ADAPTOR FOR AN INTRODUCER VALVE IN A HUMAN OR ANIMAL BODY

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Abstract

An adaptor (1) for the valve (15) of an introducer (16) in a human or animal body, characterized in that it comprises an outer surface (2) adapted to cooperate with the valve (15); its interior volume (3) comprises at least one duct (4) for allowing surgical or medical instruments having an elongate body to pass through; and the duct (4) comprises waterproofing means. The duct (4) of the adaptor (1) comprises waterproofing means at its proximal end (6) and/or at its distal end (5).
ADAPTOR FOR AN INTRODUCER VALVE IN A HUMAN OR ANIMAL BODY

[0001] The invention relates to a valve introducer fitted with an adaptor for introduction into a human or animal body.

[0002] It will be of particular use in vascular surgery.

[0003] The instruments introduced into a human or animal body require the presence of shutter components to ensure that the introducer is leakproof.

[0004] This is particular true during endovascular surgery with the introduction of surgical instruments in an introducer since there must not be any backflow of blood through the introducer.

[0005] Valves for surgical instruments deformable by twisting already exist to increase the leakproof qualities of the instrument.

[0006] This solution is not fully satisfactory because when introducing several surgical instruments such as catheters and guides, there remains a gap between the instruments despite the valve, causing a leakage of blood.

[0007] Document WO00/32623 has already described an introducer device for use in the human body comprising a main elongated body fitted, at the proximal end, with several openings for surgical instruments. The device has leakage problems because the main elongated body is introduced directly into the human body and the instruments pass through it.

[0008] Moreover, the system is not very easy to use because, once the device has been introduced, there cannot be any change in diameter or in the number of openings in the proximal extremity without withdrawing the device, thereby leading to leakage of fluid from the human body.

[0009] There is therefore a need for a device that allows for the simultaneous use of several surgical instruments or instruments of very different sizes via an introducer in the human or animal body that produces a good seal and is easy to use.

[0010] To this end, the invention proposes a valve introducer for the human or animal body, characterised in that it comprises an adaptor whose outer surface is adapted to cooperate with the valve, an interior volume with at least one duct for allowing surgical or medical instruments having an elongated body to pass through and leakproof means.

[0011] According to one embodiment, the ducts of the adaptor comprise leakproof means at their proximal end and/or at their distal end.

[0012] Advantageously, the adaptor consists of an elongated, cylindrical body able to cooperate with a valve deformable by twisting.

[0013] The leakproof means in the ducts and the elongated body ensure that the adaptor and the adaptor-introducer are well-sealed.

[0014] Advantageously, the leakproof means at the distal extremity are also designed to avoid excessive movement of catheters by maintaining them in position along a certain axis.

[0015] The leakproof means at the distal end also plays a centring role.

[0016] Advantageously, the adaptor is characterised by an outer surface able to cooperate with the introducer and the means of attachment to the introducer.

[0017] Advantageously, the adaptor is characterised by a conical distal extremity designed to improve the insertion of the adaptor in the introducer by cooperating with a flat centring valve in the introducer and/or by causing the leakproof valve in the introducer to open, especially if the introducer is fitted with a leakproof valve deformable by twisting.

[0018] According to one embodiment, the adaptor ducts consist of a section that is more or less longitudinal compared to the body of the adaptor. They also have a divergent proximal section. This makes it easier to manipulate the surgical instruments introduced in the adaptor.

[0019] Advantageously, the centres of the proximal openings in the ducts lie in a predetermined circle.

[0020] According to one embodiment, a channel is located in the centre of the circle predetermined by the proximal openings of the ducts and, advantageously, this channel has the same leakproof means as the ducts.

[0021] Advantageously, the said channel is rectilinear to facilitate the handling of surgical instruments and especially the passage of a guide wire.

[0022] Other aims and advantages will become apparent during the following description of a preferred embodiment of the invention. However, this embodiment is not limitative.

[0023] It is appropriate to remember that the invention relates to a valve introducer for the human or animal body, characterised in that the valve is deformable by twisting and able to cooperate with an adaptor via its outer surface; the inner volume of the said adaptor comprises at least one duct allowing the passage of surgical or medical instruments with an elongated body; and the duct comprises leakproof means.

[0024] According to the preferred variations of the invention, the introducer is such that:

[0025] the duct in the adaptor comprises leakproof means at its proximal end,

[0026] the leakproof means at the proximal end of the adaptor duct include a haemostatic valve,

[0027] the duct in the adaptor comprises leakproof means at its distal end,

[0028] the leakproof means at the distal end of the adaptor duct include a haemostatic valve,

[0029] the haemostatic valve is held in place between a support and a washer,

[0030] the centres of the proximal openings of the adaptor ducts are located in a predetermined circle,

[0031] a channel is located in the centre of the circle predetermined by the proximal openings of the adaptor ducts and the said channel is rectilinear,

[0032] the adaptor ducts consist of a section that is roughly longitudinal compared to the elongated body of the adaptor and a divergent proximal section,

[0033] the adaptor ducts have different diameters,

[0034] the adaptor includes a conical distal extremity,

[0035] the adaptor comprises means of attachment to the introducer,

[0036] the adaptor includes a cylindrical elongated body,

[0037] According to the preferred variations of the invention, the introducer is such that:

[0038] it is fitted with a valve deformable by twisting which cooperates with an adaptor via its outer surface as previously described,

[0039] it has a flat centring valve able to cooperate with the distal end of the adaptor to facilitate its insertion by centring it.

