NO-SCALPEL VASECTOMY

An Illustrated Guide for Surgeons

Second Edition

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First edition printed 1992

This publication was made possible, in part, through support provided by the Office of Population, U.S. Agency for International Development (AID) under the terms of cooperative agreement CCP-3068-A-00-3017-00. The opinions expressed herein are those of the publisher and do not necessarily reflect the views of AID.

Printed in the United States of America

Figures 1, 5, 6, 10, and 29 are adapted from "The No-Scalpel Vasectomy" by S. Li, M. Goldstein, J. Zhu, and D. Huber, *The Journal of Urology*, 1991, vol. 145, pp. 341-344. Used by permission.

Figures 4, 8, and 9 are adapted from "External Spermatic Sheath Injection for Vasal Nerve Block" by P. S. Li, S. Li, P. N. Schlegel, and M. Goldstein, *Urology*, 1992, vol. 39, pp. 173-176.

The two figures that appear in the section "Alternative" on page 40 are based on drawings provided by Dr. Apichart Nirapathpongporn. Used by permission.

Library of Congress Cataloging-in-Publication Data

No-scalpel vasectomy: an illustrated guide for surgeons / Betty Gonzales et al.; illustrations by David Rosenzweig.—2nd ed.
p. cm.
Includes bibliographic references.
ISBN 0-9604536-6-0
1. Vasectomy. I. Gonzales, Betty.
[DNLM: 1. Vasectomy—methods. 2. Preoperative care—methods. 3. Anesthesia—methods. WJ 780 N739 1997]
RD585.5.N6 1997
617.4'63—dc20
DNLM/DLC
for Library of Congress

96-36490
CIP

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Preface to the Second Edition

Vasectomy has long been a safe, effective, easy-to-perform method of contraception for men. Throughout its history, people have been trying to find ways to make the procedure simpler. In 1974, Dr. Li Shunqiang developed the NSV technique, and in 1986, AVSC, in cooperation with Dr. Li, began to introduce the technique to the rest of the world.

AVSC first published *No-Scalpel Vasectomy: An Illustrated Guide for Surgeons* in 1992. The manual has since become AVSC's most successful publication, with thousands having been distributed. Meanwhile AVSC has trained doctors in over 35 countries in the NSV technique. In the United States alone, over 600 doctors have been directly trained by AVSC, and hundreds more have been trained by those we trained. A recent unpublished survey showed that nearly a third of all vasectomies in the U.S. are now performed using the NSV technique.

Because of the ongoing demand for this publication, we are publishing this second edition. We have made changes to the illustrations to provide a more detailed representation of the anatomy and to make the manual even more user-friendly. In addition, we have made a few corrections to clarify material and remove inconsistencies in the text. We have also included, as an appendix, eligibility criteria for vasectomy published by the World Health Organization in 1996. What we now have is an even more timely version of an already terrific book.

However, as good as it is, we continue to feel that this book alone is not sufficient preparation to perform NSV. We strongly recommend that those who are interested in the technique get hands-on

training from a skilled provider. In addition to the second edition of this guide, AVSC has also published a training curriculum for NSV. For information about the curriculum or about training in NSV, contact AVSC at: 212-561-8000 (phone); info@avsc.org (e-mail); or *http://www.avsc.org* (World Wide Web).

I believe that this revised guide will continue to be an important resource for making vasectomy more accessible and acceptable throughout the world.

Charles S. Carignan, M.D.
Medical Director, AVSC International

Foreword

Vasectomy is widely accepted as a safe, effective, simple, and inexpensive method of permanent contraception for men. During the last 30 years, a variety of vasectomy techniques have been developed and used in countries around the world. This book describes the no-scalpel vasectomy, a technique introduced in China in 1974 and used in other countries since 1986.

Men in many parts of the world are becoming increasingly interested in no-scalpel vasectomy. More and more doctors are seeking instruction in the technique. This book is particularly timely because training programs in no-scalpel vasectomy are increasing rapidly.

In addition to serving as a step-by-step guide to the procedure, this book also reviews basic medical and surgical practices that are essential to ensure the safety and effectiveness of any vasectomy procedure. Doctors using either no-scalpel vasectomy or conventional techniques will find this guide to be a helpful reference. It can be used regardless of the occlusion technique employed, and it can play an important role in training.

This book is the result of the hard work of Betty Gonzales, Shelby Marston-Ainley, Gilberte Vansintejan, Philip Shihua Li, and others. My compliments to them. I believe the book will help to make vasectomy more available and acceptable to men around the world.

Dr. Li Shunqiang
Director, Chongqing Family Planning
Scientific Research Institute

Acknowledgments

This book was written by Betty Gonzales, R.N., Shelby Marston-Ainley, B.S.N., M.S., Gilberte Vansintejan, R.N.C., M.P.H., Ed.D., and Philip Shihua Li, M.D. Betty Gonzales is the former deputy director of the Medical Division, AVSC International. Shelby Marston-Ainley is the former assistant director for AVSC's National Division. Dr. Vansintejan is the former medical technology advisor for AVSC's Medical Division. Dr. Philip Shihua Li, a consultant to AVSC, was research investigator for the Population Council when this book was written. He is now director of microsurgical training at the Center for Male Reproductive Medicine, Department of Urology, Cornell University Medical College in New York. Dr. Philip Shihua Li has performed over 5,000 no-scalpel vasectomy procedures and is a former student and coworker of Dr. Li Shunqiang, the originator of the no-scalpel technique.

The illustrations that appear in this book were created by David Rosenzweig.

Many individuals and organizations contributed to this book. AVSC expresses special thanks to Dr. Li Shunqiang, director of the Chongqing Family Planning Scientific Research Institute, who originated the technique: Dr. Li provided unwavering support for the development of this guide and constructive comments about its content.

AVSC is grateful to the expert team who visited China in 1985 and first brought word of the no-scalpel vasectomy to other countries. They were Dr. Mahmoud Fathalla, Egypt; Dr. Phaitun Gojaseni, Thailand; Dr. Marc Goldstein, United States; Dr. Douglas Huber, United States; Dr. Jack Lippes, United States; Keekee Minor, United States; Dr. Mary Rauff, Singapore; and Dr. John Sciarra, United States.

Terrence W. Jezowski, chief operating officer for AVSC, provided the impetus needed to get the book produced. Lynn Bakamjian, director of field operations, developed the proposal for the project.

The following persons read the manuscript and provided helpful suggestions: Dr. Arnold M. Belker, United States; Dr. Joseph E. Davis, United States; Dr. Marcos Paulo de Castro, Brazil; Dr. Jesús de los Rios, Colombia; Dr. Richard Fadil, United States; Dr. Marc Goldstein, United States; Hugo Hoogenboom, United States; Dr. Stuart S. Howards, United States; Dr. Douglas Huber, United States; Dr. Arnoldo Kormes, Brazil; Dr. Apichart Nirapathpongporn, Thailand; Dr. T. Rand Pritchett, United States; Dr. David Stockton, United States.

Dr. Amy E. Pollack, president of AVSC; Libby Antarsh, regional director of AVSC programs in Central Asia, Eastern Europe, and Russia; and Dr. Zein Khairullah, senior associate in AVSC's Medical Division, also reviewed the manuscript.

Dr. Charles Carignan, AVSC's medical director, was responsible for all revisions for the second edition of this book. Pamela Beyer Harper, AVSC's director of communications, edited the guide. Renée A. Santhouse designed the book.

The following AVSC staff members participated in the design and production of the second edition: Joanne Tzanis, managing editor; Anna Kurica, production coordinator; Stephanie Greig, graphics specialist; and Margaret B. Baynes, trafficking specialist. AVSC consultants Brandt Reiter, Margaret Scanlon, and Tiina Aleman assisted in final production.

Funding for this book was provided by the United States Agency for International Development and by individual AVSC members.

NO-SCALPEL VASECTOMY

An Illustrated Guide for Surgeons

Second Edition

Introduction

The purpose of this guide is to provide physicians with an easy-to-use reference for learning about the no-scalpel approach for vasectomy. This book provides a detailed description of each step of the approach, plus drawings illustrating the various steps. Physician-trainees may use it during their training for study and for later reference to further develop proficiency in the technique. Trainers who are using AVSC's *No-Scalpel Vasectomy Curriculum* to teach the technique to other physicians will use this guide as a reference text.

The guide has been designed primarily to assist two audiences: (1) experienced vasectomists around the world who want to change from the traditional incisional technique to the no-scalpel approach and (2) doctors who have never performed vasectomy and who want to begin to provide vasectomy services using the no-scalpel technique.

The no-scalpel vasectomy is a refined approach for isolating and delivering the vas that uses vasal block anesthesia; it requires unique surgical skills, including new ways to handle special instruments. With the no-scalpel technique, the surgeon may use any of the standard methods of occlusion that he or she prefers (see pages 45–47). Because of the innovative features of no-scalpel vasectomy, AVSC International recommends that any doctor interested in learning the approach receive hands-on training with a well-qualified and experienced trainer.

Hands-On Training Recommended

From field experience in the United States, AVSC has learned that even experienced vasectomists have difficulty teaching themselves the no-scalpel technique. Manipulating the special instruments requires manual skills and eye-hand coordination that are different from those used in conventional vasectomy. The skills can be learned with hands-on, supervised training, but even then take time and practice to master.

A case in the United States illustrates the need for hands-on training. A group of experienced vasectomists attended a one-day group orientation on no-scalpel vasectomy that consisted of a lecture, observation of the procedure, and limited practice with a scrotal model. They then received the special no-scalpel instruments and returned to their practices to begin using the technique. Three months later, an AVSC trainer evaluated the physicians' operating performance. The doctors understood and performed key elements of the procedure adequately; they stated that they had mastered about 80% of the technique without hands-on instruction. Yet the procedures observed by the trainer still resulted in too much bleeding; benefits of the no-scalpel technique were therefore diminished. Consequently, the AVSC trainer provided hands-on training to help the surgeons fully master the no-scalpel technique.

History of No-Scalpel Vasectomy

No-scalpel vasectomy was developed and first performed in China in 1974 by Dr. Li Shunqiang of the Chongqing Family Planning Scientific Research Institute, located in Sichuan Province. At that time, vasectomy was unpopular with Chinese men, and tubal occlusion was the predominant method of voluntary sterilization. Today in Sichuan, vasectomy outnumbers tubal occlusion by a ratio of five to one; in the rest of China, tubal occlusion outnumbers vasectomy by three to one. Over 9 million Chinese men have already undergone no-scalpel vasectomy.

Under the sponsorship of AVSC International, an international team of experts visited Dr. Li Shunqiang in 1985 and observed his refined vasectomy technique. They were convinced that the technique should become the standard approach for vasectomy. One of the team members, Dr. Phaitun Gojaseni, introduced the no-scalpel technique in Thailand upon his return, while another member of the team, Dr. Marc Goldstein, performed the first no-scalpel vasectomy in the United States.

Based upon the findings of the international team, AVSC recommended that training in the no-scalpel approach to the vas should be provided to doctors in other countries and that this would be facilitated if the instruction could take place outside of China. AVSC's initial work in no-scalpel vasectomy focused on

experienced vasectomists in large on-going vasectomy services (Huber, 1989). In 1986, Dr. Li Shunqiang and Dr. Goldstein traveled to Bangkok to work with experienced vasectomists from Bangladesh, Nepal, Sri Lanka, and Thailand. Dr. Apichart Nirapathpongporn of Thailand was trained at this time. Dr. Goldstein and Dr. Apichart then trained other surgeons in their home countries. Clinical training then expanded to other countries. In several countries in Africa, where vasectomy is just being introduced, doctors who have never performed vasectomy are now being trained only in the no-scalpel technique.

Clinical Findings

Clinical reports from practitioners attest that no-scalpel vasectomy is less invasive than the conventional technique, causes fewer complications, and can take less time as the surgeon's skill develops. Because there is no incision, no-scalpel vasectomy is believed to decrease men's fears about vasectomy (Antarsh, 1988).

Table 1 describes the low complication rates of no-scalpel vasectomy in a study of over 170,000 cases in China. By contrast, Table 2 describes complication rates in 65,155 cases using the conventional vasectomy approach in the United States.

A study in Thailand compared the no-scalpel approach to the conventional technique *(Table 3)*. The complication rates were 0.4 per 100 cases for no-scalpel vasectomy and 3.1 for the incisional approach.

TABLE 1 Short-term complications after no-scalpel vasectomy, China

Source of data	# of cases	Hematoma		Infection	
		No. of cases	Rate[a]	No. of cases	Rate[a]
8 provinces	179,741	160	0.09	1,630	0.91

[a] Per 100 cases

SOURCE: Li et al., 1991

TABLE 2 Reported complications after conventional vasectomy, United States, 1982

Complication	Rate[a]
Hematoma	1.95
Infection	3.48

[a] Per 100 vasectomies; 65,155 cases

SOURCE: Kendrick et al., 1987

In a series of 238 no-scalpel vasectomies performed at the New York Hospital-Cornell Medical Center in the 1980s, there were no cases of either hematoma or infection (Li et al., 1991).

AVSC has been collecting data from surgeons in the United States who have attended AVSC-sponsored training programs in no-scalpel vasectomy and who have adopted the technique. As of September 1991, 111 surgeons had performed over 7,700 no-scalpel procedures. Over 80% of those doctors reported that the no-scalpel technique involves less bleeding than conventional vasectomy. Over 70% said that men undergoing no-scalpel vasectomy experience less pain during and after surgery than do men undergoing conventional vasectomy.

TABLE 3 Comparison of no-scalpel vasectomy and conventional incisional approach, Thailand, 1987

Method	Cases	Complications	
		Number	Rate[a]
No-scalpel	680	3[b]	0.4
Incisional	523	16[c]	3.1

[a] Per 100 cases

[b] 2 cases of hematoma; surgical drainage not required
1 case of infection

[c] 9 cases of hematoma; 2 required admission to the hospital for surgical drainage
7 cases of infection

SOURCE: Nirapathpongporn et al., 1990

1 Facilities

Vasectomy can be performed in almost any facility. There are a few minimum requirements to providing high-quality services:

- A waiting area with a toilet (the waiting area may also serve as a recovery area)
- A private space for counseling
- An examination room for the preoperative assessment and follow-up examination
- A clean room for surgery, equipped with a comfortable, clean table for the client and a good light source

In most countries, no-scalpel vasectomy, like conventional vasectomy, is an outpatient procedure performed in an office or clinic.

Warm Room Temperature Needed to Relax the Scrotum

The temperature of the room is *critical* because it affects the cremasteric and the dartos muscles. The room must be warm, even though a cooler temperature may be more comfortable for the physician.

By relaxing the scrotum, a warm room facilitates the following:

- Manipulation of the vas by using the three-finger technique (see pages 19-20 and 23-24 for a description)
- Fixation of the vas under the median raphe of the scrotum
- Isolation of the vas from the relaxed spermatic cord
- Reduction of operating time
- Reduction of complications

The temperature of the operating room should be at least 70-80 degrees F (approximately 20-25 degrees C). If additional warmth is needed to relax the scrotum, a heat lamp or warm towels may be used.

