A vasectomy procedure and instrument for use therewith that provides for elevating the vas deferens from the scrotal sac of the patient for severing of the vas while it is in the elevated position, the instrument having an arcuate shaped head provided with a central longitudinally extending groove that acts as a base for the severing tool during the severing operation of the vas.

6 Claims, 4 Drawing Figures
VASECTOMY PROCEDURE AND INSTRUMENT FOR USE THEREWITH

BACKGROUND OF THE INVENTION

The present invention relates to a vasectomy procedure and instrument for use therewith and has application as a birth control procedure and device since the vas deferens carrying the male sperm is severed, wherein the patient is rendered incapable of producing conception.

The vasectomy procedure for producing sterilization in the male is a simple and safe operation that has become relatively commonplace in recent times and in some areas of the medical community is the simple answer to birth control. Basically the procedure as performed on the male consists of locating the vas deferens in the scrotal sac, making an incision in the sac to expose the vas, severing the vas, tying the severed ends, returning the severed ends to the sac and thereafter suturing the incision. Such a procedure rarely takes more than thirty minutes to perform and in many instances can be performed in less time. Very little pain accompanies the operation, which is performed in the surgeon's office, and the patient can usually return to normal working activities after a day's rest.

Prior to the instant invention, the surgeon performing the vasectomy was required to retain the vas in an elevated position during the severing thereof by grasping the vas with a clamp or the like that held the vas by downwardly extending clamp arms that oftentimes were awkward to manipulate during the severing operation. Further, separating the vas from connective tissue sometimes proved to be a delicate step in the procedure and the surgeon had to be careful to avoid the severing of tissue that could result in trauma to the patient.

Although the prior known procedures and instruments for performing vasectomies have been satisfactory for the purpose intended, special precautions were necessary during the procedure and unless a surgeon took unusual care during the severing procedure, some complications could develop.

SUMMARY OF THE INVENTION

The present invention relates to a surgical instrument and vasectomy procedure for use thereof, wherein the instrument comprises a handle and a head mounted on the handle, the head including a body portion having a generally arcuate configuration defined by an outer convex portion and an inner concave portion. The inner concave portion of the surgical instrument as embodied in the subject invention has a central groove formed therein that extends longitudinally of the body portion. It is preferred that the body portion be formed such that it terminates at its distal end in a point, the pointed distal end providing for easy insertion of the instrument through the scrotal incision during the vasectomy procedure. The lateral edges of the body portion of the instrument head define incise blade edges that may be used to separate connective tissue from the vas deferens prior to the severing thereof. If required, the head may be removably mounted on the handle of the instrument for disposal and replacement by a similar head.

The surgical instrument as embodied herein provides for elevating or lifting of the vas deferens from the underneath side during the vasectomy procedure rather than clamping from above wherein the surgeon is able to conveniently retain the vas in the elevated or lifted position free of obstruction. By use of the instrument the vas is severed in a simple cut, using the concave portion of the head as a base or backing and the groove as a means for locating the scalpel during the vas severing operation.

Accordingly, it is an object of the present invention to provide a surgical instrument for use in a vasectomy procedure.

Another object of the invention is to teach a method of performing a bilateral vasectomy utilizing a surgical instrument that provides for the lifting of the vas deferens from the underneath side for the severing thereof.

Still another object is to provide a surgical instrument for use in a bilateral vasectomy that includes a handle and a head mounted thereon, the head having a generally arcuate configuration that enables the vas to be lifted from the underneath side out of the scrotum of the patient for the severing of the vas.

Still another object is to provide a surgical instrument having a handle on which a head is mounted, the head being arcuate in configuration, and having a concave side in which a central longitudinally extending groove is formed, the lateral sides of the head defining incise cutting edges.

Other objects, features and advantages of the invention shall become apparent as the description thereof proceeds when considered in connection with the accompanying illustrative drawings.

DESCRIPTION OF THE DRAWING

In the drawings which illustrate the best mode presently contemplated for carrying out the present invention:

FIG. 1 is an exploded elevational view of the surgical instrument embodied in the present invention;

FIG. 2 is a sectional view taken along line 2—2 in FIG. 1;

FIG. 3 is a fragmentary top plan view with parts shown in section showing the surgical instrument of the present invention in the use thereof during a vasectomy procedure; and

FIG. 4 is a sectional view taken along line 4—4 in FIG. 3.

