

HEMOSTATIC DEVICE WITH MARKER

BACKGROUND OF THE INVENTION

1. Field of the Invention

5 The present invention relates to a hemostatic device which is attached to a patient's limb at a site on the limb where bleeding is to be stopped and which, by the inflation of a balloon, applies pressure to the site so as to stop bleeding.

2. Description of the Related Art

10 When a procedure involving a percutaneous insertion of an instrument such as a catheter into a blood vessel is carried out for medical treatment, examination or diagnosis, bleeding at a puncture site must be stopped following subsequent withdrawal and removal of the catheter. Hemostatic devices which are attached by being wrapped around the portion of an arm or leg where the puncture site is located and compress the puncture site where bleeding is to be stopped are already known in
15 the prior art (e.g., Japanese Utility Model Registration No. 3031486).

 When using such related-art hemostatic devices, a health care practitioner visually sights the balloon into place over the puncture site. It has been pointed out that this makes the balloon difficult to position properly. In fact, due to poor positioning of the balloon, a hematoma may form or blood leakage may occur because
20 of the inability to stop bleeding.

 In this regard, a hemostatic device with a marker for positioning a balloon at a site where bleeding is to be stopped has been disclosed (for example, refer to U.S Patent Publication No. 2009/0138039). However, since the marker in the method disclosed in U.S Patent Publication No. 2009/0138039 is also filled, it could not have
25 provided a real solution to the visibility problem. Thus, there has still been a problem

in positioning a balloon.

SUMMARY OF THE INVENTION

One object of the present invention is to provide a hemostatic device with a
5 marker, which facilitates positioning of a balloon for pressing a puncture site (a site
where bleeding is to be stopped) so as to prevent blood leakage or hematoma formation
due to poor positioning of the balloon.

These objects are achieved by the present invention as set forth in (1) to (11)
below.

10 (1) A hemostatic device with a marker comprising: a flexible band adapted to
be wrapped around a limb of a patient at a site where bleeding is to be stopped;
securing means for securing the band in a wrapped state to the limb; a curved plate,
which is made of harder material than the band, and at least a portion of which is
curved toward an inner side of the band; a balloon, which is provided in an inner side
15 of the curved plate, and which inflates when a fluid is introduced therein; a secondary
balloon, which is provided in a position between the curved plate and the balloon so
that at least a portion thereof overlaps with the balloon, and which presses the balloon
by means of pressure of fluid introduced therein; and a marker for positioning the
balloon at the site where bleeding is to be stopped, wherein the marker is provided in a
20 position, which is within the scope of the balloon, and at which at least a portion of the
marker overlaps with an end portion of the secondary balloon, and wherein the marker
comprises: a transparent void portion; and an outline enclosing the transparent void
portion.

(2) The hemostatic device with a marker according to (1), wherein the band
25 and the balloon are formed of materials which allow visualization of the site where

bleeding is to be stopped.

(3) The hemostatic device with a marker according to (1) or (2), wherein the marker, which is configured by the transparent void portion and the outline enclosing the transparent void portion, is provided on the balloon.

5 (4) The hemostatic device with a marker according to any one of (1) to (3), wherein the marker, which is configured by the transparent void portion and the outline enclosing the transparent void portion, is provided on the band.

(5) The hemostatic device with a marker according to any one of (1) to (4), wherein the marker, which is configured by the transparent void portion and the outline
10 enclosing the transparent void portion, is provided on the curved plate.

(6) The hemostatic device with a marker according to any one of (1) to (5), wherein the secondary balloon, which presses the balloon by means of pressure of fluid introduced therein, is provided in a position between the curved plate and the balloon so as to overlap with the balloon, and wherein the secondary balloon is connected to
15 the band at the same side as a connection portion of the balloon.

(7) The hemostatic device with a marker according to any one of (1) to (6), wherein the marker, which is configured by the transparent void portion and the outline enclosing the transparent void portion, is provided on the secondary balloon.