2 Instruments and Supplies

The no-scalpel technique requires two instruments specially designed by Dr. Li Shunqiang.

1 The extracutaneous ringed forceps is a type of clamp used to fix the vas deferens *(Fig. 1)*. For the sake of clarity, the term **ringed clamp** will be used throughout this manual. Throughout the operation, the surgeon uses the ringed tip of this instrument to encircle and to grasp the vas, without injuring the skin. The clamp grasps the vas both extracutaneously and directly. This instrument comes in three ring sizes: 3.0 mm, 3.5 mm, and 4.0 mm. These different diameters accommodate different thicknesses of vasa and scrotal skin.

FIGURE 1 Ringed clamp

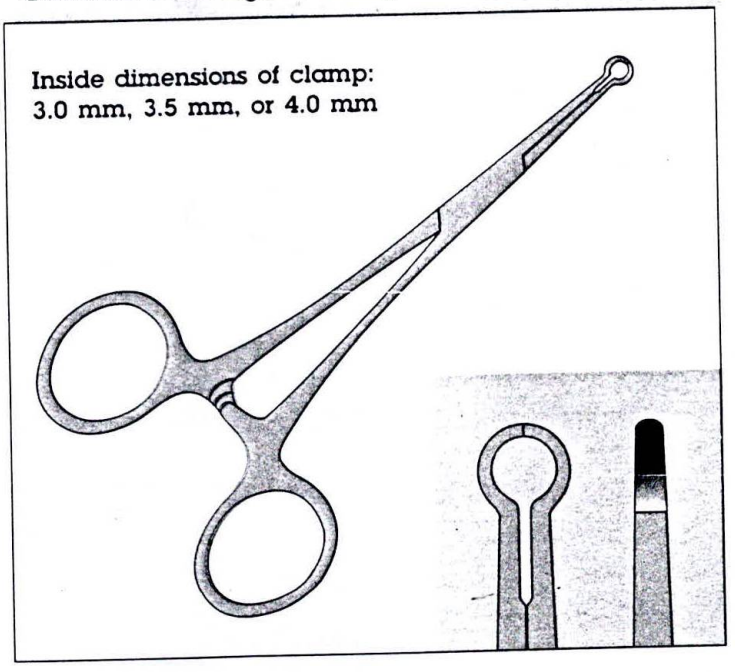
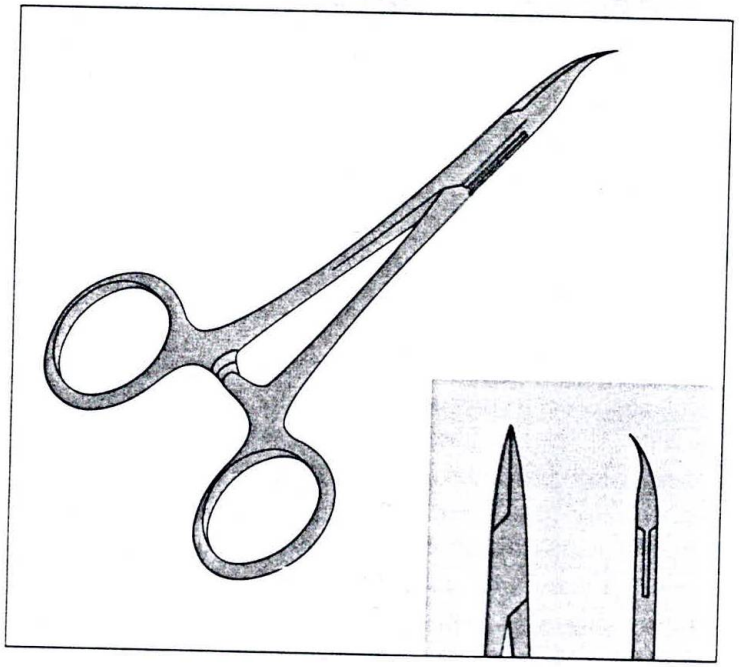


FIGURE 2 Dissecting forceps



2 **The dissecting forceps** *(Fig. 2)* is similar to a curved mosquito hemostat, except that the tips are sharply pointed. It is used to puncture the scrotal skin, to spread the tissues, to dissect the sheath, and to deliver the vas deferens. The dissecting forceps can also be used to grasp the vas while a ligature or cautery is applied for occlusion. Because the instrument is a modified hemostat, it can be used to control bleeding. Throughout this manual, the term **dissecting forceps** will be used to refer to this instrument.

Additional instruments and supplies needed for no-scalpel vasectomy are:

- A 10-cc syringe with a 1½-inch, 25- or 27-gauge needle (U.S. system). The syringe and needle are used to infiltrate the local anesthetic, both for the skin wheal and the vasal block anesthesia (see Chapter 4).
- Straight scissors, to cut the vasa deferentia and ligatures.
- Supplies for vasal occlusion (for example, ligature material or a cautery unit).

Table 4 presents a complete list of instruments and supplies needed for no-scalpel vasectomy.

TABLE 4 Instruments and supplies needed for no-scalpel vasectomy

Instruments
• Ringed clamp
• Dissecting forceps
• Straight scissors
Supplies
• Rubber band or adhesive tape and gauze for positioning the penis away from the surgical field (optional)
• Razor or scissors for removing any scrotal hair in the small operative area
• Soap and water or antiseptic agents for the surgical scrub *(see page 15)*
• Alcohol rinse (recommended if plain soap is used for the surgical scrub)
• Sterile gloves
• Nonirritating antiseptic solution for cleaning the operative area *(see page 14)*
• Sterile drapes
• 10-cc syringe with a 1½-inch, 25- or 27-gauge needle (U.S. system)
• 1% or 2% lidocaine without epinephrine[a]
• Supplies for vasal occlusion according to the surgeon's preference (examples: a cautery unit; chromic catgut or nonabsorbable silk or cotton for ligation)
• Sterile gauze
• Adhesive tape or Band-Aid for dressing the wound
• Scrotal support for the man to wear after the procedure (optional)

[a] Synonyms and proprietary names for generic terms used in this book are given below. Proprietary names are in brackets:

lidocaine = lignocaine = [Xylocaine]
epinephrine = adrenaline

3 Preoperative Preparation

Counseling and Informed Consent

Before any vasectomy is performed, the client must receive appropriate information and counseling and give his informed consent. Before performing the procedure, check again with the client to be sure he wants no more children and wishes to proceed with the sterilization procedure.

Preoperative History and Examination

The preoperative history and examination may be done on the day of surgery or a few days before. A medical history should be taken. The preoperative physical includes examination of the local operative area and other examinations and tests as indicated. Laboratory tests are usually not necessary, but if you suspect any clinical abnormality, you will need access to basic laboratory facilities or to a referral center for laboratory examinations. Local skin infections or genital tract infections must be treated before vasectomy is performed.

The following are conditions requiring a delay or special precautions:*

- Local infection (including scrotal skin infection, active STD, balanitis epididymitis, or orchitis)
- Systemic infection or gastroenteritis
- Large hydrocele
- Filariasis: elephantiasis
- Local pathological condition (for example, inguinal hernia, adhesions, scrotal mass)
- Bleeding disorders
- AIDS (HIV positive without AIDS is not a concern)

Many of these conditions can be treated, after which vasectomy can be performed. In cases where there is increased risk, you and the client must weigh the risks of the procedure against its benefits.

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*See Appendix A for the WHO eligibility criteria for vasectomy procedures.

Preparing the Client for Surgery

Before surgery, the man washes his genital area thoroughly with soap and water. During surgery, he wears clean clothing or a surgical gown. The man lies comfortably in a supine position on the table, possibly with a small pillow under his head.

Securing the Penis

To make the operation easier to perform, position the penis away from the operative field. Put the penis in a 12 o'clock position on the man's abdomen, so that the median raphe is clearly visible. If it is anchored comfortably in place, the penis will stay draped under the sterile linen.

Dr. Li Shunqiang uses a rubber band to position the penis away from the surgical field *(Fig. 3)*. To do this, he makes a loop in the rubber band as shown in the illustration and places the loop around the glans. The loop is just tight enough to hold the penis in position, without being uncomfortable for the man. He secures the other end of the band to the man's shirt or gown with a clip.

Some physicians secure the penis on the abdomen with tape and gauze, but this method may have the disadvantage of pulling the hair when the tape is removed.

If you believe that the scrotal hair is obstructing the small operative area, shave or clip it while the patient lies on the table.

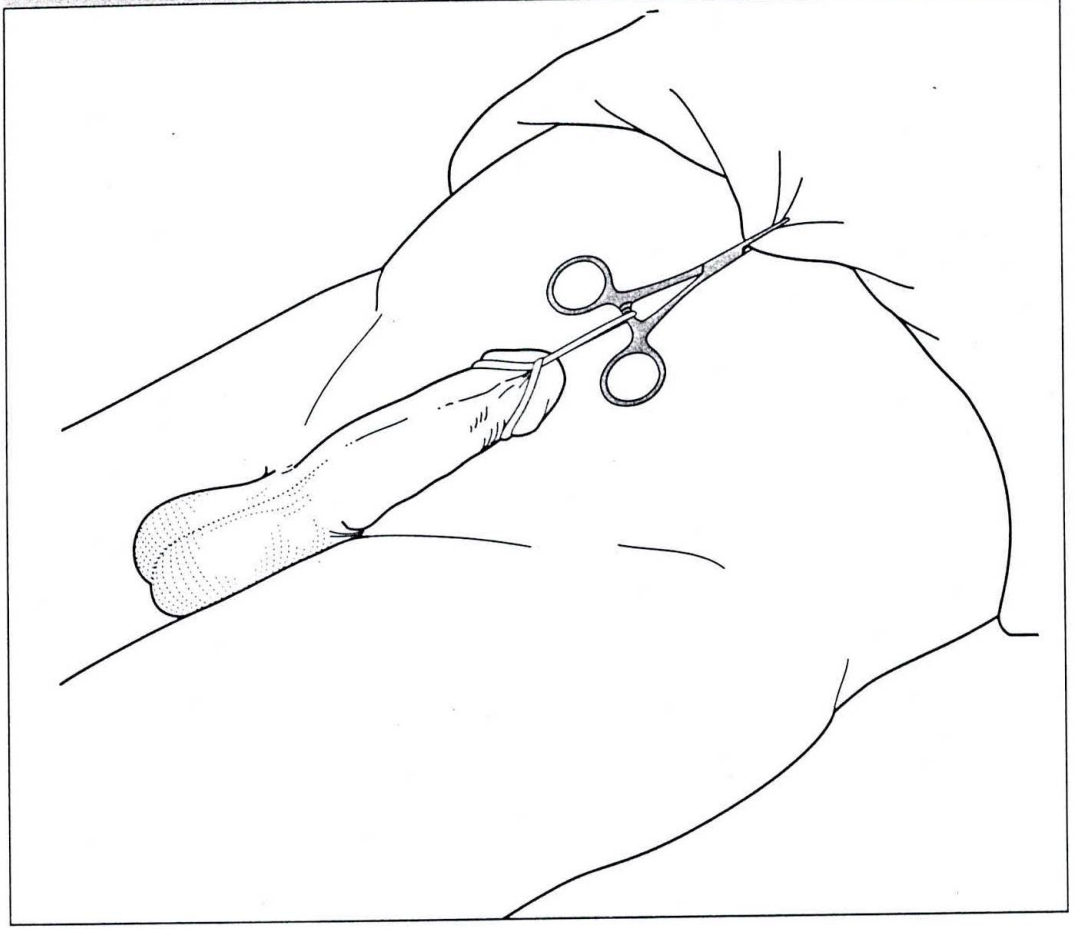
Cleaning the Operative Area

Before cleaning the area, examine the scrotal area. Palpate the scrotum and vasa to assess the thickness of the scrotal skin and the diameter of the vasa.

Gently wash the scrotum with a warm antiseptic solution. Be sure to cleanse the area under the scrotum where your fingers will be placed. Also scrub the lower abdomen, the lower part of the penis, and the upper thighs. Warmed Betadine (povidone iodine) or chlorhexidine are the preferred agents. In hot climates, solutions at room temperature are usually adequate.

HINT: In cool climates, it may be necessary to warm the antiseptic solution.

FIGURE 3 Securing the penis



The Surgical Scrub

No-scalpel vasectomy is a minor surgical procedure that requires aseptic procedures to prevent infection.

Wash and scrub your hands and forearms either with soap and water or preferably with antiseptic agents (chlorhexidine, Betadine, or hexachlorophene). Use a brush on all surfaces and under the fingernails. An alcohol rinse is recommended when plain soap and water are used for the scrub.

Wear a clean shirt or apron. A sterile gown, cap, and mask are optional.

Wear sterile surgical gloves. Change gloves between each case. If scrubbing is not feasible between each case because of the risk of skin irritation, scrub for

three minutes every hour or at least after every four or five cases (whichever comes first) to prevent recolonization of the skin.

Draping the Operative Field

Cover the prepared area with a sterile fenestrated drape, and lift the scrotum through the drape's small window. A set of towels can be used as an alternative to the drape.

The window should be small enough to allow only the scrotum to be isolated. Everything else, from the client's chest to his knees, should be covered.

Also, cover a small instrument table with sterile drape.

Optional: Administering a Preoperative Tranquilizer

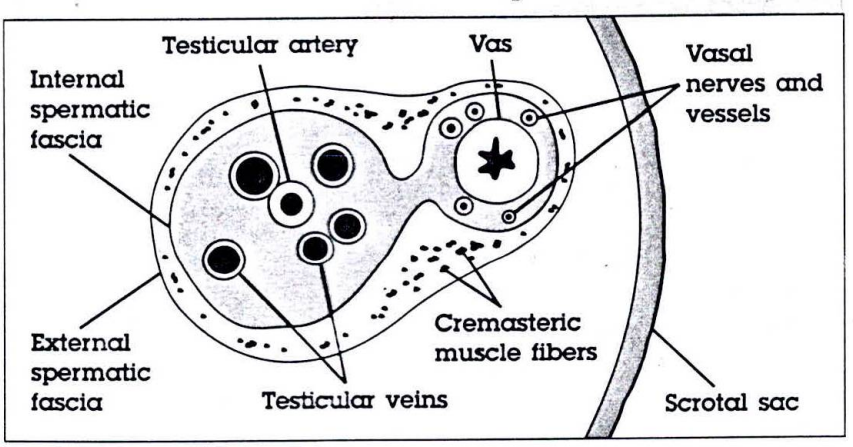
HINT: Some doctors in the United States have found that oral tranquilizers administered preoperatively relax the muscle fibers of the scrotum, thus allowing the scrotal skin to be as thin as possible during vasectomy. This suggestion is particularly relevant for extremely nervous clients.

4 Anesthesia

Good local anesthetic technique is essential for a painfree vasectomy. It also prevents local hematoma and injury to the testicular vessels, which may result from multiple blind injections. Dr. Li Shunqiang's anesthesia procedure, which is described below, achieves both of these objectives and also has several other advantages. The technique, which involves a deep injection alongside the vas, creates a vasal nerve block. Conventional techniques anesthetize only the area around the skin-entry site. Injection of the anesthetic away from the vasectomy site in the direction of the inguinal ring helps make skin entry easier. Care is taken when injecting the lidocaine to keep the needle away from the internal spermatic fascia that encloses the testicular artery and veins *(Fig. 4)*. Because the surgeon makes only a single needle puncture and one smooth injection for each vas, the risk of bleeding is reduced.