DESCRIPTION OF THE INVENTION

Referring now to the drawing and particularly to FIGS. 1 and 2, the surgical instrument embodied in the present invention is illustrated and is generally indicated at 10. It is contemplated that the surgical instrument 10 will be employed in a bilateral vasectomy procedure, although it is understood that the instrument can be utilized for other surgical procedures as required.

The instrument 10 includes a handle generally indicated at 12 on which a head portion generally indicated at 14 is removably mounted. As more clearly illustrated in FIG. 1, the handle 12 is formed with an elongated body portion 16 to which a fitting 18 is fixed at a tapered end thereof. A reduced outer shank 20 is
joined to the fitting 18 and extends outwardly therefrom. The shank 20 is normally circular in cross-sectional configuration, although this configuration may vary as required in the interfitting of the handle 12 to the head portion 14.

As further illustrated in FIG. 1, the head 14 is formed by a fitting 22 having a bore formed therein that accommodates the shank 20 in frictional relation and provides for fixedly mounting of the head 14 on the handle 12. The fitting 22 includes a reduced section 24, to which a conical portion 26 is joined, the reduced section 24 and conical portion 26 having a bore of reduced diameter formed therein for receiving a shank 28 of a body portion 30 of the head 14. The shank 28 of the body portion 30 as fixed in the fitting 22 forms an integral part therewith, and as will be described, the head 14 is formed as a separate unit and may be removably attached to the handle 12 for disposal after use in a vasectomy procedure.

As shown in FIG. 1, the body portion 30 of the head 14 is formed in an arcuate configuration and terminates at its distal end in a point 32. The interior or concave side of the arcuate shaped body portion 30 is defined by spaced inner surfaces 34 and 36 that are separated by a V-shaped groove 38. The convex side of the head portion 30 is defined by sloping surfaces 40 and 42 that join at the mid-point of the convex side to form an apex 44. The junction of the inner surfaces 34 and 36 with the outer surfaces 40 and 42 respectively form laterally extending incisive edges 46 and 48, the purpose of which will be described hereinafter.

In describing the use of the instrument 10 in a vasectomy procedure, reference is now made to FIGS. 3 and 4. In FIG. 3, a portion of the scrotal sac of a patient is indicated at 50 and prior to the procedure, the upper portion of the sac 50 is prepped and cleansed with an antiseptic solution. The surgeon identifies the vas deferens within the scrotal sac 50 as a fibrous cord by palpation of the scrotal contents between his thumb and index finger. The vas deferens is moved as close as possible to the lateral surface of the scrotal sac 50 and is maintained in this position by traction between the thumb and index finger. The selected area for incision is infiltrated with an anesthetic solution and a small transverse incision indicated at 52 is thereafter made by the surgeon with a scalpel, the length of the incision 52 being preferably about one-half inch. After the subcutaneous tissues are carefully separated from the vas indicated at 54 in FIG. 3, the vas is worked into communication with the incision until it is located near the lateral surface of the scrotal sac 50. The distal end 32 of the head 14 of the instrument 10 is then inserted into the incision 52 medial to the vas 54 such that it projects underneath the vas. The distal end 32 is thereafter moved upwardly and then outwardly through the opposite lateral side of the incision 52. Digital traction on the vas 54 may then be released since the vas is now maintained in an elevated position by the instrument 10 which contacts the vas from the underside thereof.

The portion of the connective tissue sheath under the vas deferens 54 and adjacent to the head 14 of the instrument 10 is infiltrated with a small quantity of the local anesthetic, and thereafter additional separation of the tissue sheath may be accomplished by shifting the instrument laterally so that the incisive edges 46 and 48 strip the connective tissue sheath from the vas deferens. Thereafter the small incision below the vas 54 in the connective tissue sheath made by the blade edges may be expanded by blunt dissection using a small straight hemostat.

The segment of the vas deferens to be severed is then located between two straight hemostats which are placed through the expanded incision in the connective tissue sheath. Thereafter the head 14 of the instrument 10 may then be employed as a base for facilitating the cutting or severing of the vas 54. In this connection the blade of a scalpel 56 is directed by the surgeon against the vas deferens and into the groove 38 as illustrated in FIG. 4, the blade of the scalpel 56 following the course of the groove 38 which defines a guide for the scalpel during the severing operation.