(8) The hemostatic device with a marker according to any one of (1) to (7),
20 wherein the transparent void portion of the marker has a size enough to include a circle having any one of diameters of $\phi 2.3$ mm, $\phi 2.6$ mm and $\phi 3.0$ mm.

(9) The hemostatic device with a marker according to any one of (1) to (8), wherein the outline of the transparent void portion of the marker is made up by a line with a 0.3 to 0.7 mm thickness.

25 (10) The hemostatic device with a marker according to any one of (1) to (9),

wherein the outline of the transparent void portion of the marker has a color of any one of green, white, blue and yellow.

(11) The hemostatic device with a marker according to any one of (1) to (10), wherein the transparent void portion of the marker comprises in a center thereof a mark for indicating a center of the transparent void portion.

According to the present invention, it is possible to provide a hemostatic device with a marker, which facilitates positioning of a balloon for pressing a puncture site (a site where bleeding is to be stopped) so as to prevent blood leakage or hematoma formation due to poor positioning of the balloon.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a bottom view of an embodiment of a hemostatic device with a marker, showing a side of the device that serves as an inside surface when the device is attached to a wrist of a patient;

FIG. 2 is a sectional view showing the hemostatic device with the marker as shown in FIG. 1 during use;

FIG. 3 is a sectional view showing an example of the marker; and

FIG. 4 is a sectional view showing an example of a circular-shaped marker having a center mark at a center thereof.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Hereinafter, based on embodiments for carrying out the hemostatic device with a marker, the embodiments will be described in detail with reference to drawings. The embodiments below are exemplary products or methods for realizing the technical idea of the present invention. The technical idea of the present invention is not

limited to a hemostatic device and can be applied to generals of medical instruments. Types of configuration materials and configuration conditions, etc., are not limited to those described below. Various modifications to the technical idea of the present invention, which are within the technical scope defined in the claims, may be added.

5 FIG. 1 is a bottom view of an embodiment of a hemostatic device with a marker, showing a side of the device that serves as an inside surface when the device is attached to a wrist of a patient. FIG. 2 is a sectional view showing the hemostatic device with the marker as shown in FIG. 1 during use. FIG. 3 is a sectional view showing an example of the marker. FIG. 4 is a sectional view showing an example of
10 a circular-shaped marker having a center mark at a center thereof.

 The hemostatic device 1 shown in FIGS. 1 and 2 is used to stop bleeding at a puncture site 510 (where bleeding to be stopped) following the removal of an instrument such as a catheter which was inserted percutaneously into an artery through a puncture formed somewhere on a limb, such as at a wrist 500 (limb), for a medical
15 purpose such as treatment, examination or diagnosis. This hemostatic device 1 has a band 2 which is adapted to be wrapped around the wrist 500 and has a width of about 40mm, a surface fastener 3 made of an air-permeable member as means for securing the band 2 in a wrapped state to the wrist 500, a curved plate 4, a balloon 5, a secondary balloon 6 and a marker 7.

20 The band 2 is a flexible belt-like member. As shown in FIG. 2, the band 2 is attached to the wrist 500 by being wrapped one full turn around an outside of the wrist 500 and having portions of the band 2 near both ends thereof mutually overlap. The overlapping portions of the band 2 are then secured (or joined), by means of the surface fastener 3 (which will be described later).

25 The material making up the band 2 is not subject to any particular limitation,

as far as the material allows visualization of the puncture site 510. Illustrative examples include polyvinyl chloride, polyolefins such as polyethylene, polypropylene, polybutadiene and ethylene-vinyl acetate copolymers (EVA), polyesters such as polyethylene terephthalate (PET) and polybutylene terephthalate (PBT),
5 polyvinylidene chloride, silicones, polyurethanes various thermoplastic elastomers such as polyamide elastomers, polyurethane elastomers and polyester elastomers, and any combinations of the above in the form of, for example, resin blends, polymer alloys or laminates.

