A method and device for achieving a penile erection. An elongated flexible elastic tube is implanted in the penis in the position extending longitudinally along the penile shaft, and simultaneously there is implanted a flexible container which contains a fluid to be transferred from the container into the tube when the container is compressed so that the fluid thus displaced into the tube will elongate the latter and render the tube relatively rigid so that in this way it is possible to achieve a penile erection. The container is implanted at a location where it can conveniently be manipulated, such as the scrotum or the lower abdominal region. The elongated flexible tube and the container which communicates therewith form the device of the invention, this device further including in the tube a suitable structure for delaying the return of the fluid under pressure from the tube to the container when the latter is released.

11 Claims, 8 Drawing Figures
METHOD AND DEVICE FOR ACHIEVING A PENILE ERECTION

BACKGROUND OF THE INVENTION

The present invention relates to methods and devices for enabling human adult males to achieve penile erections.

As is well known, some human adult males cannot perform sexually in a satisfactory manner either because they cannot achieve a penile erection or because an erection once achieved cannot be maintained. Various attempts have already been made to solve this problem. However, the previously known solutions to this problem have various drawbacks. For example, it is known to situate devices of various constructions at the exterior of the penis to lend rigidity to the latter, but this type of solution to the problem is completely unsatisfactory because of the presence of these devices at the exterior of the penis. It is also known to attempt to solve the problem by injecting certain substances into the body, but this type of solution to the problem also is unsatisfactory because in many cases it has no success and also because in many cases although it may be successful the desired result is only temporary and the inconvenience of repeated injections is present.

SUMMARY OF THE INVENTION

It is accordingly a primary object of the present invention to provide methods and devices for solving the above problem.

Thus, it is an object of the present invention to provide a method and device which will enable a human adult male to achieve a penile erection without requiring artificial devices to be situated at the exterior of the penis and without requiring injections into the body.

Also it is an object of the present invention to provide methods and devices which will reliably maintain the erection for a desired length of time.

Also it is an object of the present invention to provide methods and devices which will enable the human adult male to achieve the penile erection in a fully satisfactory and highly reliable manner whenever desired without any particular inconvenience.

According to the invention an elongated hollow tube of flexible, stretchable elastomeric material is implanted in the penile shaft extending longitudinally thereof, and simultaneously there is also implanted a flexible container which contains a fluid and which communicates with the tube, this container being implanted at a location where it can conveniently be manipulated so as to be compressed for displacing the fluid out of the container into the tube. In this way it is possible to stretch and elongate the tube and render it relatively rigid so that a penile erection will result. The return of the fluid under pressure from the tube to the container is delayed so that an erection will be maintained for a satisfactory period of time.

The device of the invention includes an elongated flexible elastomeric tube which has a front closed end and which has an open rear end communicating with a flexible container which contains a fluid to be displaced from the container into the tube when the tube is compressed. Between the front end of the tube and the container there is situated in the tube a delay means which delays the return of the fluid under pressure from the tube into the container.

BRIEF DESCRIPTION OF DRAWINGS

The invention is illustrated by way of example in the accompanying drawings which form part of this application and in which:

FIG. 1 shows one embodiment of a method and device of the invention, the device of the invention being shown in solid lines in FIG. 1 while the penis and scrotum are indicated in phantom lines;

FIG. 2 is a fragmentary partly sectional elevation showing in an exploded view parts of the device of the invention to illustrate how these parts are manufactured and assembled;

FIG. 3 is a fragmentary longitudinal sectional elevation of part of the tube of FIG. 1, taken along line 3-3 of FIG. 1 in the direction of the arrows showing in particular the details of one embodiment of a delay means;

FIG. 4 is a transverse partly sectional view of the structure of FIG. 3 taken along line 4-4 of FIG. 3 in the direction of the arrows;

FIG. 5 is an illustration of another embodiment of a method and device of the invention with the device of the invention being shown in solid lines in FIG. 5 while the penis, scrotum and adjoining body regions are indicated in phantom lines;

FIG. 6 is a fragmentary partly sectional exploded illustration of part of the structure used in the device of FIG. 5;

FIG. 7 illustrates an element used for adding stiffness to part of the structure of FIG. 5, and

FIG. 8 is a fragmentary sectional elevation taken along line 8-8 of FIG. 5 in the direction of the arrows and showing in particular the details of that part of the structure of FIG. 5 which delays the return of fluid under pressure.

