

SURGICAL INSTRUMENT FOR AND METHOD OF INSERTING A POSTERIOR CHAMBER LENS IN AN EYE

This invention relates to surgical instruments and to methods for inserting an intraocular lens in an eye. More particularly, the invention relates to surgical instruments of the type having a hook at the end thereof and to methods of seating an intraocular lens in the posterior chamber of an eye using such hooked instrument.

Conventionally, in the seating of posterior chamber intraocular lenses such as, for example, the lenses described in my copending patent application Ser. No. 465,573, after the first, or lower, of the pair of haptics, or position-fixation members, is seated in a lower portion of the posterior chamber, the surgeon depresses the second or upper haptic toward the first so that it too can be passed through the pupil. Once the second haptic is on the posterior side of the iris it is allowed to expand toward its normal undeformed condition for seating thereof in an upper portion of the posterior chamber. With conventional surgical instruments this is a complicated procedure for the surgeon since, if the upper haptic is merely released once it is behind the iris it will tend to spring back into its original undeformed condition which not only may cause injury to membranes in the posterior chamber of the eye but additionally will be very difficult to position for proper seating. If, on the other hand, the known surgical instruments are used to permit the upper haptic to only slowly return to its seating position, it is difficult to keep such instruments from touching the iris, risking damage to that membrane.

It is an object of the present invention, therefore, to provide a new and improved surgical instrument which avoids one or more of the disadvantages of prior such instruments.

It is another object of the invention to provide a new and improved surgical instrument for permitting the upper haptic to slowly return to its original undeformed condition.

It is still another object of the invention to provide a new and improved surgical instrument which can be easily disengaged from the upper haptic after the latter has returned substantially to seating position thereof without causing injury to the eye.

It is a still further object of the invention to provide a new and improved surgical instrument which can give the surgeon control over the position of the upper haptic during seating thereof.

It is another object of the invention to provide a new and improved method of seating an intraocular lens in the posterior chamber of an eye which avoids one or more of the disadvantages of prior such methods.

It is a concomitant object of the invention to provide a new and improved method of seating an intraocular lens in the posterior chamber of an eye while retaining substantial control over the positioning of the haptics.

In accordance with the invention, a surgical instrument for seating an intraocular lens in the posterior chamber of an eye comprises a longitudinally extending shank portion having a hooked end portion terminating in a transverse tip portion. The hooked end portion comprises a curved neck portion extending from the shank and a tip portion extending from the end of the curved neck portion in a direction transverse to the

plane containing the shank and the neck portion. The tip portion is adapted to be inserted into the small opening usually provided in the upper haptic of conventional posterior chamber intraocular lenses, for displacing the upper haptic toward the lower haptic during the insertion procedure. The instrument may be hollow, with an opening at its distal end so as to permit the injection of fluid into the eye in a manner similar to a hypodermic needle.

Also in accordance with the invention, a method of inserting and seating an intraocular lens in the posterior chamber of an eye comprises inserting the hooked end portion of an instrument having a longitudinal shank portion through an opening in the eye. The instrument has at one end of the longitudinally extending shank portion a hooked portion having a tip. The method also includes engaging one of the haptics of the intraocular lens with the hooked portion and moving the instrument in a direction to seat the engaged haptic in the posterior chamber. The method further includes disengaging the tip of the hooked portion from the aforesaid haptic after substantially seating the latter and withdrawing the hooked portion from the posterior chamber. The method may also include injecting a fluid into the posterior chamber through the open distal end of the tip portion of the instrument just prior to withdrawal thereof from its engagement with the haptic.

For a better understanding of the present invention, together with other and further objects thereof, reference is made to the following description, taken in conjunction with the accompanying drawings, and its scope will be pointed out in the appended claims.

Referring now to the drawings:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front elevational view of the surgical instrument in accordance with the invention;

FIG. 2 is a side elevational view of the surgical instrument of FIG. 1;

FIG. 3 is a fragmentary sectional view of a human eye with a surgical instrument in accordance with the invention shown in engagement with an intraocular lens whose lower haptic is seated in the posterior capsule;

FIG. 4 is an enlarged fragmentary sectional view of a human eye showing the intraocular lens in engagement with a surgical instrument in accordance with the invention while passing the upper haptic through the pupil of the eye;

FIG. 5 is an enlarged fragmentary sectional view of a human eye with the surgical instrument in accordance with the invention in position seating the upper haptic of the intraocular lens in the ciliary sulcus of the posterior chamber;

FIG. 6 is an enlarged fragmentary sectional view of the human eye and the surgical instrument according to the invention showing the disengagement of the surgical instrument from the upper haptic.

Referring now particularly to FIGS. 3 through 6 of the drawings, a human eye 10 is represented in section, with portions omitted for the sake of clarity. The eye 10 includes a cornea 11 having an opening 12 therein made by the surgeon. Anterior chamber 13 and posterior chamber 14 are defined by the position of the iris 15. A membrane, or posterior capsule 16, which remains after extracapsular removal of a cataracted natural lens therefrom, is normally connected to ciliary body 20 by a plurality of zonules 21. The iris defines a central open-