Incidentally, it is preferable for the band 2 in the present embodiment to be
10 substantially transparent (visible-light transparent) so that the puncture site 510 is reliably visible from an outside and a marker 7 (which will be described later) can be easily and properly positioned at the puncture site 510.

The band 2 may have near the center thereof a curved plate holder 21 for holding the subsequently described curved plate 4. In the embodiment shown in FIG.
15 1, the curved plate holder 21 is composed in part of a separate strip-like member joined to the outside (or inside) surface of the band 2 by a suitable method such as welding (e.g., heat welding, high-frequency welding, ultrasonic welding) or adhesion (such as with an adhesive or solvent) so as to form a double layer construction. The curved plate 4 is inserted into a gap in the double layer and thereby held.

The band 2 has attached to it, on the inside surface (the front side in the plane of FIG.1) thereof near the left end in FIG.1, the male side (or female side) 31 of a surface fastener 3 such as a velcro-type hook and loop fastener. Similarly, the band 2 has attached to it, on the out side surface (the back side in the plane of FIG.1) near the right end in FIG.1, the female side (or male side) 32 of a surface fastener 3. As shown
20 in FIG.2, the band 2 is attached to the wrist 500 by joining together the male side 31
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and the female side 32 of this surface fastener 3. The means that may be employed to secure the band 2 in a wrapped state to the wrist 500 are not limited only to surface fasteners 3. Other suitable means include snaps, buttons, clips, and members such as buckles through which the ends of the band 2 are passed.

5 The curved plate 4 is inserted into the gap in the double layer construction of the curved plate holder 21 on the band 2, and is thereby held on the band 2.

The curved plate 4 is shaped so that at least a portion thereof is curved toward an inner side of the band 2. This curved plate 4 is constructed of a material more rigid than the band 2 and maintains a substantially fixed shape.

10 As shown in FIG. 1, in this embodiment, the curved plate 4 has a shape that is elongated in the lengthwise direction of the band 2. As shown in FIG. 2, the curved plate 4 has a center portion 41 in the lengthwise direction thereof which is substantially uncurved and thus shaped as a flat plate. The curved plate 4 also has, on either side of this center portion 41, curved portions 42 which curve toward the inner side of the
15 band 2 and along the lengthwise direction of the band 2 (circumferential direction of the wrist 500). The curved portions 42 have a radius of curvature R2 which is smaller than the radius of curvature R1 of the center portion 41 (in the illustrated arrangement, R1 is substantially 180°).

The material making up the curved plate 4 is not subject to any particular
20 limitation, as far as the puncture site 510 can be seen therethrough. Examples of materials of which the curved plate 4 may be made include acrylic resins, polyvinyl chloride (particularly rigid polyvinyl chloride), polyolefins such as polyethylene, polypropylene and polybutadiene, polystyrene, poly(4-methyl-1-pentene), polycarbonates, ABS resins, polymethyl methacrylate (PMMA), polyacetals,
25 polyarylates, polyacrylonitriles, polyvinylidene fluorides, ionomers,

acrylonitrile-butadiene-styrene copolymers, polyesters such as polyethylene terephthalate (PET) and polybutylene terephthalate (PBT), butadiene-styrene copolymers, aromatic and aliphatic polyamides, and fluorocarbon resins such as polytetrafluoroethylene.

5 Incidentally, it is preferable for the curved plate 4 in the present embodiment to be substantially transparent so that the puncture site 510 is reliably visible from the outside and the marker 7 (which will be described later) can be easily and properly positioned at the puncture site 510.

10 Incidentally, the curved plate 4 may have no uncurved portion such as center portion 41, and may thus be curved over its entire length.

 The band 2 has connected to the inner side thereof a balloon 5 made of a flexible material. The balloon 5 inflates when a fluid (a gas such as air, or a liquid) is introduced therein, thus applying pressure to the puncture site 510 on the wrist 500.

15 The balloon 5 is positioned near one end of the curved plate 4 in the lengthwise direction thereof. That is, in the arrangement shown in FIG. 1, the balloon 5 is in a position that overlaps with substantially the right half of the curved plate 4.