Of 111 U.S. surgeons reporting to AVSC in 1991, 78 (70%) said they believed patients undergoing no-scalpel vasectomy with vasal block anesthesia experienced less operative pain than did patients undergoing conventional vasectomy.

FIGURE 4 Cross section of the spermatic cord



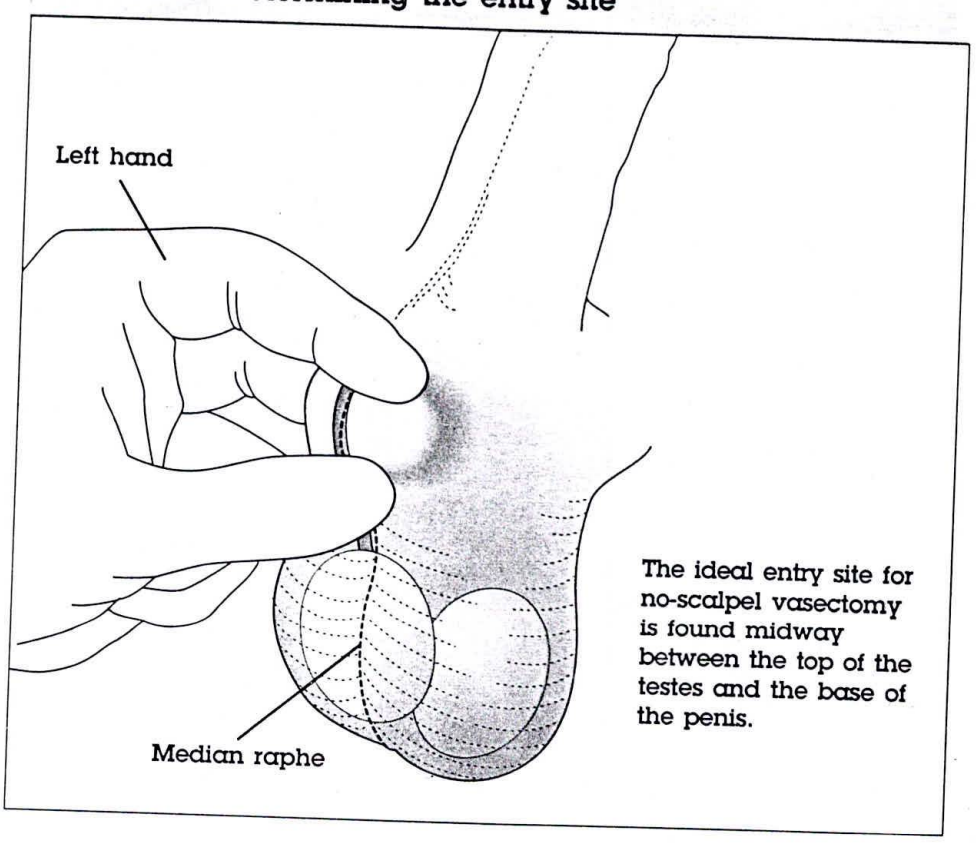
NOTE: The following instructions and accompanying illustrations are for the right-handed operator. Some left-handed operators report that they have found it helpful to use a mirror when viewing illustrations designed for right-handed operators.

Preparing for Anesthesia; Selecting the Anesthetic and Supplies

Prepare a 10-cc syringe with 1% or 2% lidocaine without epinephrine; this amount should be sufficient for skin wheal and vasal block anesthesia in most clients. Attach a 1½-inch, 25- or 27-gauge needle to the syringe.

Epinephrine is not recommended because it contracts the blood vessels and results in less apparent bleeding at the time of surgery. It is best to be able to detect and control all bleeding *during* surgery in order to prevent hematoma formation after the man leaves the surgical facility. If the lidocaine does not contain epinephrine, small bleeding sites are more likely to be detected and controlled during surgery.

FIGURE 5 Determining the entry site

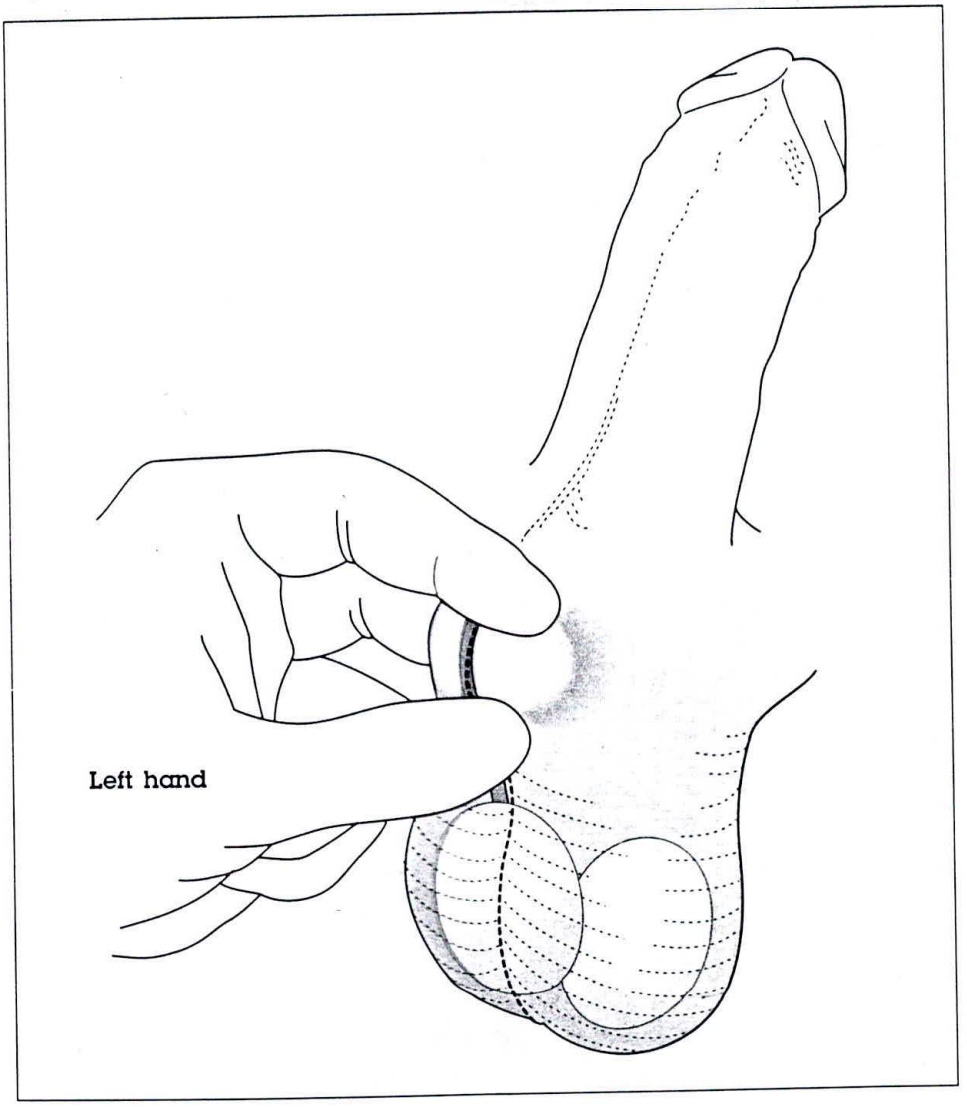


The ideal entry site for no-scalpel vasectomy is found midway between the top of the testes and the base of the penis.

The Three-Finger Technique: Isolating the Right Vas

If you are right-handed, stand on the client's right side (if you are left-handed, stand on the client's left side). Place your left thumb approximately midway between the top of the testes and the base of the penis on the median raphe *(Fig. 5)*. With the middle finger of your left hand under the scrotum, palpate the vas and sweep it toward the raphe beneath your thumb. Hold the vas in position between the thumb and middle finger while placing your left index finger on top of the scrotum slightly above the thumb *(Fig. 6)*. Note that your fingers should be perpendicular to the vas. You will have created a "window" between your thumb and index

FIGURE 6 The three-finger technique: Isolating the right vas



finger through which you will make the puncture. Upward pressure from the middle finger, combined with downward pressure exerted by the index finger, creates a bend in the vas for easier entry. Maintain the three-finger hold as you anesthetize the right side.

Raising the Skin Wheal

The needle entry site is at the midline, over the vas deferens midway between the thumb and index finger. Use only the tip of the needle to raise a superficial skin wheal, 1 to 1½ cm in diameter *(Fig. 7)*. To raise the skin wheal, hold the syringe at approximately a 5- to 15-degree angle *(Fig. 8)*, with the needle bevel facing up. Inject lidocaine into the dermis and subcutaneous tissues; 0.5 cc is usually adequate.

FIGURE 7 Raising the skin wheal

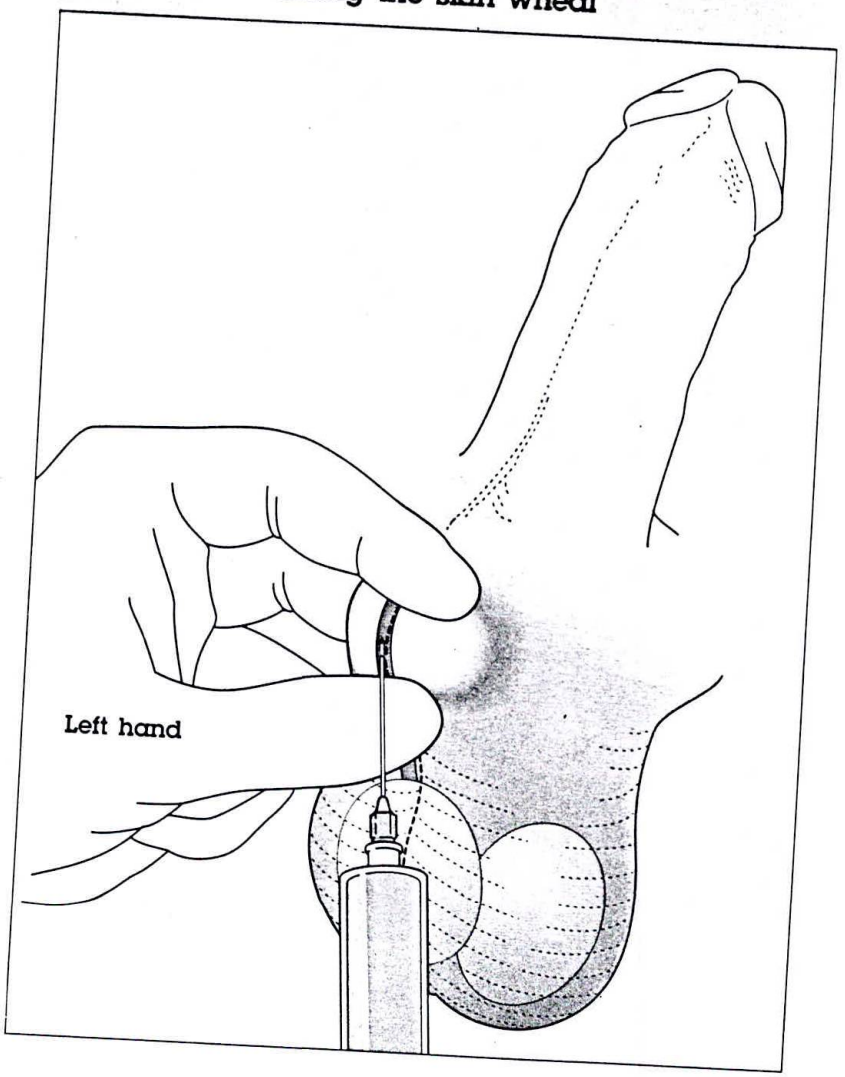
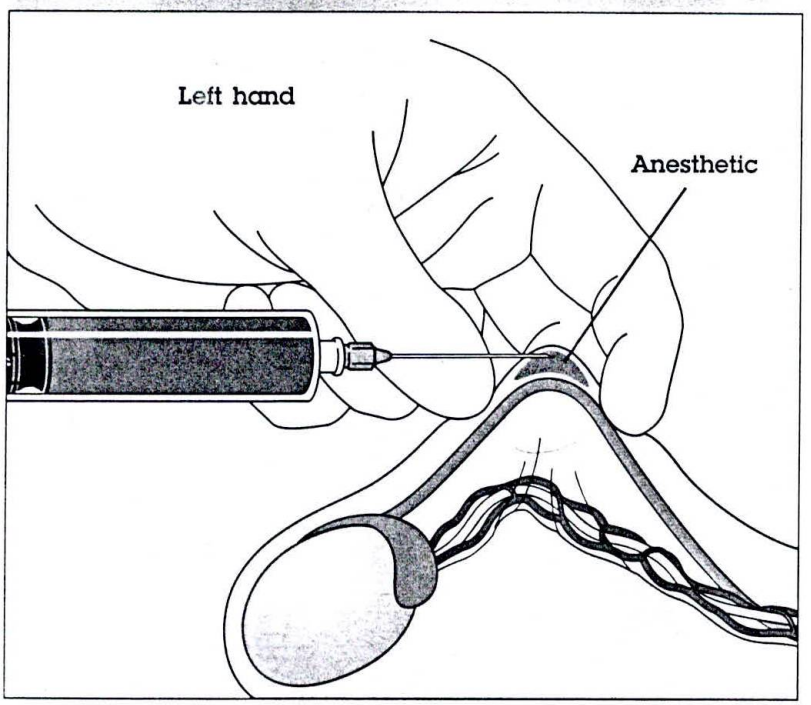


FIGURE 8 Side view of the skin wheal



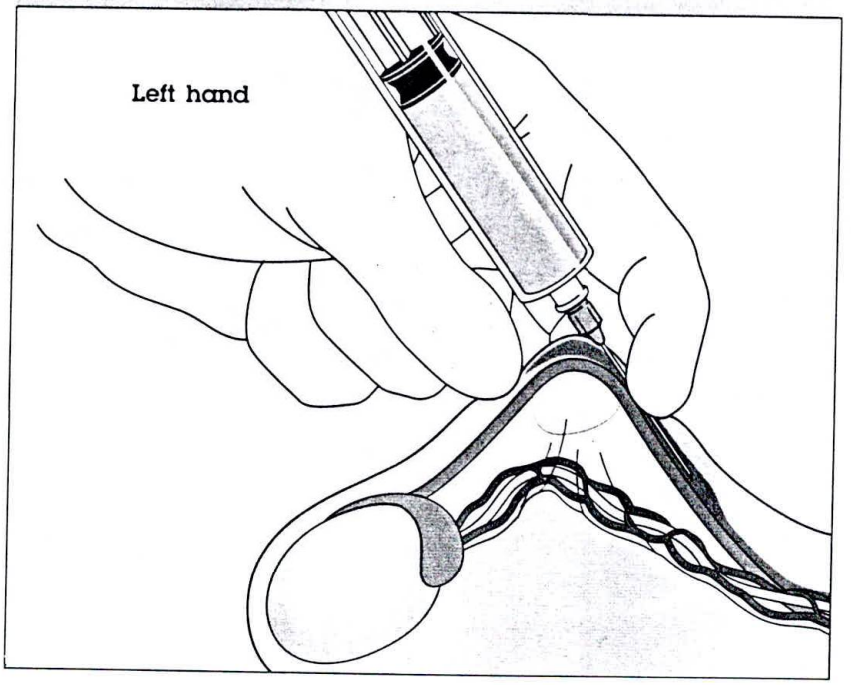
PITFALLS: Avoid two pitfalls when raising the skin wheal. First, do not inject the lidocaine too deeply. At this point in the procedure, you are anesthetizing only the scrotal skin. In the next step, you will create a vasal block that will anesthetize deeper tissues. Second, to avoid swelling around the vas at the puncture site, do not inject more than 1 cc of lidocaine. A persistent wheal will prevent the ringed clamp from closing properly around the vas.

