Claims

1. A presettable artificial biological aortic valve, comprising a valve seat, a valve leaflet stent and three valve leaflets attached to the valve leaflet stent, characterized in that,

the valve seat is a one-way limiting expandable annular metal seat, the annular metal seat is composed of three sections of seat body units connected with each other in a staggered manner from a head end to a tail end along an inside and an outside, the head end of each seat body unit is sequentially provided with a first rivet, a limiting protrusion and a first long circular groove from the outside to the inside, the tail end of each seat body unit is sequentially provided with a second long circular groove matched with the first rivet at the head end of an adjacent seat body unit, a second limiting hole and a first limiting hole matched with the limiting protrusion respectively, and a second rivet matched with the first long circular groove,

the first long circular groove of each seat body unit is matched with the second rivet of the adjacent seat body unit and can move in one direction, the second long circular groove of each seat body unit is matched with the first rivet of the adjacent seat body unit and can move in one direction, the limiting protrusion of each seat body unit is matched with the first limiting hole and the second limiting hole of the adjacent seat body unit respectively and can move in one direction, a middle part of each seat body unit is provided with a wavy protrusion,

the presettable artificial biological aortic valve has a preset original state and a normal use state after one-way limiting and expanding, and each seat body unit forms the normal use state as an existing surgical biological aortic valve,

before the presettable artificial biological aortic valve formed by the three valve leaflets is in a one-way limiting expansion state of the normal use state, the preset original state is an abnormal use state, except that a valve effect of one-way blood flow is implemented when the presettable artificial biological aortic valve is in the one-way limiting expansion state through a balloon external force to the normal use state same as that of an existing surgical artificial biological aortic valve.

2. The presettable artificial biological aortic valve according to claim 1, characterized in that, a head end of each seat body unit is disposed inside a tail end of an adjacent seat body unit.

3. The presettable artificial biological aortic valve according to claim 1, characterized in that, the seat body unit is configured to be expanded by a balloon having a pressure of no less than 5 atmospheres to enable the valve seat to synchronously rotate in one direction and expand outwards to form the one-way limiting expansion state; and the valve leaflet stent has a preset state and a normal application state, the preset state is matched with the valve seat before expansion, and the normal application state is matched with the valve seat after expansion.

4. The presettable artificial biological aortic valve according to claim 1, characterized in that, the limiting protrusion is a semicircular protrusion inclined upward along the expansion direction, and the first limiting hole and the second limiting hole has a shape matched with the limiting protrusion.

5. The presettable artificial biological aortic valve according to claim 1, characterized in that, the limiting protrusion has an upwardly inclined semicircular protrusion along the expansion direction, a head of the protrusion along the expansion direction is a round head, forward sliding resistance is stabilized, a tail of the protrusion is a flat head protrusion, and reverse sliding is prevented after sliding into the first limiting hole and the second limiting hole; each of the first limiting hole and the second limiting hole has a shape matching with the limiting protrusion; when the limiting protrusions on the valve seat are respectively located at two positions before and after the valve seat is expanded, the valve leaflet stent corresponds to two shapes before and after expansion, and an expanded shape is a normal use shape.

6. The presettable artificial biological aortic valve according to claim 1, characterized in that, a length of the first long circular groove, a length of the second long circular groove, and a distance between the two limiting holes are consistent.

7. The presettable artificial biological aortic valve according to claim 1, characterized in that, the valve leaflet stent has a preset shape and a normal use shape,

and the normal use shape is matched with the normal use state of the presettable artificial biological aortic valve after one-way limiting expansion.

8. The presettable artificial biological aortic valve according to claim 1, characterized in that, the specifications of the three valve leaflets is matched with the normal use state after one-way limiting expansion.

9. The presettable artificial biological aortic valve according to claim 1, characterized in that, an outer side of the valve seat is coated with a supporting belt made of a polymeric material, and the supporting belt is matched with the normal use state of the presettable artificial biological aortic valve after one-way limiting expansion.

10. The presettable artificial biological aortic valve according to claim 1, characterized in that, the valve leaflet is modified bovine pericardium, porcine pericardium, porcine aortic valve, flaky animal tissue or non-biosynthetic valve leaflet material.

11. The presettable artificial biological aortic valve according to claim 1, characterized in that, a valve portion composed of the three valve leaflets allows one-way blood flow through the valve portion when the valve portion is in the normal use state after the one-way limiting expansion.

12. The presettable artificial biological aortic valve according to claim 1, characterized in that, the valve seat and the valve leaflet stent are made of Elgiloy alloy, cobalt-chromium alloy, nickel-titanium alloy and implantable stainless steel.