 The material making up the balloon 5 is not subject to any particular limitation provided it is a material that allows visualization of the puncture site 510. For example, a material similar to that making up the band 2 may be used. To facilitate
20 joining of the balloon 5 with the band 2 by welding, and thus make the hemostatic device 1 easier to manufacture, it is preferable for the balloon 5 to be made of a material which is of the same nature or type as that making up the band 2.

 Incidentally, it is preferable for the balloon 5 in the present embodiment to be substantially transparent so that the puncture site 510 is reliably visible from the
25 outside and the marker 7 (which will be described later) can be easily and properly

positioned at the puncture site 510.

The balloon 5 may have a construction in which the edges of sheets made of the above-described material are sealed together by a suitable process such as welding or adhesion to form a sort of pouch. In the arrangement shown in FIG. 1, the balloon 5 is substantially square in the uninflated state.

The balloon 5 is connected to the band 2 by a flexible connector 11. In the present embodiment, the balloon 5 is connected to the band 2 by a connector 11 only on the side of one end of the curved plate 4; that is, only on the right side in FIG. 2. The connector 11 has a relatively short length, thereby keeping the balloon 5 tethered in a position deviated to one end of the curved plate 4. The connector 11 is preferably made of the same material as the balloon 5.

As shown in FIG. 1, the hemostatic device 1 of the present embodiment has a marker 7 provided on an outside surface of the balloon 5; that is, on the side opposite the surface of the balloon 5 that comes into contact with the puncture site 510 (back side in a plane of FIG. 1). Providing such a marker 7 on the balloon 5 facilitates proper positioning of the balloon 5 at the puncture site 510, which in turn helps prevent blood leakage and hematoma formation due to poor positioning of the balloon 5.

As shown in FIG. 1, it is preferable for the marker 7 to be provided at the center of the balloon 5; that is, to be centered at the intersection of the diagonals for the square shape of the balloon 5. Because this enables the center of the balloon 5 to be properly positioned at the puncture site 510, when the balloon 5 has been inflated, the compressive force applied by the balloon 5 acts reliably upon the puncture site 510.

The marker 7 is not limited to any particular shape. Examples of suitable shapes include circular, triangular and square shapes. In FIG. 1, the marker 7 has a circular shape.

As shown in FIG. 3, the marker 7 preferably has a transparent void portion 71. As shown in FIG. 4, in the center of the void portion 71, a center mark 73 for indicating the center such as a × mark or • may be provided. As a result, positioning the center portion of the balloon 5 at the puncture site 510 is facilitated.

5 The size of the void portion 71 of the marker 7 is preferably large enough to include a circle which diameter is somewhat larger than the size of the puncture site 510. For example, if the introducer sheath has the size for 4 Fr (ϕ 1.3 to 1.8 mm), the size of the void portion 71 is preferably ϕ 2.3 mm. If the introducer sheath has the size for 5 Fr (ϕ 1.6 to 2.1 mm), the size of the void portion 71 is preferably ϕ 2.6 mm.
10 If the introducer sheath has the size for 6 Fr (ϕ 2.0 to 2.5 mm), the size of the void portion 71 is preferably ϕ 3.0 mm. As a result, the center portion of the balloon 5 can be positioned at the puncture site 510 with better accuracy.

Even if an introducer sheath having any of the sizes for 4 Fr, 5 Fr and 6 Fr has been used, if one type of the marker 7 with the void portion 71 having the size of ϕ 3.0
15 mm is used, it is possible to cover all the three different sizes. In order to further improve visibility of the puncture site 510, the marker 7 with the void portion 71 having a size of about 10 mm may be used.

The thickness of the line making up the outline 72 of the void portion 71 of the marker 7 is preferably 0.3 to 0.7 mm. If the thickness is below 0.3 mm, visibility
20 becomes poor. For visibility, the thickness does not need to exceed 0.7 mm.

