12. The assembly ~~device~~ of claim 10 wherein the spacer is one of elliptical, ovular, cylindrical, and rectangular.

13. The assembly of claim 11 or 12 wherein the first side and the second side of the spacer are each inflatable in size between a first height and a second height, and wherein each side can be independently inflated in size between the first height and the second height.

14. The assembly of claim 13 wherein the second height is between 5 mm and 15 mm.

15. The assembly of any one of claims 11-14 wherein the first side and the second side of the spacer are each inflatable in size between a first length and a second length, and wherein each side can be independently inflatable between the first length and the second length.

16. The assembly of claim 15 wherein the second length is between 2.5 mm and 15 mm.

17. The assembly of any one of claims 11-16 wherein the second width is between 2 mm and 10 mm.

18. The assembly of any one of claims 11-17 wherein the spacer comprises a sponge material.

19. The assembly of claim 18 wherein the sponge material forms a matrix.

~~12. The assembly of claim 10 wherein a dimension of the spacer can be adjusted from 5-15 mm.~~

~~13. The assembly of any of claims 10-12 wherein a dimension of the spacer can be adjusted to 5 mm, 7.5 mm, and 10 mm.~~

~~14. The assembly of claim 12 wherein the dimension is a diameter of the spacer.~~

~~15. The assembly of claim 12 wherein the dimension is a length L of the spacer.~~

~~16. The assembly of claim 13 wherein the dimension is a diameter of the spacer.~~

~~17. The assembly of claim 13 wherein the dimension is a length L of the spacer.~~