Creating the Vasal Block: Right Vas

Creating a vasal block is a critical difference from the way anesthesia has been traditionally administered for vasectomy. The steps described below create a vasal nerve block away from the operative site.

After making the superficial skin wheal, advance the needle parallel to the vas within the external spermatic fascial sheath toward the inguinal ring *(Fig. 9)*. Advance the full length of the needle, 1½ inches, without releasing any of the anesthetic. **Gently aspirate to ascertain that the needle is not in a blood vessel.** Slowly inject 2 to 5 cc of lidocaine within the external spermatic fascial sheath around the right vas deferens.

FIGURE 9 Advancing the needle parallel to the vas within the external spermatic fascial sheath toward the inguinal ring



HINT: When the needle is in proper position and the injection is performed inside the external spermatic fascia, there is no resistance to the injection.

Remove the needle from the right sheath; do not inject lidocaine while withdrawing the needle.

The Three-Finger Technique: Isolating the Left Vas

Anesthetize both sides before entering the scrotum and occluding the right vas.

HINT: To hold the client's left vas in the three-finger grip while standing on his right side, you will be more comfortable if you take a step towards the client's head and turn a bit to face his feet. To approach the vas from this lateral position, reach across the man's abdomen with your left hand.

The next step will be to position the left vas under the anesthetized puncture site. To do this, begin by placing your thumb in the upper third of the scrotum while the index finger is in the middle third (this is different from the three-finger hold on the right side). As with the right side, position the middle finger beneath the scrotum to identify the vas and sweep it to the puncture site. Once again, use the middle finger to elevate the vas, while your thumb and index finger press downward to create a bend in the vas at a point directly under the puncture site. Now, however, the thumb is superior to the index finger *(Fig. 10)*. Note the differences between Figures 6 and 10.

For a right-handed operator, isolating the left vas may be more difficult and awkward than the right vas. It may take time and practice to master. A left-handed operator will need to reverse these positions and thus may find isolation of the right vas more difficult.

FIGURE 10 The three-finger technique: Isolating the left vas

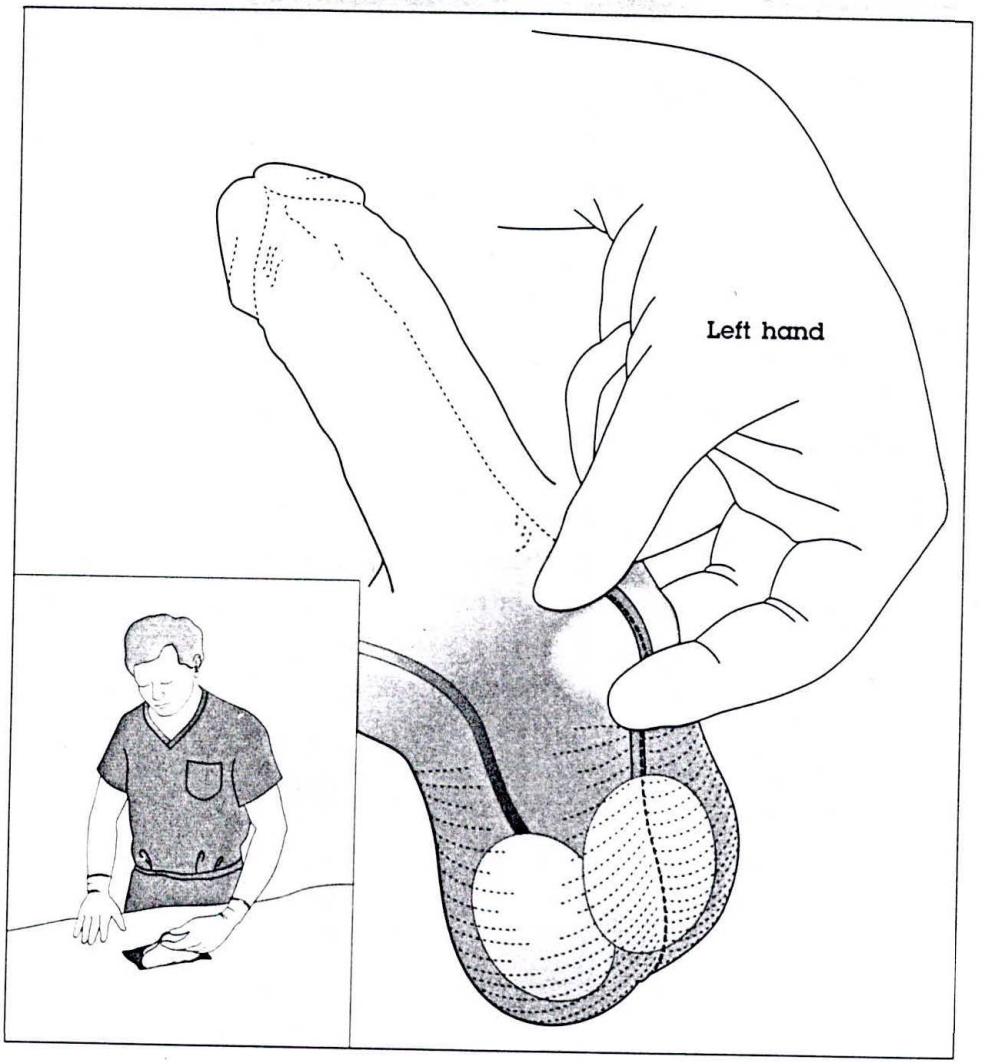
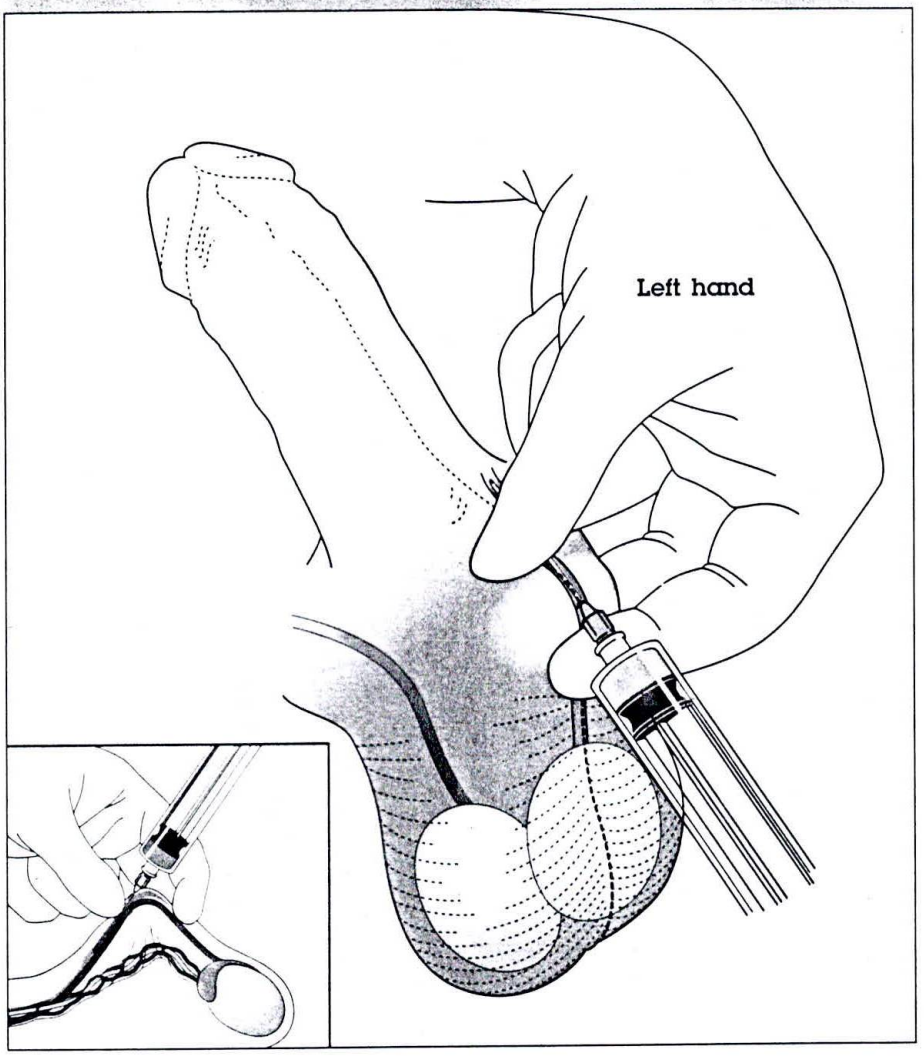


FIGURE 11 Anesthesia technique: Deep infiltration of the left vas

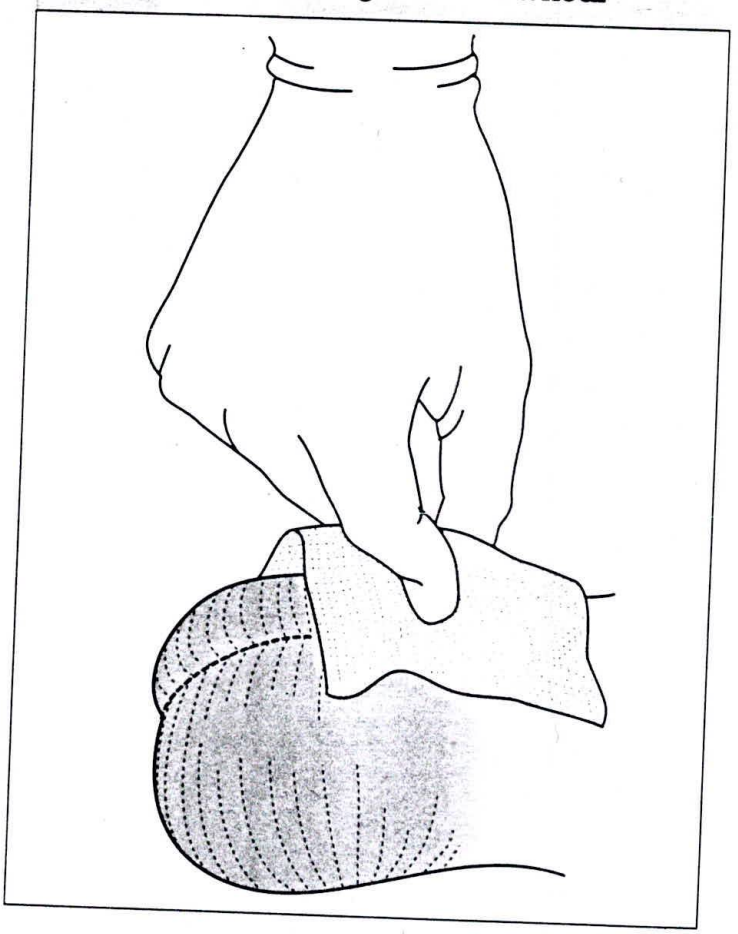


Creating the Vasal Block: Left Vas

Reintroduce the needle through the same hole previously used; a second skin wheal is not needed. Advance the needle parallel to the left vas into the external spermatic fascia *(Fig. 11)*. As with the right vas, inject 2 to 5 cc of lidocaine within the external spermatic fascial sheath around the left vas deferens.*

*The total administered dose of 1% lidocaine should not exceed 20 cc (*Physician's Desk Reference*, 1991).

FIGURE 12 Pinching the skin wheal



Pinching the Skin Wheal

After removing the needle, gently pinch the skin wheal between the thumb and forefinger for a few seconds to reduce the size of the skin wheal and to soften and thin the local tissues *(Fig. 12)*.

PITFALL: Remember, a persistent wheal will prevent the ringed clamp from closing properly around the vas; gentle compression helps to reduce the size of the wheal.

If the Man Feels Pain After Surgery Begins . . .

If 2 to 5 cc of lidocaine has been injected into each side and the man still feels pain when the surgical procedure begins, repeat the vasal block on the painful side. Do not raise another skin wheal.

5 Surgical Approach and Occlusion of the Vasa

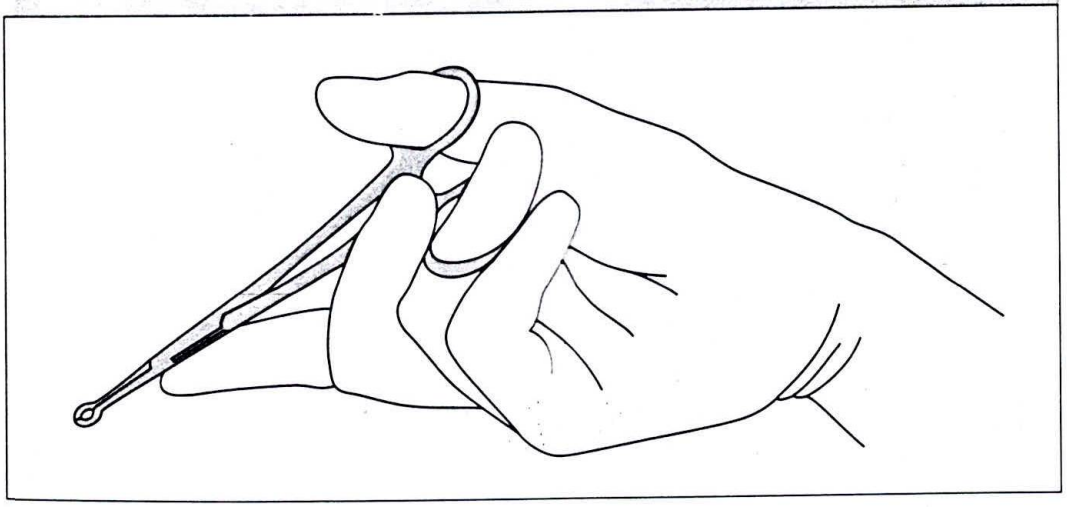
Although the no-scalpel technique is almost bloodless, an occasional superficial bleeder may be encountered. Ensure adequate hemostasis to help prevent the development of scrotal hematoma and subsequent risk of infection. Take all necessary precautions to avoid cross-contamination by strictly following the rules and guidelines for prevention of infection.