The material of the line making up the outline 72 of the marker 7 is not limited, and for example, includes oil-based colorings such as an ink and coloring blended resins, etc.

The color of the line making up the outline 72 of the marker 7 is not limited,
25 provided that it is a color enabling the balloon 5 to be positioned at the puncture site

510. The color is preferably a color, which stands out against skin color or blood color, such as green, white, blue and yellow.

As shown in FIG. 4, if the marker 7 has the center mark 73, the center mark 73 may be in a different color from the outline 72.

5 In order to enable the center position to be clearly seen, if the center mark 73 is an x mark, it is preferably made up by a line having a 0.2 to 0.3 mm thickness to be positioned within a circle with ϕ 1.0 mm. If the center mark 73 is $\bullet$, it has preferably a size of ϕ 0.3 to 0.5 mm.

A method of making up the marker 7 on the balloon 5 is not limited. For
10 example, a method of printing the marker 7 on the balloon 5, a method of bonding the marker 7 on the balloon 5, a method of applying an adhesive on one side of the marker 7 to be attached to the balloon 5, and other methods may be used.

Incidentally, it is possible to place the marker 7 on an inside surface of the balloon 5; that is, the surface which comes into direct contact with the puncture site
15 510 (front side in the plane of FIG. 1).

Alternatively, instead of being placed on the balloon 5, the marker 7 may be placed on the band 2, on the curved plate 4, or on a secondary balloon 6 (which will be described later). In such cases, it is advantageous for the marker 7 to be placed in such a way that it can be positioned including the center of the balloon 5 and over the
20 end portion of the secondary balloon 6.

As shown in FIG. 1, the balloon 5 has connected thereto an inflator 8 for introducing a fluid into the balloon 5. The inflator 8 is composed of a flexible tube 81 which is connected at a proximal end thereof to the balloon 5 and which has a lumen that communicates with the interior of the balloon 5, a bulb 82 which is provided at the
25 distal end of the tube 81, and a tubular connector 83 which is joined to the bulb 82.

Inflation of the balloon 5 is carried out by inserting the protruding tip of a syringe (not shown) into the connector 83 and pushing a plunger on the syringe so as to introduce fluid within the syringe through the inflator 8 into the balloon 5. Once fluid has been injected into the balloon 5 and the protruding tip of the syringe is withdrawn from the connector 83, a check valve within the connector 83 closes, preventing the fluid from leaking out and thus maintaining the balloon 5 in an inflated state.

As shown in FIG. 2, a secondary balloon 6 composed of a flexible material may be provided between the curved plate 4 and the above-described balloon 5 in such a way that all or part of the secondary balloon 6 overlaps with the balloon 5. This secondary balloon 6 functions as a pressing member for pressing against the balloon 5. The secondary balloon 6 is about half the size of the balloon 5 as shown in FIG. 1, and the end portion of the secondary balloon 6 is positioned at near the center of the balloon 5. Therefore, the end portion of the secondary balloon 6 overlaps with a part of the marker 7 when seen from the inside (or outside) of the hemostatic device with the marker.

Under the pressure of the fluid with which it is filled, the secondary balloon 6 applies to the balloon 5 a pressing force (arrow f in FIG. 2) which is directed toward substantially a center 520 of the wrist 500. Under the influence of this pressing force f from the secondary balloon 6, the balloon 5 in turn applies to the puncture site 510 a compressive force (arrow F in FIG. 2) that acts in an oblique or inclined direction (toward the center 520 of the wrist 500) rather than vertically downward (that is, in a vertical direction with respect to the surface of the wrist 500). This arrangement provides a better hemostatic effect and is thus able to more reliably stop bleeding than when compression is applied to the puncture site 510 in a vertically downward direction.

The material making up the secondary balloon 6 is not subject to any particular limitation, as far as the puncture site 510 can be seen therethrough. For example, materials similar to the above-described materials making up the band 2 may be used. It is preferable for the secondary balloon 6 to be substantially transparent (visible-light transparent) so that the puncture site 510 is reliably visible from the outside and the marker 7 can be easily and properly positioned at the puncture site 510.