DESCRIPTION OF PREFERRED EMBODIMENTS

Referring first to FIG. 1, there is schematically illustrated therein in phantom lines that part of a human adult male which includes the penis 10, the scrotum 12, and the lower abdominal region 14. According to the method of the invention there is implanted in the penis 10, in a position extending longitudinally along the upper interior part of the penile shaft 16 an elongated flexible and stretchable hollow tube 18 made of an elastomeric material. This tube 18 has a front closed end 20 which is fragmentarily illustrated in FIG. 2. The flexible and stretchable elastic tube 18 is easily implanted by a surgeon in the position illustrated in FIG. 1 extending longitudinally along the interior of the penile shaft 16 at its upper region.

Distant from its front closed end 20 the tube 18 has a rear open end communicating directly with the hollow interior of a flexible container 22 which may be made of the same material as the tube 18. This material may be any flexible stretchable material which has elastomeric properties and which is compatible with the body. For example material sold under the trade name Silastic may be used for this purpose. In the embodiment of the invention which is illustrated in FIG. 1 the flexible bulb or container 22 is conveniently situated in the scrotum 12 so that it is readily accessible for manipulation.

The flexible container 22 contains a fluid which is displaced out of the latter into the tube 18 when the container 22 is compressed so that in this way the fluid
will be under pressure within the tube 18 in order to elongate the latter and render the tube 18 relatively rigid, so that in this way the penis 10 is rendered substantially rigid and thereby providing the desired erection. The fluid within the container 22 and the tube 18 can simply be air. However, it is also possible to introduce into the container 22 a liquid such as a silicone oil which can be displaced out of the interior of the container to the tube 18 in order to stretch the tube 18 and render it more rigid.

Of course, if the structure included only the tube 18 and the container 22 then immediately upon release of the container 22 the fluid under pressure in the tube 18 would flow back into the container 22 so that the erection could be maintained only as long as the container 22 was manually compressed by manipulation through the exterior surface of the scrotum wall. In order to avoid the inconvenience of requiring the container 22 to be maintained manually in its compressed condition, the tube 18 is provided at the region of the rear end of the penile shaft with a delay means which delays the return of the fluid under pressure from the tube 18 back into the container 22. This delay means may take the form shown in FIG. 3. Thus, as may be seen from FIG. 3, the hollow tube 18 is provided rearwardly of the front closed end 20 with a flexible transverse wall 24 provided with a central aperture 26. Situated next to the rear surface of the flexible transverse wall 24 is a plate 28 made of any suitable metal or plastic and formed with a plurality of openings 30. As is apparent particularly from FIG. 4, all except the central opening 30 of the plate 28 are normally covered and closed by the flexible transverse wall 24. Thus, with this construction when the operator compresses the container 22 to displace fluid out of the latter into the tube 18, the fluid under pressure easily deflects the flexible wall 24 away from the plate 28 as illustrated in phantom lines in FIG. 3, so that the fluid readily flows into the tube 18 between the front wall 20 and the flexible wall 24. When the container 22 is released, the fluid under pressure will seek to push the flexible wall 24 against the plate 28 so as to close all except the central opening 30. This central opening 30 is relatively small so as to throttle the return of fluid, and in this way the return of the fluid is retarded so that a considerable period elapses before the erection is lost. In this way it is possible to maintain the erection automatically for a considerable period of time, without requiring the operator to maintain the container 22 in its compressed condition.

In order to provide the structure shown in FIG. 3, the tube 18 initially is made of a pair of components 18a and 18b (FIG. 2). Component 18b has a forwardly directed lip 32 while the tubular portion 18a has a rearwardly directed lip 34. The lip 32 surrounds a shoulder 36 against which the plate 28 is placed. Thus the outer diameter of the plate 28 is somewhat greater than the inner diameter of the tubular portion 18a and the outer periphery of the plate 28 is engaged by the inner surface of the lip 32. This lip 32 is then situated within and surrounded by the lip 34, so that the parts when assembled will have the condition illustrated in FIG. 3, and then the plastic material of the tubular portions 18a and 18b are fused to each other so that they become welded together in order to provide the construction shown in FIG. 3. Of course it is possible instead to use any suitable cement or the like in order to connect the tubular portions 18a and 18b to each other.