NOTE: The following instructions and accompanying illustrations are for a right-handed operator. Some left-handed operators report that they have found it helpful to use a mirror when viewing illustrations designed for right-handed operators.

Holding the Ringed Clamp

When holding the ringed clamp, it is important to remember three points. First, for the greatest control and accuracy, hold the ringed clamp with the palm facing up and the wrist extended *(Fig. 13)*. Second, apply the clamp at a 90-degree angle perpendicular to

FIGURE 13 Holding the ringed clamp, with the palm up



the vas *(Fig. 14a)*; the palm-up hand position helps make this easier to do. Third, hold the shaft of the ringed clamp in line with the axis of the vas—parallel to and directly over the vas *(Fig. 14c)*.

PITFALL: If you fail to follow these three points, the clamp may not fix the vas completely *(Figs. 14b and 14d)*, or it may grasp too much skin. The ringed clamp must encircle the entire vas.

Applying the Ringed Clamp to the Scrotal Skin and Underlying Right Vas: The Tight-Skin Technique

Using the three-finger technique (as described on page 19 of the anesthesia chapter), tightly stretch the skin overlying the vas—where the needle entered for anesthesia infiltration. The skin should be as thin as possible. Apply the ringed clamp, as described earlier, with the shaft at a 90-degree angle perpendicular to the vas *(Fig. 14a)*. Open the ringed clamp, and press the tips onto the skin immediately overlying the vas *(Fig. 15)*. Apply upward pressure with the middle finger underneath the scrotum to resist the downward push of the ringed clamp and to press the vas from below into the ring. Slowly and gently close the clamp around the vas, up to the first click-stop.*

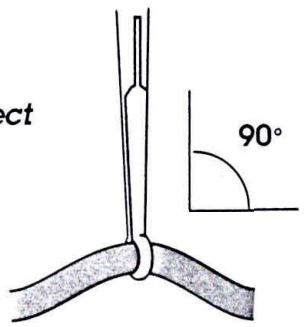
PITFALLS: Avoid two pitfalls when applying the ringed clamp. First, be sure to elevate the middle finger underneath the scrotum. Otherwise, the finger will give way under the downward pressure of the ringed clamp, and you will have difficulty stabilizing the vas. Second, do not grab too much skin with the ringed clamp. Otherwise, you will have difficulty dissecting and delivering the vas, and slight bleeding may occur. The skin should be stretched out over the vas just before the ring clamp is applied. If you do grab too much skin, stabilize the vas with

*The cantilevered feature of the ringed clamp that is manufactured in China is specially designed to prevent damage to the scrotal skin even when the clamp is locked tightly.

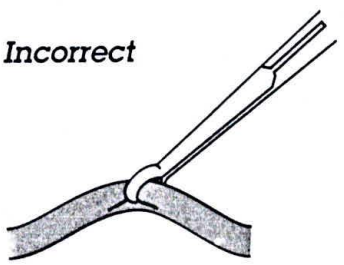
your left hand, then loosen the clamp slightly, without entirely releasing it. Use the fingers of the left hand to ease some of the skin away from the clamp's hold, while retaining the clamp's grasp on the vas.

FIGURE 14 Grasping the vas with the ringed clamp, extracutaneously (scrotal skin not shown for clarity)

a) Applying the ringed clamp at a 90-degree angle, perpendicular to the vas.



b) If the ringed clamp does not grasp the vas at a 90-degree angle, the surgeon may grasp the vas incompletely.



c) Holding the shaft of the ringed clamp in line with the axis of the vas (parallel to and directly over the vas).

d) If the ringed clamp is not held parallel to the vas, the surgeon may grasp the vas incompletely.

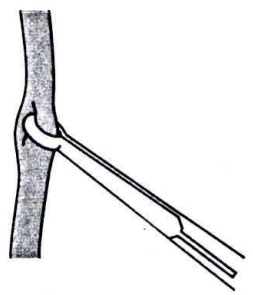
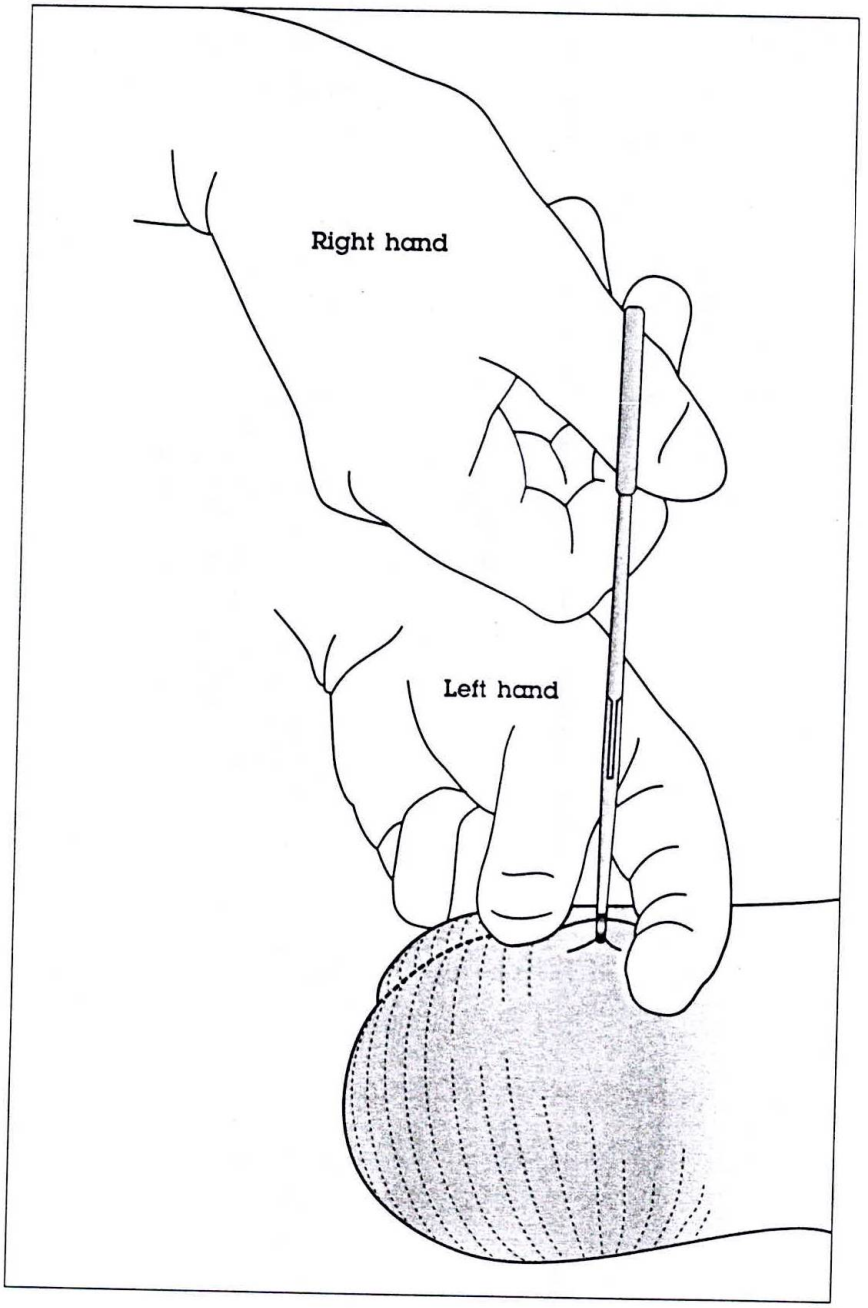


FIGURE 15 Pressing the tips of the ringed clamp onto the scrotal skin overlying the right vas



ALTERNATIVE: Instead of the tight-skin technique described on page 28, some surgeons apply the ringed clamp in a different way when they are first learning no-scalpel vasectomy. With the ringed clamp in the right hand, the surgeon gently pinches the scrotal skin with the ringed clamp, intentionally encircling more skin than is grasped with the tight-skin technique. With the left hand, the surgeon then eases out excess tissue from the tips of the ringed clamp. The surgeon may wish to use this alternative if he or she is having difficulty isolating only the vas.

Elevating the Underlying Right Vas

While the ringed clamp is still grasping the scrotal skin and the underlying right vas, transfer the instrument to your left hand. Then lower the handles of the ringed clamp, causing a bend in the vas *(Fig. 16)*. This motion elevates the vas. Continue to keep the shaft of the clamp in line with the longitudinal axis of the vas.

Puncturing the Scrotal Skin

The skin should be punctured in the previously anesthetized spot, midway between the top of the testes and the base of the penis *(Fig. 5, page 18)*. With the left index finger, press downward lightly to tighten the scrotal skin just ahead of the tips of the ringed clamp and over the anesthetized area *(Fig. 17)*.

FIGURE 16 Lowering the handles of the ringed clamp to elevate the vas

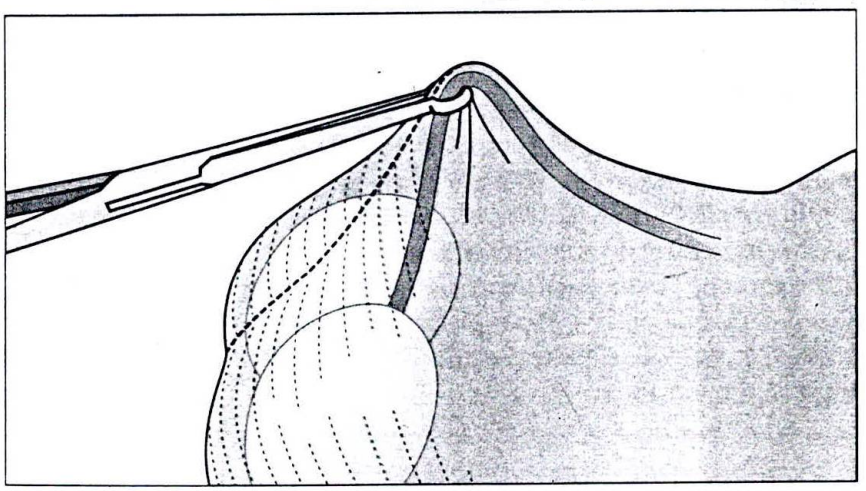
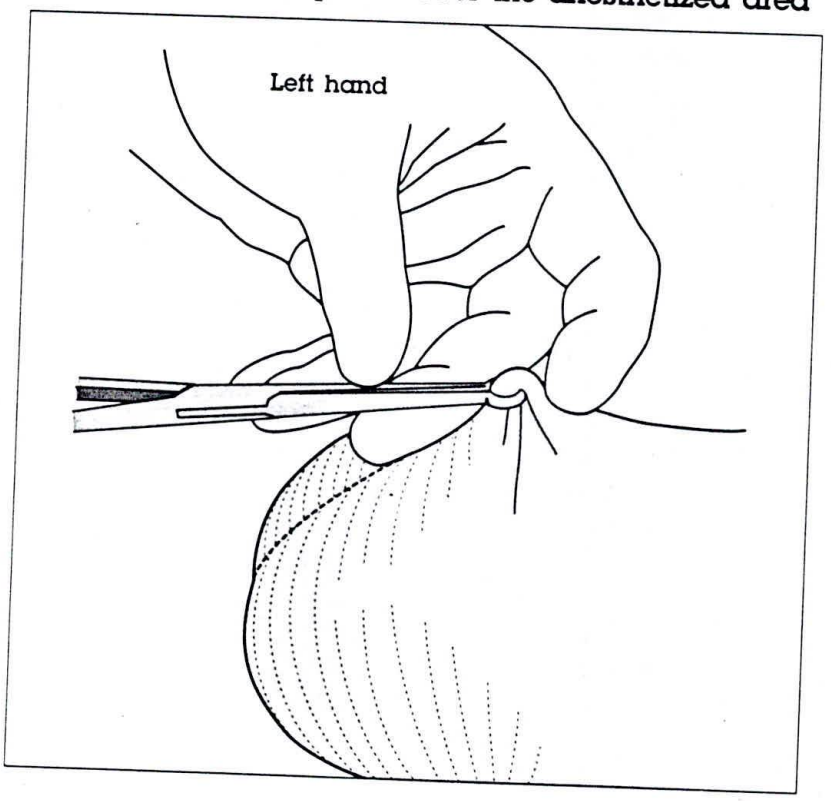
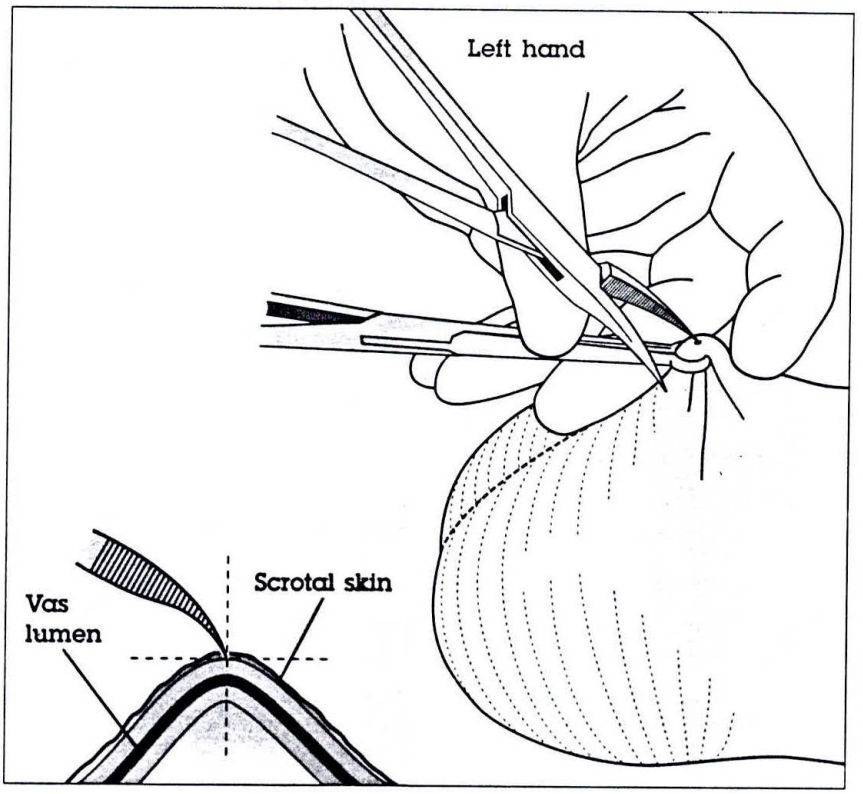


FIGURE 17 Pressing the index finger lightly downward to tighten the scrotal skin just ahead of the tips of the ringed clamp and over the anesthetized area



Hold the dissecting forceps in the right hand, points curved downward, in preparation for puncturing the vas. Hold the instrument so that there is a 45-degree angle between the closed tips of the forceps and the lumen. Then open the forceps; using only the medial blade (see box on page 34) of the forceps, pierce the scrotal skin **just superior to the upper edge of the ringed forceps**—where the vas is most prominent *(Fig. 18)*. This piercing should result in a puncture of the midline of the vas, preferably at the point where the needle entered for anesthetic infiltration. When making the puncture, do not slowly push the dissecting forceps forward. Instead, use a quick, sharp, single movement to make a clear puncture of the skin down into the vas. Advance the medial blade of the forceps into the vas lumen.