In the embodiment, the secondary balloon 6 has a smaller width in the lengthwise direction of the band 2 than the balloon 5. Hence, the secondary balloon 6 is smaller in size than the balloon 5 and thus applies pressure locally to the balloon 5. This enables the direction of the pressing force F applied by the balloon 5 to the puncture site 510 to be more reliably inclined.

In this embodiment, as mentioned above, the curved plate 4 has, on the side on which the balloon 5 is positioned (the right side in FIG. 2), a curved portion 42 with a radius of curvature smaller than that of the center portion 41 of the curved plate 4. The secondary balloon 6 contacts, through the band 2, the curved portion 42 of the curved plate 4 or a portion to the right side thereof in FIG. 2. In this way, the direction of the force incurred by the secondary balloon 6 from the curved plate 4, i.e., the normal direction of the curved plate 4 where it contacts the secondary balloon 6 through the band 2, is inclined toward the center 520 of the wrist 500. As a result, the directions of pressing force f and pressing force F can be more reliably inclined.

In this embodiment, a portion of the balloon 5 and a portion of the secondary balloon 6 are joined together by a suitable method such as welding or adhesion. At the resulting junction, a communication portion (an opening) 12 is formed as a means for communicating between the interior of the balloon 5 and the interior of the secondary balloon 6. When a fluid is injected into the balloon 5 in the manner

described above, some of the injected fluid flows through the communication portion 12 into the secondary balloon 6, so that the secondary balloon 6 inflates as the balloon 5 inflates. In this way, both balloons can be inflated in a single operation, providing excellent ease of use and efficiency.

5 In the present embodiment, the secondary balloon 6 is connected to the band 2 via a connector 13 on the same side as the connector 11 for the balloon 5 (i.e., the right side in FIG. 2). Accordingly, the secondary balloon 6 more easily and reliably assumes a tilted orientation. This more readily allows the pressing force f applied to the balloon 5 to act in an oblique direction (that is, in a direction which causes the
10 balloon 5 to face substantially the center 520 of the wrist 500), thus enabling a better hemostatic effect to be achieved.

Incidentally, in this invention, the pressing member which presses against the balloon 5 is not limited to a secondary balloon 6. Other types of pressing members that may be used for this purpose include pads made of a spongy substance, an
15 elastomeric material, an assemblage of fibers such as cotton, or combinations thereof.

A method of using the above-described hemostatic device 1 with the marker will be described below.

[1] Before attaching the hemostatic device 1 with the marker to a patient's limb, the main balloon 5 and the secondary balloon 6 are placed in an uninflated state.
20 In cases where the procedure is carried out at the wrist 500, the site of puncture 510 into an artery is generally on the inner side of the wrist 500 (where the tendons are located) and on the thumb side. Usually, an introducer sheath (not shown) is inserted and in place at the puncture site 510. The operator wraps the band 2 around the wrist 500, positions the balloon 5 (band 2) such that the void portion 71 of the marker 7
25 overlaps the puncture site 510 and the outline 72 of the marker 7 encloses the puncture

site 510, and secures, or joins, the band 2 near both ends thereof with a surface fastener 3.

[2] Once the hemostatic device 1 has been attached to the wrist 500, a syringe (not shown) is connected to the connector 83 on the inflator 8 and a fluid is introduced into the balloon 5 and the secondary balloon 6 as described above, thereby inflating the balloon 5 and the secondary balloon 6. The degree of inflation by the balloon 5 and the secondary balloon 6, i.e., the compressive force applied to the puncture site 510, can easily be adjusted for the particular medical case and circumstances by varying the amount of fluid introduced at this time, making operation of the hemostatic device 1 easy and efficient.