Another method and device of the invention is illustrated in FIGS. 5-8. Thus, as may be seen from FIG. 5, the device illustrated therein includes an elongated flexible tube 40 which is made of the same material as the tube 18. This tube 40 also has a front closed end and a rear open end communicating with a flexible container 42 which may be identical with the container 22. However, according to the method of the invention illustrated in FIG. 5, the container 42 is subcutaneously implanted at the region of the lower abdomen just above the penile shaft 16. The tube 40 is implanted in the same way as the tube 18. Thus with this embodiment the operator need only push against the lower abdomen in order to compress the tube 42 and thus displace fluid out of the latter into the tube 40 thus elongating the tube 40 and rendering the latter rigid so as to achieve in this way the desired erection.

According to the embodiment of FIGS. 5-8 there is also a delay means for delaying the return of fluid under pressure from the interior of the tube 40 into the container 42. Of course the fluid used in the embodiment of FIG. 5 may be the same as the fluid of FIG. 1. However, the delay means is constructed differently. As may be seen from FIG. 8, the tube 40 also carries a transverse plate 44 which is formed with a number of outer openings 46 as well as a central large opening 48. This opening 48 has the flow of fluid therethrough controlled by a way of a non-return valve means 50. This valve means 50 includes the valve member 52 which engages the front surface of the plate 44 at the side thereof directed toward the closed front end of the tube 40 and the valve member 52 is large enough to completely close the central opening 48. A stem 54 is fixed to and extends rearwardly from the valve member 52 through the opening 48. At its rear end the stem 54 is fixedly connected with a plate 56. This plate 56 is engaged by the left end of a coil spring 58. The spring 58 is coiled around the stem 54 and engages the rear surface of the plate 44. Thus the non-return valve means 50 normally assumes the closed position shown in solid lines in FIG. 8. However, when the container 42 is compressed the fluid under pressure will open the valve means so that the fluid can readily flow into the tube 40 between the closed front end thereof and the plate 44. However, when the fluid seems to return the closed valve 50 prevents the return of fluid through the opening 48.

The plate 44 has its openings 46 which surround the central opening 48 normally closed by a transverse wall 60 which forms part of the tube 40. This transverse wall 60 is made of the same material as the tube 40 and normally is not of sufficient rigidity to maintain the openings 46 closed against the pressure of the fluid between the plate 44 and the front closed end of the tube 40. Therefore, the wall 60 has embedded therein a springy ring 62 made of a material such as stainless steel and provided with a number of inwardly projecting springy tongues 64, as shown in FIG. 7. As a result of this construction the ring 62 and its tongues 64 increase the resistance of the wall 60 so that it does not yield response to the pressure of the fluid in the tube 40 between the plate 44 and the front closed end of the tube, and thus the erection may be maintained as long as desired with this construction. However, when it is desired to eliminate the erection, the tube 40 will be milked rearwardly by suitable manipulations along the penile shaft 16. This pinching and rearward milking applied to the tube
40 forces the fluid rearwardly through the openings 46 with a pressure sufficient to deflect the wall 60 in opposition to the force of the tongues 64 away from the openings so that through this action it is possible for the operator manually to terminate the erection.

FIG. 6 illustrates how the construction of FIG. 8 may be manufactured. Thus, the tube 40 initially is formed of a pair of tubes 40a and 40b. The tube 40a has a rearwardly extending lip 66 while the tube 40b has a forwardly extending lip 68 adapted to surround the lip 66 when the parts are assembled. The plate 44 is surrounded by the lip 66 and engages the shoulder 70 of the tubular portion 40a. When the tubular portion 40b is manufactured with the transverse wall 60, the ring 62 is embedded in the wall 60. Thus, when the parts are assembled they will have the condition shown in FIG. 8, and the lips 66 and 68 are fused to each other so as to weld the assembly into the construction shown in FIG. 8 or any suitable cement may be used to adhere the lips 66 and 68 to each other.