FIGURE 18 Piercing the skin with the medial blade of the dissecting forceps



PITFALLS: Avoid three pitfalls when puncturing the scrotal skin. First, be sure to penetrate the anterior wall of the vas with the dissecting forceps. Otherwise, intact overlying fascia will prevent elevation of the vas out of the puncture wound. Second, if puncturing is too deep, transection of the vas might occur and the vas artery may be damaged, and bleeding will follow. Third, be sure to puncture the vas just superior to the upper edge of the ringed forceps; if the puncture is made in the tissue that is grasped by the ringed forceps, you will not be able to spread the tissues adequately (see next page).

After making the puncture, withdraw the medial blade of the dissecting forceps. Close the tips of the forceps. At the same 45-degree angle as before, insert both tips of the forceps in the same puncture hole, in the same line, and at the same depth as when you made the puncture with the single blade *(Fig. 19)*.

The ringed clamp remains in place and locked while the skin is punctured.

Identifying the Medial and Lateral Blades of the Dissecting Forceps

a) When puncturing the scrotal skin
If you are right-handed, the medial (inner) blade is the left blade. Conversely, if you are left-handed, the medial (inner) blade is the right blade. If you use the medial blade to pierce the scrotal skin, your hand will not obstruct your line of vision.

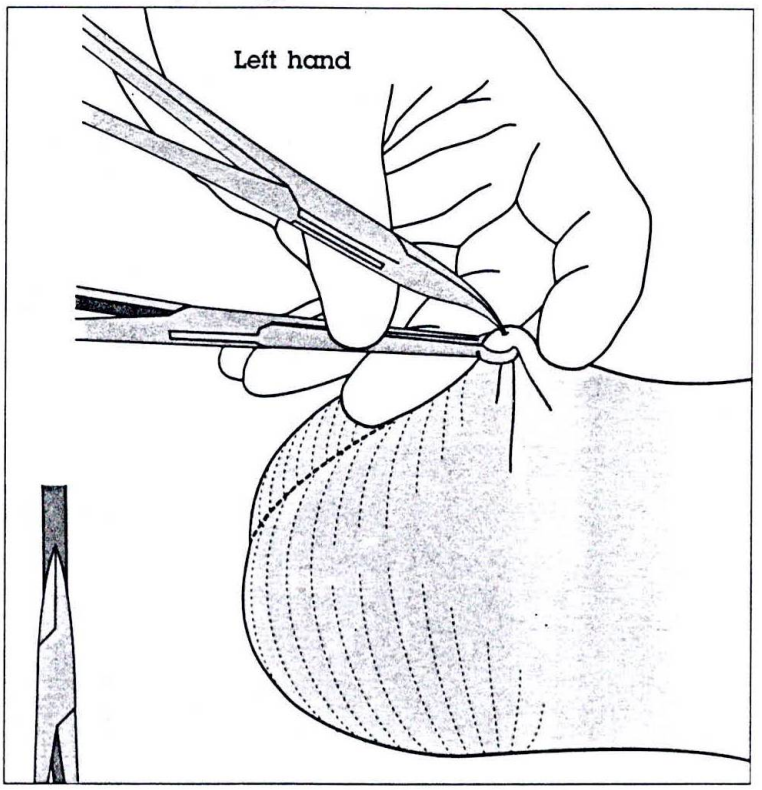
b) When elevating the vas deferens
If you are right-handed, the lateral (outer) blade is the right blade. Conversely, if you are left-handed, the lateral (outer) blade is the left blade. If you use the lateral blade to pierce the wall of the vas deferens, you will easily be able to rotate the forceps and deliver the vas.

HINT: Right-handed operators should stand on the client's right side. Conversely, left-handed operators should stand on the client's left side.

Spreading the Tissues

Gently open the tips of the dissecting forceps transversely across the vas, to create a skin opening twice the diameter of the vas *(Fig. 20)*. In one motion, spread all layers of tissue from the skin to the vas deferens. The tips of the forceps should penetrate deep enough to expose bare vas wall. No harm is done if you enter the lumen. Be careful to keep the closed blades of the dissecting forceps parallel to the vas.

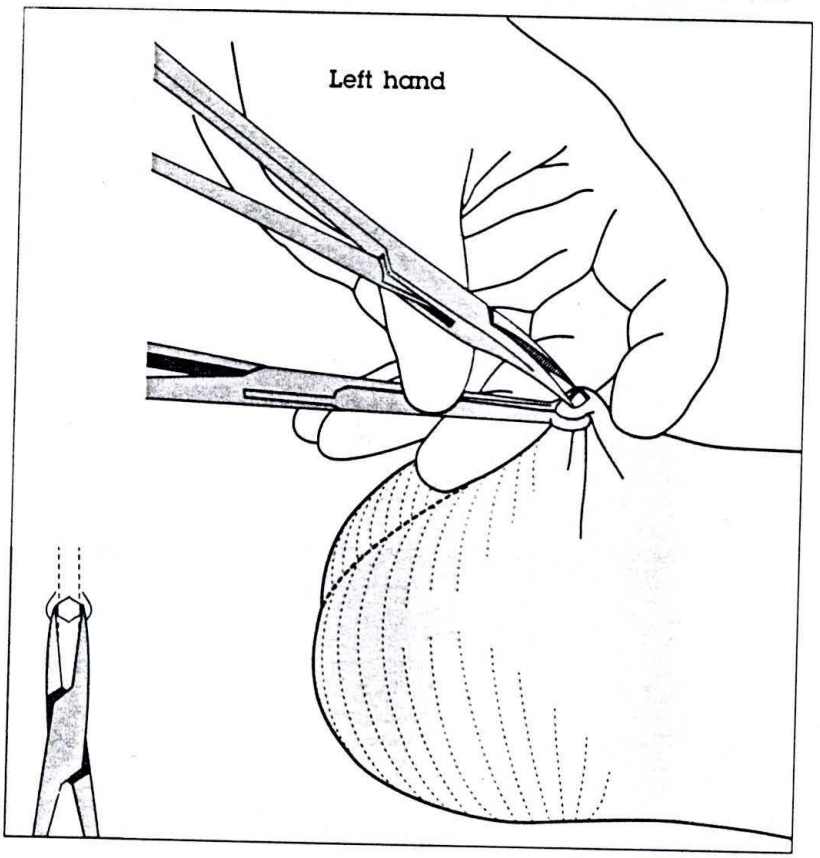
FIGURE 19 Inserting both tips of the dissecting forceps into the puncture site



The skin and vas sheath will remain stretched open after the tissues are spread. By contrast, the opening in the vas will close after spreading; as it closes, the puncture site in the vas may look like a longitudinal groove. The stretched opening in the skin and sheath, which should be twice the diameter of the vas, will enable you to lift out a loop of the vas.

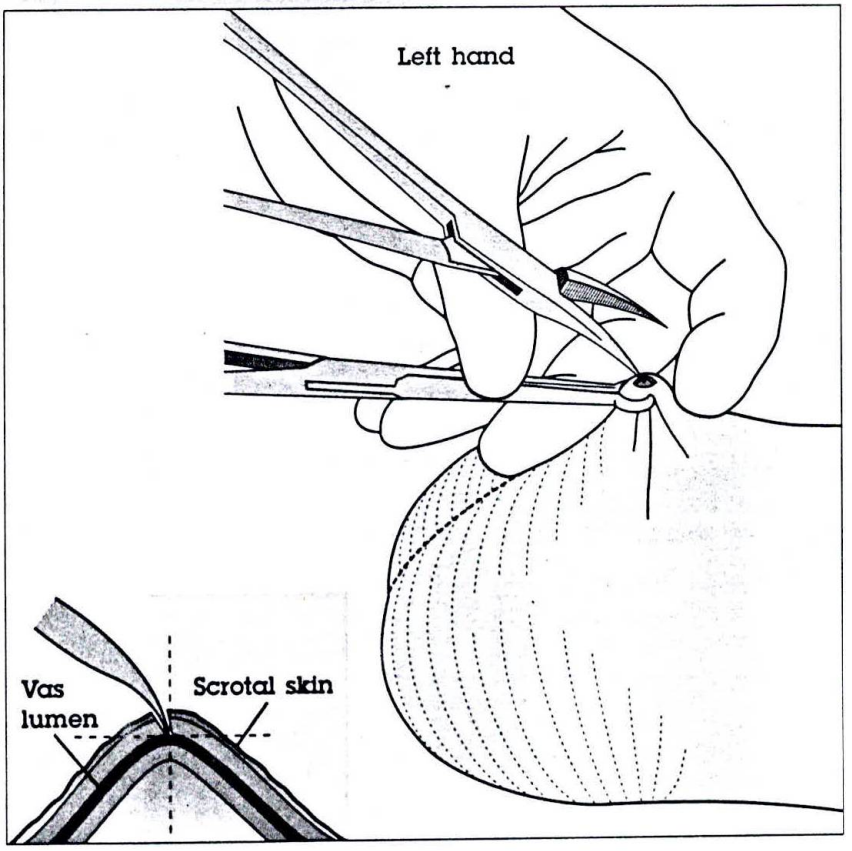
The ringed clamp remains in place and locked while the tissues are spread.

FIGURE 20 Spreading the tissues to make a skin opening twice the diameter of the vas



PITFALLS: Watch out for two pitfalls when spreading the tissues. First, if you fail to open the blades of the forceps transversely at a right angle to the vas, one blade could slip out of the puncture site. This could cause an unnecessary skin tear. Second, be sure to apply appropriate counterforce to prevent the dissecting forceps from slipping out of the puncture hole. Maintain depth of puncture, but do not push down further than the original puncture.

FIGURE 21 Piercing the wall of the vas with the tip of the lateral blade of the dissecting forceps



Delivering and Elevating the Right Vas

Remove the dissecting forceps from the puncture hole. With the tip of the lateral blade of the dissecting forceps facing downward, pierce the wall of the vas deferens at a 45-degree angle *(Fig. 21)*. (See the box on page 34 for the definition of "lateral blade.") Use of the lateral blade enables the operator to rotate his or her wrist more easily.

With the lateral blade skewering the vas and the ringed clamp still grasping the scrotal skin, rotate the handle of the dissecting forceps clockwise 180 degrees so that the tips face upward, to deliver a loop of the vas deferens *(Figs. 22 and 23)*. As you rotate the

FIGURE 22 Rotation of the dissecting forceps, Part 1

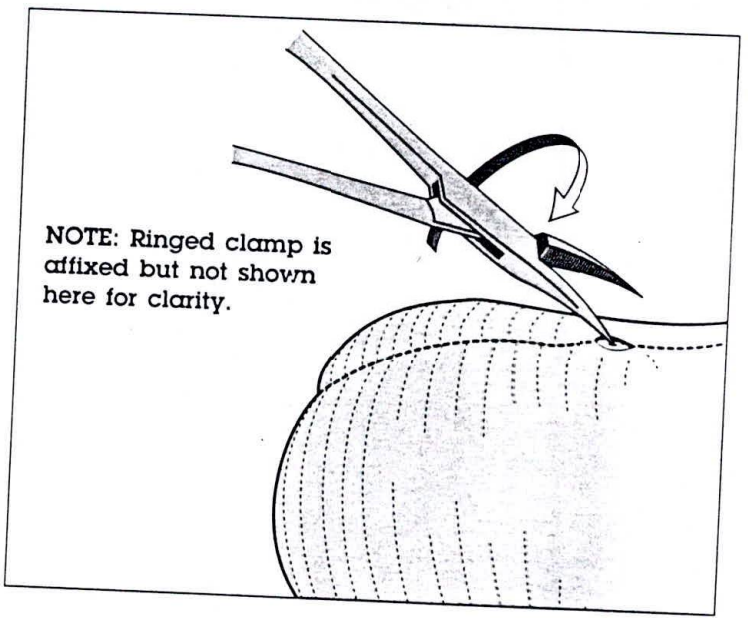
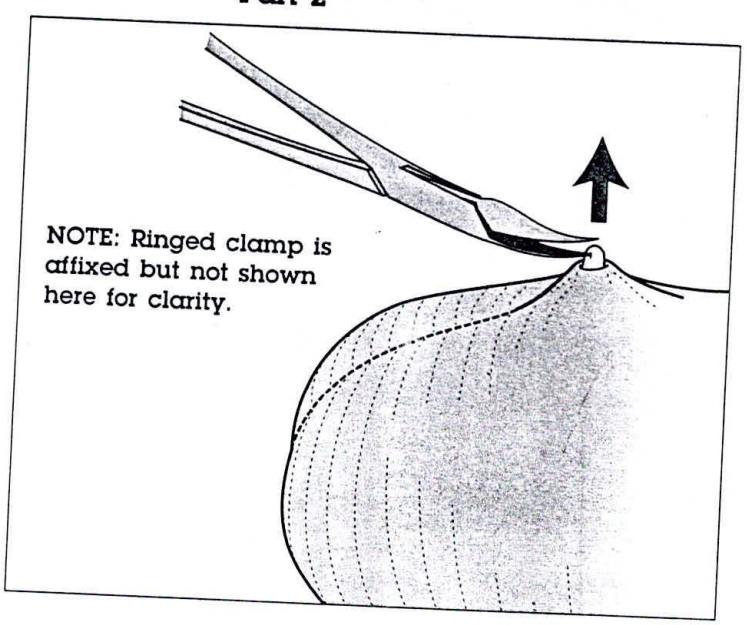


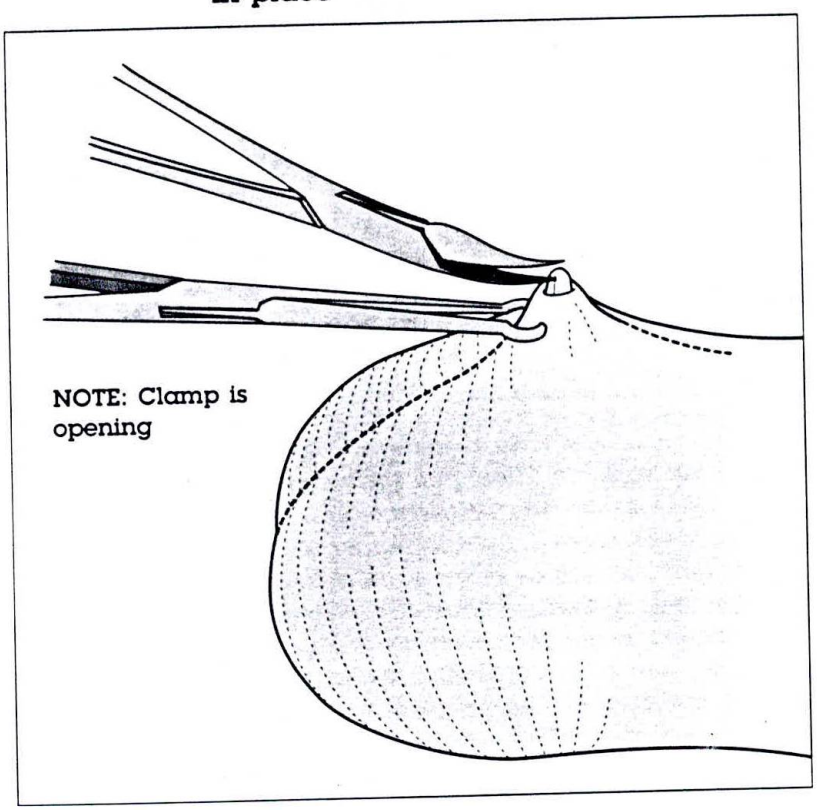
FIGURE 23 Rotation of the dissecting forceps, Part 2



dissecting forceps with the right hand, slowly release the ringed clamp with the left hand, thus allowing the forceps to elevate the vas through the puncture hole *(Fig. 24)*. This simultaneous rotation with one hand and release of the ringed clamp with the other hand requires practice and coordination. Note, the ringed clamp is not shown in the illustrations, in order to give a clearer view, but it is in place when the rotation begins. At the beginning of the rotation, your hand will be palm side down; after rotation it will be palm side up.