[3] Once the balloon 5 and the secondary balloon 6 have been inflated, the syringe is separated from the connector 83. Thus, the balloon 5 and the secondary balloon 6 remain inflated and so compression against the puncture site 510 is maintained (see FIG. 2). In this state, the balloon 5 applies pressure locally to the puncture site 510 and its environs. Moreover, inflation of the balloon 5 and the secondary balloon 6 causes the curved plate 4 to move away from the surface of the wrist 500 so that it does not readily come into contact with the wrist 500. Accordingly, compressive forces are concentrated at the puncture site 510 and its environs, resulting in an excellent hemostatic effect while avoiding the compression of other tissues, including blood vessels not requiring hemostatis and nerves, and thus effectively preventing undesirable effects such as numbness of the hand and poor circulation.

The hemostatic device including the space maintaining member has been described based on the illustrated embodiments. However, it is not limited to the embodiments. Each of the parts configuring the hemostatic device including the

space maintaining member may be substituted by any other configuration part that can achieve the same function as that of the configuration part of the present invention. Further, any configuration elements may be added.

5 The hemostatic device with the marker is not limited to use on the wrist alone, and can be employed as a hemostatic device including a marker for attachment and use on any portion of a patient's arm or leg (referred to collectively in this specification as "limbs").

10 The illustrated embodiments of the invention have been described above, although many modifications and variations may be made thereto in light of the above teachings. It is therefore to be understood that the invention may be practiced otherwise than as specifically described without departing from the scope of the appended claims.

15 The hemostatic device with a marker uses the marker attached in a simple manner thereby enabling a balloon to be positioned at a site where bleeding is to be stopped with good accuracy. Accordingly, the industrial applicability of the present invention is significant.

WHAT IS CLAIMED IS:

1. A hemostatic device with a marker comprising:

a flexible band adapted to be wrapped around a limb of a patient at a site where bleeding is to be stopped;

5 securing means for securing the band in a wrapped state to the limb;

a curved plate, which is made of harder material than the band, and at least a portion of which is curved toward an inner side of the band;

a balloon, which is provided in an inner side of the curved plate, and which inflates when a fluid is introduced therein;

10 a secondary balloon, which is provided in a position between the curved plate and the balloon so that at least a portion thereof overlaps with the balloon, and which presses the balloon by means of pressure of fluid introduced therein; and

a marker for positioning the balloon at the site where bleeding is to be stopped,

15 wherein the marker is provided in a position, which is within the scope of the balloon, and at which at least a portion of the marker overlaps with an end portion of the secondary balloon, and

wherein the marker comprises:

a transparent void portion; and

20 an outline enclosing the transparent void portion.

2. The hemostatic device with a marker according to claim 1, wherein the band and the balloon are formed of materials which allow visualization of the site where bleeding is to be stopped.

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3. The hemostatic device with a marker according to claim 1, wherein the marker is provided on the balloon.

4. The hemostatic device with a marker according to claim 1, wherein the marker is provided on the band.

5. The hemostatic device with a marker according to claim 1, wherein the marker is provided on the curved plate.

6. The hemostatic device with a marker according to claim 1, wherein the secondary balloon, which presses the balloon by means of pressure of fluid introduced therein, is provided in a position between the curved plate and the balloon so as to overlap with the balloon, and

wherein the secondary balloon is connected to the band at the same side as a connection portion of the balloon.

7. The hemostatic device with a marker according to claim 6, wherein the marker is provided on the secondary balloon.

8. The hemostatic device with a marker according to claim 1, wherein the transparent void portion of the marker has a size enough to include a circle having any one of diameters of $\phi 2.3$ mm, $\phi 2.6$ mm and $\phi 3.0$ mm.

9. The hemostatic device with a marker according to claim 1, wherein the outline of the transparent void portion of the marker is made up by a line with a 0.3 to 0.7 mm

thickness.

10. The hemostatic device with a marker according to claim 1, wherein the outline of the transparent void portion of the marker has a color of any one of green, white, blue and yellow.

11. The hemostatic device with a marker according to claim 1, wherein the transparent void portion of the marker comprises in a center thereof a mark for indicating a center of the transparent void portion.