Thus, with the construction of the invention it is possible to provide by implanting a human adult male with the capability of achieving a desired erection whenever desired without, however, requiring any additional components to be situated at the exterior of the penis and without in fact altering the exterior appearance of the penis or the region surrounding the latter. No injections are required. All that is required is that the individual manipulate the container 22 or 42 so as to displace the fluid out of the latter into the tube which has been implanted in the penis in order to provide the desired erection. Moreover, this erection will be maintained for a desired length of time by way of the delay means of the invention as described above.

What is claimed is:

1. In a method for providing a human male adult with the capability of achieving a penile erection, the steps of implanting in the penis of the human male adult in a position extending longitudinally along the penile shaft an elongated flexible hollow tube of stretchable elastomeric material which will assume an elongated substantially straight and substantially rigid condition when supplied at its interior with fluid under pressure and which will assume a shorter more flexible condition when emptied of the fluid under pressure, and simultaneously implanting in the human male at a location where it is accessible for manipulation a flexible container which contains the fluid and which communicates with the tube so that by manipulation the human male can reduce the volume of said container to transfer fluid therefrom into said tube to situate the fluid under pressure in the latter for providing a penile erection.

2. In a method as recited in claim 1 and wherein the container is placed in the scrotum.

3. In a method as recited in claim 1 and wherein the container is placed in the lower abdominal region just above the penis.

4. In a method as recited in claim 1 and including the step of delaying the return of fluid from said tube to said container when the latter is released.

5. In a method as recited in claim 4 and wherein the fluid under pressure is returned from said tube to said container upon release of the latter at a rate which is substantially slower than the rate at which the fluid flows from the container to the tube when the container is compressed.

6. In a method as recited in claim 4 and wherein the fluid under pressure is retained in said tube until the adult human male manipulates the tube for forcing the fluid under pressure out of the latter back into the container.

7. In a method as recited in claim 6 and wherein the fluid under pressure is returned from said tube to said container in response to milking of said tube rearwardly along the penile shaft to displace the fluid under pressure out of the tube.

8. An implant for enabling a human male adult to achieve a penile erection, comprising an elongated tube of stretchable elastomeric material having a front closed end, a flexible container for containing the fluid, said container being operatively connected with and having its interior in communication with the interior of said tube so that when said container is compressed to reduce the volume thereof fluid will be displaced out of said container and into said tube to stretch the latter and increase the rigidity of said tube, said container communicating with said tube at a location situated rearwardly of said front closed end of said tube, and delay means situated in said tube rearwardly of said front closed end thereof between said tube and container for permitting substantially free flow of fluid under pressure from said container into said tube when said container is compressed while delaying return of fluid from said tube to said container when said container is released.

9. The combination of claim 8 and wherein said tube has a rear open end with which said container communicates.

10. The combination of claim 8 and wherein said delay means includes an inner flexible transverse wall situated within and extending across the interior of said tube between said front closed end thereof and said container and said transverse wall being formed with a substantially central aperture and a plate situated in said tube next to said transverse wall thereof at the side of said transverse wall which is directed toward said container and away from said front end of said tube, said plate being formed with a relatively large number of small openings most of which are normally covered and enclosed by said transverse wall, so that when the container is compressed the fluid from the latter will deflect said wall away from said plate to provide for substantially free flow of fluid into said tube between said front end thereof and said transverse wall, while the fluid situated between said front end of said tube and said transverse wall will push the latter against said plate to close most of said openings, thereby permitting the fluid to return to said container at a rate which is substantially slower than the rate of flow of the fluid into said tube when said container is compressed.

11. The combination of claim 8 and wherein said delay means includes a plate extending transversely across the interior of said tube between said front open end thereof and said container, said plate carrying at a central region a non-return valve means which provides for substantially unobstructed flow of fluid from said container into said tube between said plate and front end thereof when said container is compressed while preventing flow of fluid back from the space between the front end of said tube and said plate, said plate being formed with a plurality of openings surrounding said non-return valve means, and wall means situated in said tube in engagement with said plate at the side
thereof which is directed away from said front closed end of said tube and normally closing said openings of said plate, said wall means having sufficient rigidity to prevent the fluid under pressure between said plate and front end of said tube from flowing through said openings while the rigidity of said wall means is insufficient to prevent the said wall means from being deflected rearwardly away from said plate when the tube is manipulated to force the fluid rearwardly through said openings of said plate.

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