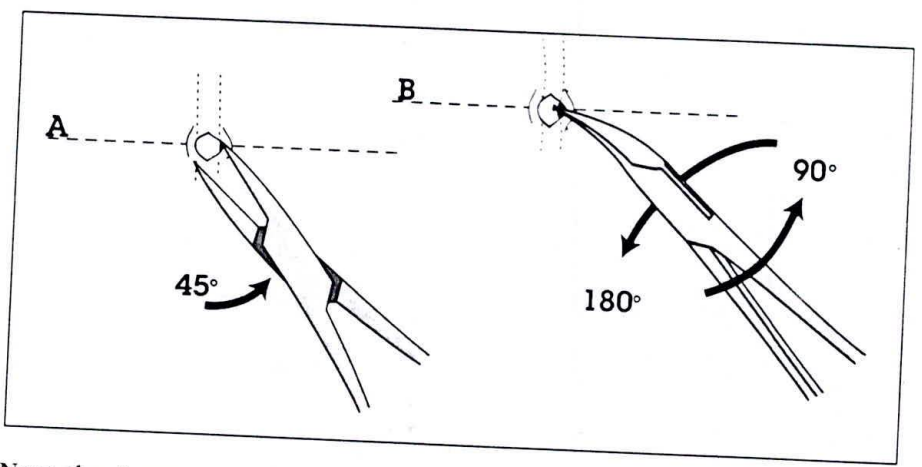
If the vas is difficult to deliver, more extensive spreading of the sheath may be required.

FIGURE 24 Releasing the ringed clamp before elevating the vas with the dissecting forceps—ringed clamp open, but still in place



ALTERNATIVE: There is an alternative way to deliver and elevate the vas; instead of skewering the vas with the dissecting forceps, the surgeon uses the forceps to grasp the bare vas directly. The following description is for the right-handed surgeon. The doctor begins by spreading the tissue as described on pages 34-36. But after stretching the opening in the skin and sheath, the surgeon does not remove the dissecting forceps from the puncture hole. Instead, the surgeon gradually withdraws the forceps, holding them in line with the longitudinal axis of the vas, until he or she can see the tips (facing downward) at the sides of the bare exposed vas.

The doctor then moves the right hand, which is holding the dissecting forceps, and the right elbow toward the right, away from his or her side, until the dissecting forceps are at about a 45-degree angle to the longitudinal axis of the vas (see A below). This movement causes the medial blade to slip out of the wound, while the tip of the lateral blade continues to touch the right side of the vas.



Next, the doctor gently closes the tips of the forceps, grasping the right half of the bare vas, with the tips of the forceps facing to the side. The surgeon then starts to rotate the dissecting forceps in a clockwise direction about 90 degrees (see B above); he or she stops rotating and checks to be sure that no fascia is between the tips of the forceps. The surgeon then further rotates the forceps, completing a 180-degree turn. After the rotation, the curved tips of the forceps are facing up. The rotational movement slightly elevates the vas out of the wound.

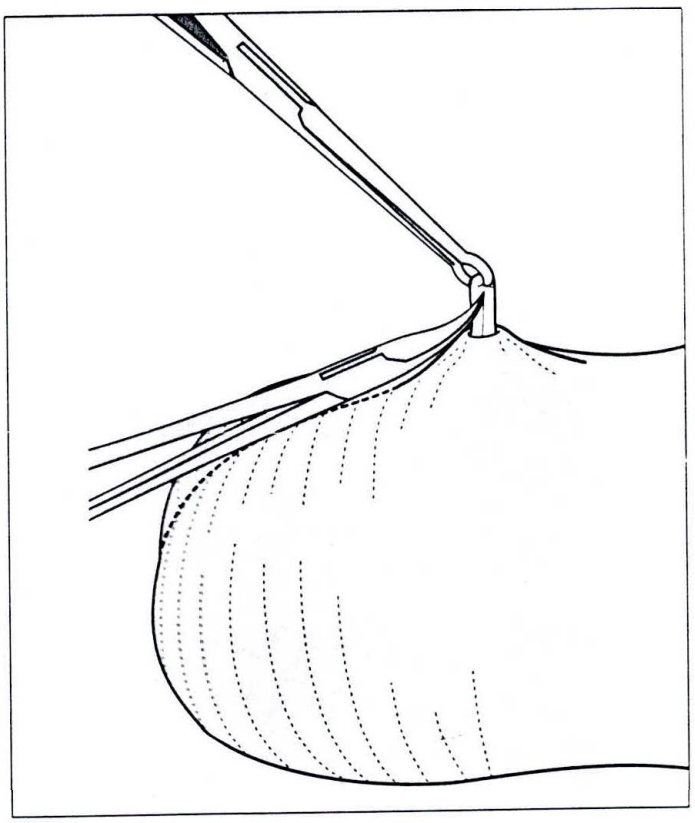
PITFALLS: With either technique described above, watch out for two pitfalls while delivering the vas. First, do not attempt to

deliver the vas while the ringed clamp is still locked; if you do, the vas may be severed. Second, if fascial tissue is caught between the tips of the dissecting forceps, you will not be able to rotate and elevate the vas.

Grasping the Vas with the Ringed Clamp

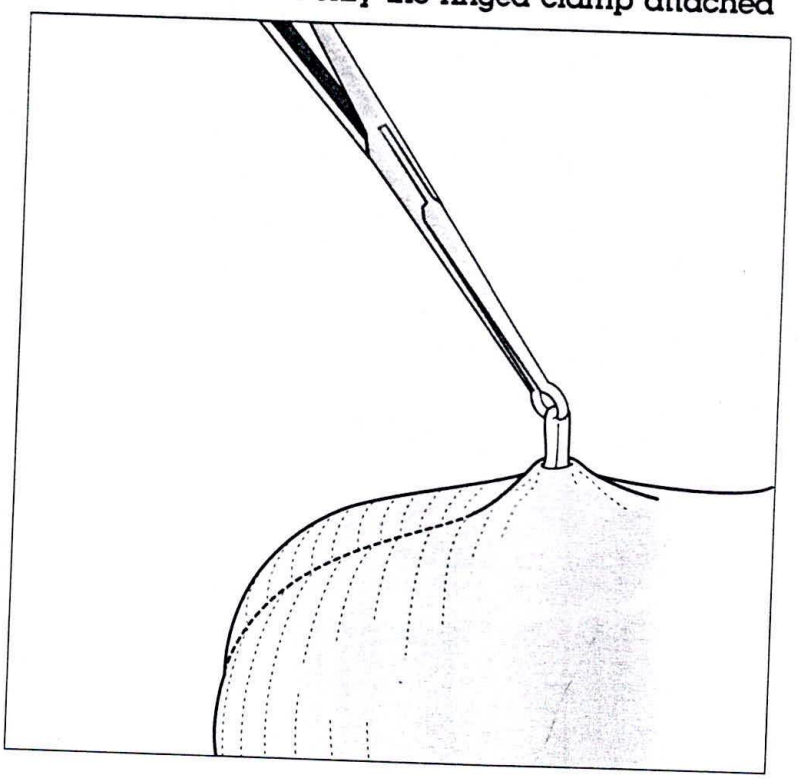
Once a loop of the vas has been delivered, gently close the dissecting forceps on the vas to prevent its slipping back into the scrotum while the ringed clamp is removed from the skin. Grasp a partial thickness of the loop of the vas with the ringed clamp. Sometimes you will see a groove on the vas—created when the vas was punctured *(Fig. 25)*. After you have grasped a partial thickness of the vas, release the dissecting forceps.

FIGURE 25 Grasping a partial thickness of the elevated vas



PITFALLS: Watch out for three pitfalls when grasping the vas with the ringed clamp. First, be careful not to release the dissecting forceps until you have grasped a portion of the loop of the vas with the ringed clamp *(Fig. 25)*. This will prevent the vas from slipping back into the scrotum. Second, to avoid damaging the vas artery, be sure to grasp the vas at the crest of the loop *(Fig. 26)*. Grasping elsewhere leads to asymmetrical stripping of the sheath from the vas. Third, grasp only a partial thickness of the vas. If the ringed clamp is placed around the entire circumference of the vas, the vas could slip back into the scrotum when it is divided.

FIGURE 26 Grasping a partial thickness of the elevated vas at the crest of the loop, with only the ringed clamp attached



Puncturing and Stripping the Sheath

With one tip of the dissecting forceps (tips facing up), gently puncture the vas sheath just below the vas, taking care not to injure the vas artery *(Fig. 27)*. Then remove the tip.

Close the tips of the dissecting forceps. Insert both tips (tips facing to the side) into the punctured sheath *(Fig. 28)*.

Gently open the dissecting forceps *(Fig. 29)*. Strip the sheath and surrounding tissues downward for at least a 1 cm length of vas. This is a longitudinal, not a transverse, motion.

Be careful to avoid blood vessels. Clamp or cauterize bleeders immediately. When checking for bleeding, pay particular attention to the abdominal segment of the vas, which is where bleeding from the vas artery could occur (a common reason for hematoma formation).

FIGURE 27 Puncturing the sheath with one tip of the dissecting forceps

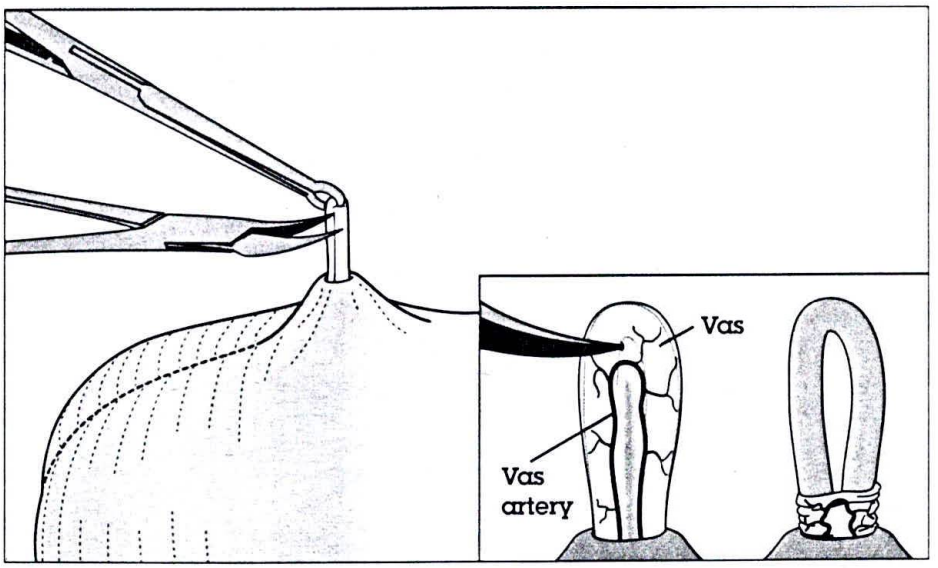


FIGURE 28 Inserting both tips of the dissecting forceps into the punctured sheath (tips facing to the side)

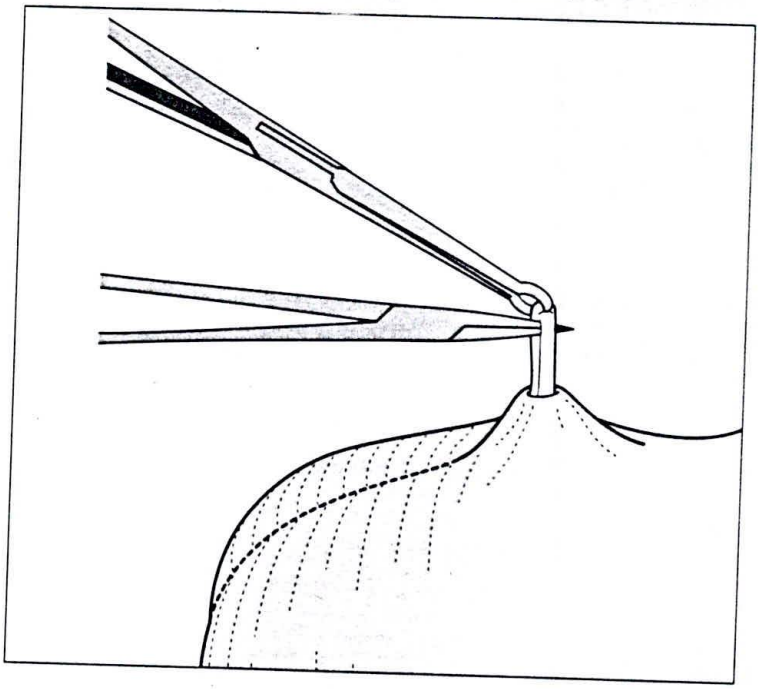


FIGURE 29 Opening the dissecting forceps to strip the sheath

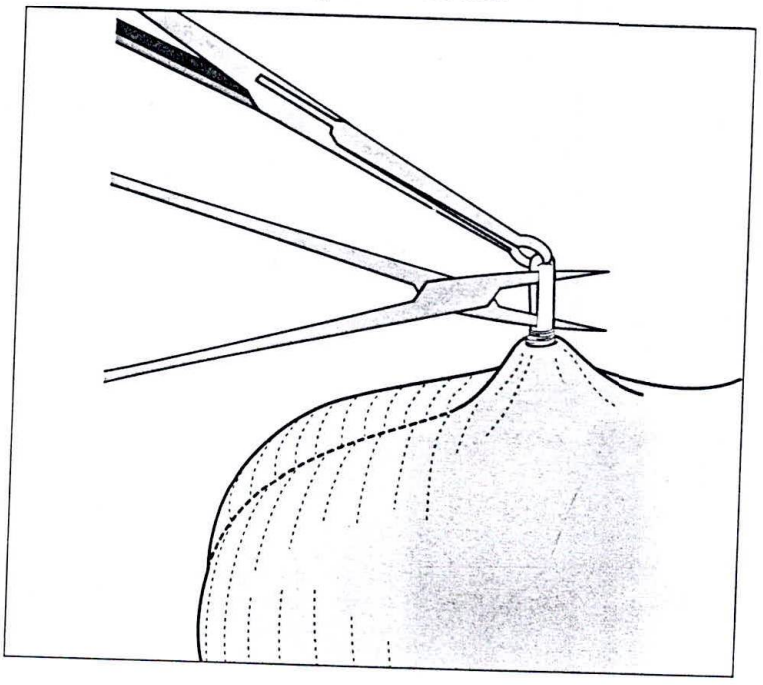
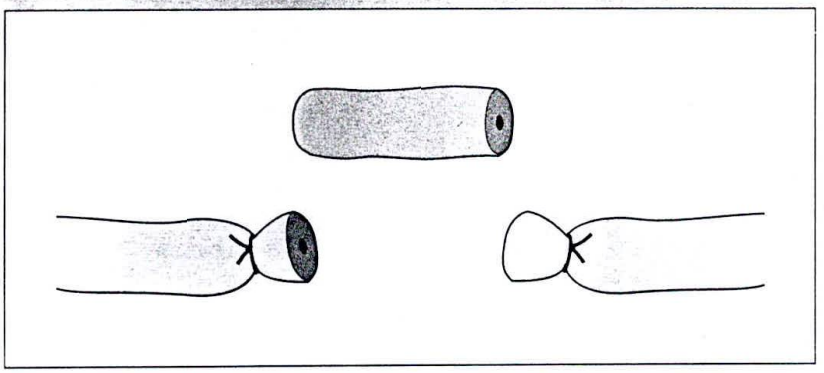


FIGURE 30 Ligation



Occluding the Right Vas

Now occlude the right vas in your preferred manner. Remember, no-scalpel vasectomy is a **surgical approach for isolating and delivering the vas that uses conventional methods of vas occlusion.** While many methods of occlusion have been used, two common ones—ligation and cautery—are described below.

