

INTRAOCULAR LENS ASSEMBLY WITH IMPROVED MOUNTING TO THE IRIS

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to an intraocular lens assembly, and more particularly to an improved posterior chamber intraocular lens assembly which, after surgical affixation within the eye, is further anchored in the eye by natural ingrowth of a tissue of the iris of the eye.

2. Description of the Prior Art

The prior art is well aware of artificial intraocular lens assemblies which are surgically introduced into the human eye to replace the natural lens of the eye. One of the common reasons for removing the natural lens of a patient is a condition of lenticular disease known as a cataract. The prior art has developed a large variety of lens assemblies for surgical implantation either in the anterior chamber or attached to the iris of the eye.

Generally speaking, anterior chamber lenses of the prior art are placed between the iris and the cornea, and rely upon a precise size measurement to wedge the lens into a permanent position. The implantation of some of the artificial intraocular lens assemblies requires surgical incision or suturing to the iris. Other lens assemblies are kept in an operative position within the eye by a plurality of loops which embrace the iris and therefore "clip" the lens assembly to the iris. A recent posterior chamber lens, the SHEARING lens, is held in a relatively fixed operative position by spring like properties of a number of strands composed of plastic material, see U.S. Pat. No. 4,159,546.

For further detailed description of specific intraocular lens assemblies, reference is made to the following U.S. Pat. Nos. 3,925,825; 3,922,728; 3,971,073; 3,673,616; 3,913,148; 3,906,551; 3,994,027; 3,866,249; 3,986,214 and 3,991,426.

Although the implantation of artificial intraocular lens assemblies have become accepted by the medical profession, the artificial intraocular lens assemblies of the prior art can suffer from certain disadvantages such as dislodgment from their initial operative position as a result of post operative movement of the patient's eye.

It is readily appreciated by those skilled in the art, that in order to obtain optimal results a compromise must be found between the relative strength of affixation of the lens to the eye which could become a source of undue irritation, or tissue erosion and the necessity to keep the lens in an operative position within the eye.

U.S. Pat. No. 4,073,015 describes an intraocular lens mounting system wherein a plurality of loops extend substantially laterally from a light refracting lens body. Fibrous material is attached to the outer edges of the loops in areas where the edges come into contact with the iris. The loops affix the lens to the iris, and the subsequent ingrowth of the tissue of the iris further anchors the loops to the iris. U.S. Pat. No. 3,458,870 describes a corneal lens implant wherein a holding member for the optical lens is surgically implanted into the cornea. The holding member has a plurality of holes into which the ingrowth of the corneal stroma is purported to occur to further anchor the corneal implant to the cornea.

The improved artificial lens assembly mountings of the present invention which may be utilized in anterior

chamber as well as in posterior chamber lens assemblies represent a further significant advancement.

SUMMARY OF THE INVENTION

5 It is an object of the present invention to provide an intraocular lens assembly which, after initial surgical affixation into the eye, is further anchored by natural ingrowth of tissue into the lens assembly.

10 It is another object of the present invention to provide an improved intraocular lens assembly which is adapted for mounting an intraocular lens in either the posterior or the anterior chamber of the eye wherein it is permanently anchored by natural ingrowth of the tissue.

15 It is still another object of the present invention to provide a posterior chamber artificial intraocular lens assembly which is free of sharp edges and surfaces capable of irritating the eye tissue, while being anchored by natural ingrowth of iris tissue.

20 It is yet another object of the present invention to provide an artificial intraocular lens assembly which is anchored to the iris by the natural ingrowth of tissue and which is relatively economical to manufacture.

25 These and other objects and advantages are attained by an artificial intraocular lens assembly having a light refracting lens body and at least one lens haptic support member mounted to the lens body. The lens support member can be adapted for mounting to the lens either in the anterior or posterior chamber of the eye and has at least one surface contoured for disposition in intimate contact with the iris or other eye tissue. The surface is provided with a plurality of apertures which penetrate through the lens support member. After initial surgical implantation into the eye, natural ingrowth of the tissue occurs into and through the apertures thereby further anchoring the lens assembly in operative position within the eye.

30 The objects and features of the present invention are set forth in the appended claims. The present invention may be best understood by reference to the following description, taken in connection with the accompanying drawings in which like numerals indicate like parts.

BRIEF DESCRIPTION OF THE DRAWINGS

45 FIG. 1 is a partial plan view of a first preferred embodiment of an improved mounting loop of a first artificial intraocular lens assembly designed in accordance with the present invention;

50 FIG. 2 is a partial cross sectional view of the first preferred embodiment of the improved mounting loop of the first artificial intraocular lens assembly, the cross section being taken at lines 2,2 of FIG. 1;

55 FIG. 3 is a partial plan view of a second preferred embodiment of an improved mounting loop of the present invention;

FIG. 4 is a top perspective view of the first artificial intraocular lens assembly incorporating the first preferred embodiment of the improved mounting loop of the present invention;

60 FIG. 5 is a schematic, cross sectional view of a human eye incorporating the first artificial intraocular lens assembly;

65 FIG. 6 is a top perspective view of an improved posterior artificial intraocular lens assembly designed in accordance with the present invention;

FIG. 7 is a schematic cross sectional view of the human eye incorporating the posterior chamber intraocular lens assembly;