After the cut ends of the vas deferens are cauterized above the clamps and ligated, the ligated ends are returned to the scrotal sac 50, the surgeon having taken precautions to insure that bleeding points have been coagulated. The skin edges of the opening 52 in the sac 50 are closed by sutureg normally only a single suture is required. An antiseptic spray and then a spray film dressing is applied, the surgeon further being careful to insure that lateral traction of the vas is maintained and that errors in location and immobilization of the vas are avoided.

The entire procedure as described may take anywhere from 5 to 30 minutes and can be performed in the surgeon's office using the instruments as indicated. After surgery and a short recuperative period at home, the patient may resume his normal activities.

The surgical instrument 10 as described hereinabove enables the vas 54 to be elevated from the underside thereof to a point exteriorly of the scrotal sac 50, thereby enabling the vas to be conveniently severed by the surgeon. The sharp distal end 32 of the head portion 14 provides for convenient insertion of the head 14 of the instrument 10 into the incision 52 and through the connective tissue beneath the vas 54 so that the vas can be elevated to appropriately locate it for the severing operation. The incisive edges 46 and 48 also enable the connective tissue sheath the be separated from the vas without traumatic effects and with the vas 54 located in the position as illustrated in FIG. 3, the surgeon is able to quickly and conveniently perform the severing operation with little difficulty. Since the groove 38 in the concave side of the head portion 30 faces upwardly with the vas lying laterally thereacross, the surgeon employs the groove as a guide for directing the scalpel 56 through the vas in the severing operation. It is seen that the instrument 10 provides a convenient and useful tool for the surgeon in performing the bilateral vasectomy with a minimum of time and effort.

While there is shown and described herein certain specific structure embodying the invention, it will be manifest to those skilled in the art that various modifications and rearrangements of the parts may be made without departing from the spirit and scope of the underlying inventive concept and that the same is not limited to the particular forms herein shown and described.

What is claimed is:
1. A surgical instrument for use in a vasectomy procedure, comprising a handle and a head mounted on said handle, said head including a body portion having a generally arcuate configuration defined by an outer convex portion and inner concave portion, the inner concave portion having a central groove formed therein that extends longitudinally of said body portion, the body portion terminating in a pointed distal end, and the lateral edges of said body portion forming incise blade edges.

2. A surgical instrument as set forth in claim 1, said head being removably mounted on said handle.

3. A surgical instrument for use in a vasectomy procedure, comprising a handle and a head mounted on said handle, said head including a body portion having a generally arcuate configuration defined by an outer convex portion and an inner concave portion, the inner concave portion having a central groove formed therein that extends longitudinally of said body portion, and said head having a socket portion formed thereon that is located adjacent to said body portion, said handle terminating at one end in a shank that is frictionally received in said socket portion for removably mounting said head on said handle.

4. A method of performing a bilateral vasectomy utilizing a surgical instrument having a head formed with an arcuate shaped configuration, the concave side of said head having a longitudinally extending groove formed therein and the lateral edges of said head forming incise blade edges, comprising the steps of making a transverse incision in the scrotal sac of the patient adjacent to the location of the vas deferens therein, inserting the distal end of said surgical instrument through the incision and into the scrotal sac for location of the arcuate head beneath and medial to the vas deferens, laterally shifting said head after it has been inserted beneath and medial to the vas deferens to disengage therefrom the connective tissue encountered, lifting the vas deferens from underneath by the surgical instrument until it is accessible for the severing thereof by a blade of a cutting instrument wherein the concave side of the arcuate head of said surgical instrument is utilized as a base, and the groove in said concave side is used as a guide for said cutting instrument in the severing of said vas deferens, ligating the cut ends of said vas deferens, returning the ligated ends of the vas deferens to the scrotal sac and closing the incision thereof by suturing.

5. A surgical instrument for use in a vasectomy procedure, comprising a handle and a head mounted on said handle, said head including a body portion having a generally arcuate configuration that in cross-section is formed with sloping side surfaces that junction at an end to generally define an apex, the concave inside of said arcuate body portion having a planar surface that cooperates with said side surfaces to form lateral edges that define incise blade edges for separating connective tissue in the scrotal sac from the vas of a patient when the head is located beneath the vas and shifted laterally during the vasectomy procedure, said body portion terminating in a pointed distal end, and the planar surface formed on the concave inside of said body portion forming a base for a cutting instrument in severing the vas during the vasectomy procedure.

6. A surgical instrument as set forth in claim 5, said head having a socket portion formed thereon that is located adjacent to said body portion, said handle terminating at one end in a shank that is received in said socket portion for removably mounting said head on said handle.