DEVICE FOR INHIBITING AFTERCATARACT

BACKGROUND OF THE INVENTION

The present invention relates to a device for inhibiting aftercataract (hereinafter referred to as an inhibiting device) and more particularly to an inhibiting device for keeping a shape of a lenticular capsule substantially circular after a crystalline lens is removed and for preventing an invasion of epithelial cells into a posterior lenticular capsule, and further to an inhibiting device wherein an intraocular lens can be retained in good condition by forming a groove in an inner periphery thereof.

As an operation method of crystalline lens, the method, wherein an anterior lenticular capsule is provided with an opening and a crystalline lens is removed through the opening, has hitherto been employed. A refraction of an eye is corrected by inserting an intraocular lens into the lenticular capsule instead of the removed crystalline lens, wearing a contact lens on a cornea, or wearing a pair of spectacles.

When the intraocular lens is used, an intraocular lens such as lens **51** as shown in FIG. **18** has hitherto been used. The intraocular lens is composed of a lens **52** and two support members **53** having a wire like shape. The support member **53**, wherein one end is fixed to the lens **52** and another end (outer side) is bended in such a manner as to extend along an equator of the lenticular capsule and contact with the equator, keeps the equator of the lenticular capsule circular. However, it is difficult for the above mentioned support member **53** to keep the equator of the lenticular capsule circular due to the shape thereof, and there is a danger that the support member adds an uneven force by partially contacting with the equator. Therefore, after inserting the intraocular lens into the lenticular capsule, the intraocular lens in the lenticular capsule becomes unstable after a long interval. Then, deviation or falling down of the intraocular lens sometimes happens.

The intraocular lenses **54**, **55** shown in FIGS. **19** to **20** are proposed (with reference to Japanese Unexamined Patent Publication No. 285258/1989 and Japanese Unexamined Patent Publication No. 503525/1990). Each of the above lenses is composed of a lens portion **56**, **57** and a support member **58**, **59** which encloses the outer periphery of the lens portion having a circular loop like shape. The equator of the lenticular capsule can be kept to be circular in more preferable state compared with the intraocular lens of FIG. **18**. It is difficult to insert the circular support member into the lenticular capsule through the incised opening as the original shape thereof. Therefore, the intraocular lens is inserted into the lenticular capsule by deflecting the support member to have an oval shape (referring to FIG. **19**) or shrinking the support member in such a manner that circular shape thereof is kept (referring to FIG. **20**).

The lenticular capsule after crystalline lens is removed sometimes happens to become opaque by proliferation, degeneration, or metaplasia of epithelial cells residual in the equator of the lenticular capsule if the capsule is left as it is. This phenomenon is generally called an aftercataract. A secondary operation typically needs to be performed to remove the aftercataract. As mentioned hereinbefore, when the intraocular lens is inserted into the lenticular capsule and the intraocular lens is fixed therein after the crystalline lens has been removed, there is such an intraocular lens as to inhibit the aftercataract to a certain extent by keeping the shape of the lenticular capsule and encircling the residual epithelial cell in the equator by virtue of the shape of the support member of the intraocular lens. However, the support member is not coming into contact with the whole part of the equator. Therefore, an aftercataract is not completely inhibited.

Further, when the lenticular capsule is left as it is for a long time without inserting the intraocular lens, the refraction of an eye should be corrected in such a manner that the contact lens is worn or a pair of spectacles is worn. In this case, an aftercataract is often produced in the lenticular capsule wherein the crystalline lens is removed. When the lenticular capsule is removed, such a complication that the vitreous body located in the back side of the eye goes forward is apt to come out. Accordingly, the lenticular capsule is not removed even if the intraocular lens is not inserted therein.

The object of the present invention is to resolve the problems mentioned hereinbefore and provide a device wherein an aftercataract is inhibited from forming and the circular shape of the equator can be kept stably.

SUMMARY OF THE INVENTION

A device for inhibiting aftercataracts of the present invention comprises a ring formed of a material having a resilient property, and having a substantially circular shape with an aperture at a central portion thereof, wherein said ring is used to contact an inner periphery of an equator of a lenticular capsule.

It is preferable that the inhibiting device has at least two protrusion portions which are formed in an outer periphery of the ring and intended to contact the inner periphery of the equator of the lenticular capsule.

Further, it is preferable that the device is provided with a groove for engaging with a support member of an intraocular lens in order to retain the intraocular lens. In this case, it is preferable that the groove is formed in the inner periphery of the device.

Further, it is preferable that the device comprises a front wall portion and a back wall portion, with the back wall portion adjacent to said groove, with the front wall portion and the back wall portion extending in the radial direction in such a manner that the back wall portion extends toward the center of the aperture by a first distance, and the front wall portion extends toward the center of the aperture by a second distance which is less than said first distance.

The meaning of "having substantially a circular shape" mentioned in the claims is a concept including not only a complete round but also a polygonal shape so that the outer periphery of the device can be internally touched to the whole of the equator of the lenticular capsule. The meaning of "a front wall portion" is one of side walls located in the front side of the device when the device is implanted in the eye and the meaning of "a back wall portion" is the other side wall located in the back side of the device when the device is implanted in the eye.

The device of the present invention is easily deformed in accordance with the desired shape by pinching the device slightly by means of a forceps and the like. Therefore, a special technique for inserting is not required and the device is easily inserted into the lenticular capsule through even a small incised opening by means of Continuous Circular Capsulorhexis (CCC) method. After inserting the device into the lenticular