[0040] The enclosed drawings are given as examples and do limit the scope of the invention. They represent only one embodiment of the invention and will make it easily understandable.

[0041] FIG. 1: longitudinal section of the adaptor.

[0042] FIG. 2: cross-section from the distal end of the adaptor according to FIG. 1.
Advantageously, haemostatic valve (22) is held in place between a support (8) and a washer (9). Advantageously, support (8) and washer (9) are pierced with a passage of the same diameter as the ducts (4) to enable the introduction of surgical instruments.

According to one embodiment, the ducts (4) comprise a removable stopper (not shown) at their proximal end (6) to block off unused ducts (4). The stopper is placed above the haemostatic valve (22) and its washer (9).

According to one embodiment, the ducts (4) consist of one section (12) that is longitudinal compared to the elongated body (17) of the adaptor (1) and of a divergent proximal section (13). This configuration makes the surgical instruments introduced into the adaptor easier to use.

The centres of the proximal openings (10) in ducts (4) are set out advantageously according to a predetermined circle and, according to one embodiment, a channel (11) lies in the centre of the circle predetermined by the proximal openings (10) of the ducts (4).

Advantageously, said channel (11) has the same leakproof means as ducts (4). According to one embodiment, the channel (11) is rectilinear to make it easier to handle the surgical instruments and, more especially, to allow for the passage of the guide wire.

According to one embodiment, adaptor (1) is characterised by a conical distal end (14) designed to guide and centre the insertion of adaptor (1) in the introducer (16). The distal end (14) is centred and supported on the first flat valve located before the valve (15) deformable by twisting previously opened by the operator. The distal end (14) ensures that there is no leakage between the adaptor (1) and the introducer (16) by continuously pressing on the first valve further up the device. Valve (15) deformable by twisting then presses on the elongated body (17) of adaptor (1).

According to another embodiment, adaptor (1) is comprises a conical distal end (14) designed to facilitate the insertion of adaptor (1) in the introducer (16) by opening valve (15), especially if valve (15) is deformable by twisting. This is done if the valve deformable by twisting is in the closed position at the beginning of the procedure. The distal end (14) exerts pressure; gradually opening the valve which continues to press against the adaptor without any leakage.

According to one embodiment the ducts (4) have different diameters to receive various types of surgical instruments.

REFERENCES

1. Adaptor
2. Outer surface
3. Inner volume
4. Duct
5. Distal end
6. Proximal end
7. Haemostatic valve
8. Valve holder
9. Washer
10. Proximal opening
11. Channel
12. Longitudinal section
13. Divergent proximal section
14. Distal extremity
15. Valve
16. Introducer
17. Elongated body
[0093] 18. Skirt
[0094] 19. Fixed extremity of the valve
[0095] 20. Mobile extremity of the valve
[0096] 21. Curser
[0097] 22. Haemostatic valve

1-14. (canceled)

15. An introducer (16) fitted with valve (15) for the human or animal body characterised by the fact that valve (15) is deformable by twisting and able to receive adaptor (1) in its centre and able to press against the outer surface (2) of said adaptor (1); and

that the inner volume (3) of said adaptor (1) comprises at least one duct (4) allowing the passage of surgical or medical instruments with an elongated body; and

that the duct (4) comprises leakproof means.

16. An introducer (16) with valve (15) according to claim 15 wherein the duct (4) of adaptor (1) comprises leakproof means at its proximal end (6).

17. An introducer (16) with valve (15) according to claim 16 wherein the leakproof means at the proximal end of duct (4) comprise an haemostatic valve (22).

18. An introducer (16) with valve (15) according to claim 15 characterised by the fact that the duct (4) comprises leakproof means at the distal end (5).

19. An introducer (16) with valve (15) according to claim 18 characterised by the fact that the leakproof means the distal end (5) of duct (4) comprise an haemostatic valve (7).

20. An introducer (16) with valve (15) according to claim 15 characterised by the fact that haemostatic valve (22) is held in place between a support (8) and a washer (9).

21. An introducer (16) with valve (15) according to claim 15 characterised by the fact that the centres of the proximal openings of the adaptor ducts are located in a predetermined circle.

22. An introducer (16) with valve (15) according to claim 21 characterised by the fact that a channel (11) is located in the centre of the circle predetermined by proximal openings (10) of the ducts (4) and that said channel is rectilinear.

23. An introducer (16) with valve (15) according to claim 15 characterised by the fact that the ducts (4) consist of a section that is roughly longitudinal (12) compared to the elongated body (17) of the adaptor (1) and a divergent proximal section (13).

24. An introducer (16) with valve (15) according to claim 15 characterised by the fact that the ducts (4) have different diameters.

25. An introducer (16) with valve (15) according to claim 15 characterised by the fact that the adaptor has a conical distal extremity (14).

26. An introducer (16) with valve (15) according to claim 15 characterised by the fact that the adaptor comprises means of attachment to the introducer (16).

27. An introducer (16) with valve (15) according to claim 15 characterised by the fact that the adaptor includes a cylindrical elongated body (17).

28. An introducer (16) with valve (15) according to claim 15 characterised by the fact that it has a flat centring valve able to cooperate with the distal end of the adaptor (1) to facilitate its insertion by centring it.

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