Ligation *(Fig. 30)*. Before beginning, the surgeon makes certain that all sheath and vasal vessels have been stripped away from the segment of vas to be occluded. Up to 1 cm of the vas can be removed. While removal of a segment of the vas is not mandatory, some operators prefer to do so for vas identification or legal purposes. The surgeon ligates the cut ends tightly enough to occlude the vas. Some operators use absorbable suture material such as chromic catgut; others prefer nonabsorbable silk or cotton. There have been no studies done to determine the best material for ligating the vas.

Cautery *(Figs. 31 and 32)*. Another popular occlusion technique is cautery with a needle electrode or hot wire, hereafter called the *cautery tip*. This method desiccates the lumenal mucosa of the vas to create a scar that effectively occludes the ends of the divided vas.

There are variations in the cautery technique, depending on the equipment used. When a sharp needle electrode is used, the surgeon pierces the vas wall with the needle and directs it into the lumen *(Fig. 31)*. When a blunt wire cautery unit is used, the surgeon hemitransects the vas to permit the cautery tip to enter into the lumen *(Fig. 32)*. If the vas is only partially transected, it cannot slip back into the scrotum. Once the cautery tip is in the vas, the surgeon may first direct it toward either the abdominal or testicular end of the vas; the operator will eventually cauterize a segment of the vas in both directions.

PITFALL: When using cautery, avoid damaging the muscle of the vas; muscle damage can lead to necrosis, with subsequent sperm leakage, granuloma, and recanalization.

FIGURE 31 Cautery with a sharp needle electrode (done in each direction)

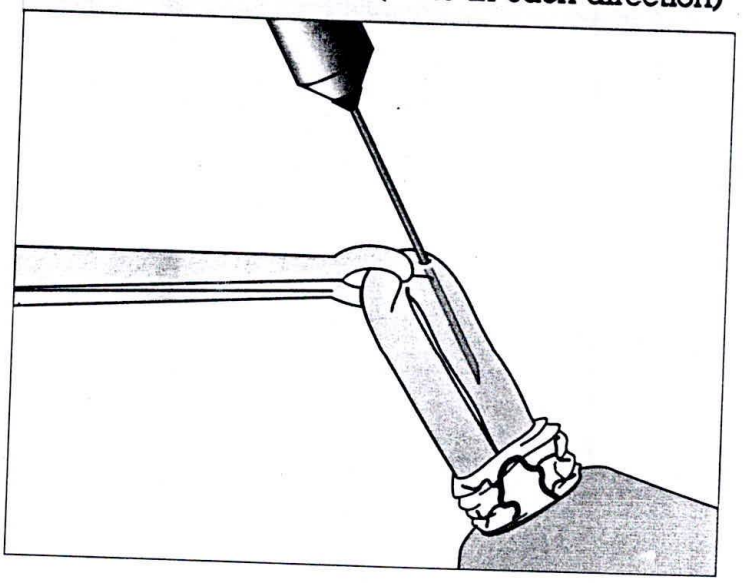
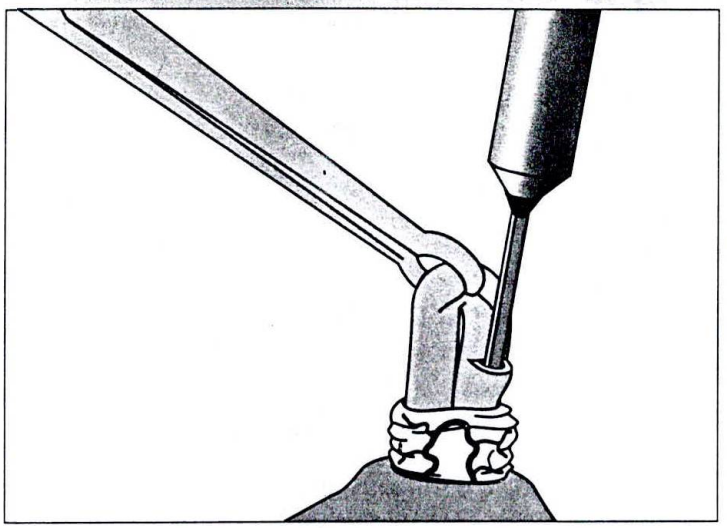


FIGURE 32 Cautery with a blunt wire inserted into the hemitransected vas (done in each direction)

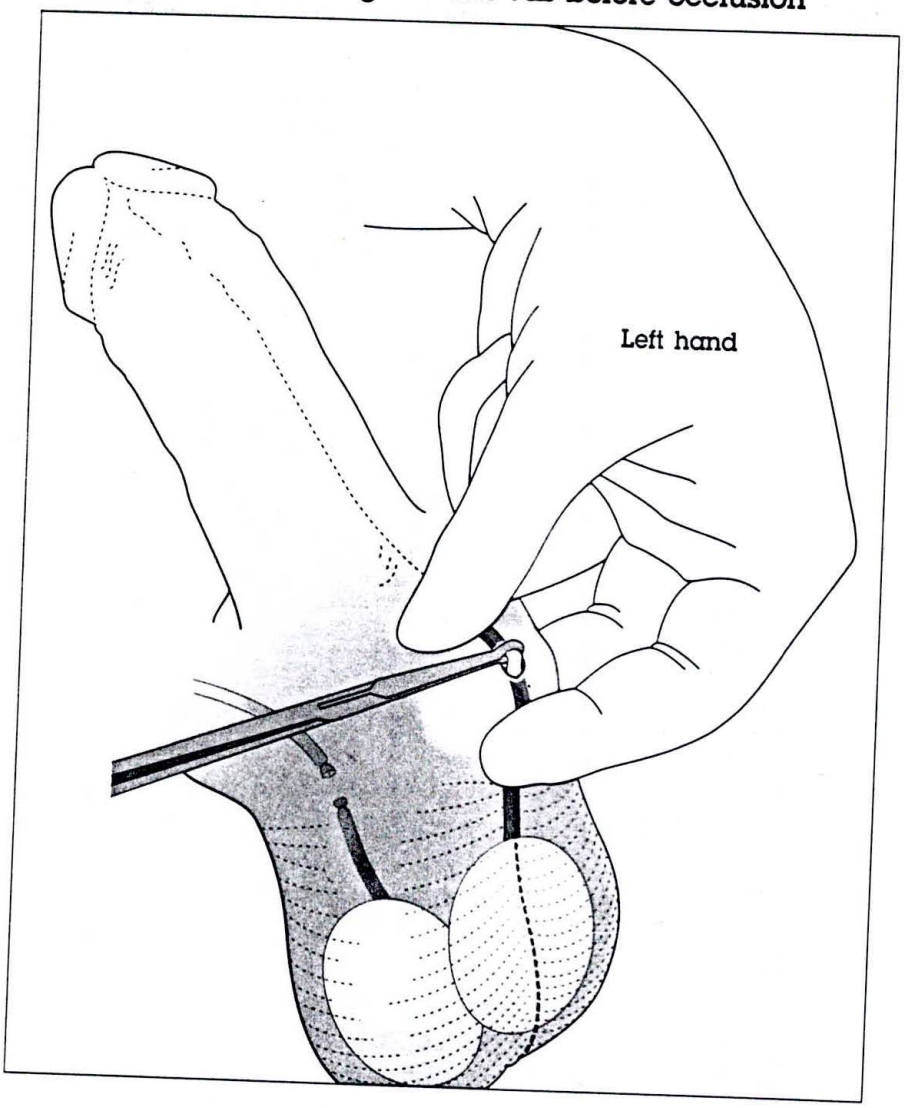


To achieve a graded desiccation of only the mucosal layer, the surgeon inserts 1.0 to 1.5 cm of the cold cautery tip into the lumen *before* the current is applied. Current is then applied, and the tip is slowly withdrawn. Depending on the equipment, electrical current, or strength of the battery, the time needed to cauterize the mucosal layer will vary. In some cases, it may take five seconds. Doctors who are experienced with cautery usually note changes in the vas that indicate the mucosa has been desiccated. For example, the mucosa blanches and a small bit of smoke escapes from the tissue. This signifies time to withdraw the tip.

After cauterizing in one direction, the surgeon turns off the cautery unit. This lets the tip cool before the surgeon reverses direction and cauterizes the other segment. The vas is then divided. No ligature or clip need be applied in addition to the cautery. The same procedure is followed for the second (that is, the left) vas.

Fascial interposition. With both ligation and cautery, a fascial barrier may be created by pulling the sheath over one of the vas ends and securing it. Surgeons use several different methods of fascial interposition; there is no evidence that one method is superior to another.

FIGURE 33 Isolating the left vas before occlusion



Isolating the Left Vas before Occlusion

Adjust the left hand to grasp the left vas deferens, using the three-finger technique *(Fig. 33)*. As described on page 23 of the anesthesia chapter, place the middle finger below the scrotum, with the thumb and index fingers above the scrotum; position the vas directly under the previously opened puncture site.

This position may be awkward at first, but with practice the right-handed operator will be able to isolate the left vas as smoothly as the right. Holding the vas with the left hand frees the right hand to handle the instruments (vice versa for the left-handed operator).

Applying the Ringed Clamp to the Scrotal Skin and Underlying Left Vas

Still using the three-finger technique, tightly stretch the skin overlying the vas so that it is as thin as possible. Open the ringed clamp, and press the tips onto the vas through the puncture site. Lock the clamp around the vas and overlying sheath *(Fig. 33)*. As with the right vas, use the "palm-up" approach to ensure that the instrument is applied perpendicular to the vas (90 degrees) *(Fig. 13, page 27)*.

Occasionally, the sheath and underlying vas cannot be fixed with the clamp because of local edema. Insertion of the clamp into the scrotal tissue may increase the risk of both trauma and infection. However, if the vas is directly under the puncture hole, inserting the clamp into the scrotal tissue probably will not contribute to trauma and infection. If the operator probes for the vas with the ringed clamp inside the scrotum, the risk of trauma and infection probably increases.

Grasping the left vas and sheath directly with the ringed clamp can make vasectomy easier to perform, particularly when the scrotal skin is thick.

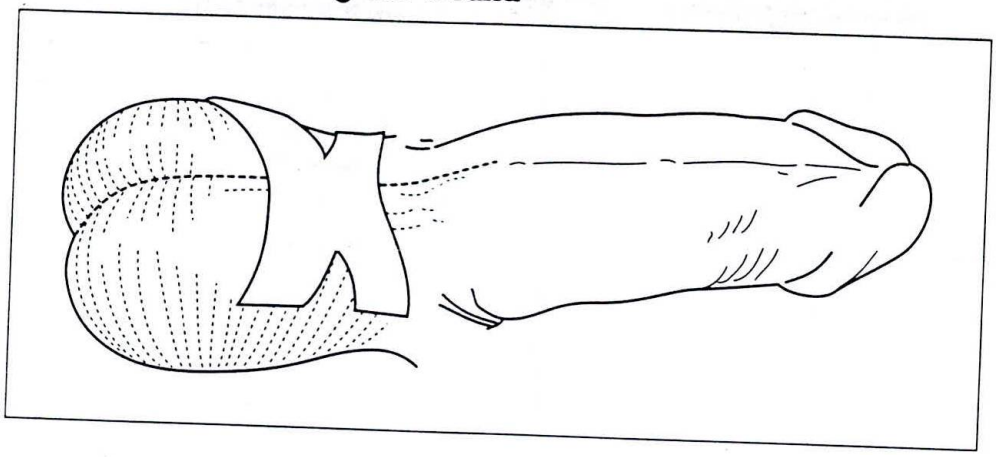
Delivering, Elevating, and Occluding the Left Vas

Follow the steps for delivering, elevating, and occluding the vas as described on pages 37-47.

Dressing the Wound

After both vasa have been occluded and returned to the scrotum, pinch the puncture site tightly for a minute, or ask the client to hold the gauze and apply pressure himself. Inspect for bleeding. If bleeding is present, hemostasis must be achieved. No skin sutures are necessary. Wash the small wound by swabbing with an antiseptic solution. A sterile gauze dressing can be held in place with a scrotal supporter or tape, or a Band-Aid can be used to cover the small wound. In Figure 34, note that the width of each end of the tape has been divided in half, allowing the tape to fit better on the round scrotum.

FIGURE 34 Dressing the wound



Postoperative Care and Instructions

Men who have undergone vasectomy may leave the health facility after resting 30 minutes. If sedation has been used, monitor the patient's vital signs every 15 minutes after surgery until stable.

In simple language, explain to the man how to care for the wound, what side effects to expect, what to do if complications occur, where to go for emergency care, and when and where to return for a follow-up visit. Tell the patient that minor pain and bruising are to be expected and do not require medical attention. The man should seek medical attention if he has fever, if blood or pus oozes from the puncture site, or if he experiences excessive pain or swelling. Give the man a brief, simply written summary of the instructions.

The patient may resume normal activities and sexual intercourse with temporary contraception within two to three days, if he feels comfortable. The patient and his partner will need to use temporary contraception for 12 weeks or 20 ejaculations, whichever comes first. Every man should be offered the opportunity to have a semen analysis. Ideally, one or two sperm-free semen specimens should be obtained from the man after vasectomy in order to be reasonably sure the operation has been a success.

See Appendix B for sample written instructions for the client.

APPENDIXES AND REFERENCES

Appendix A

WHO Eligibility Criteria for Vasectomy Procedures*

Introduction

Considering the irreversibility or permanence of sterilization procedures, special care must be taken to assure the client's voluntary informed choice of the method. Particular attention must also be given in the case of young people, men who have not yet been parents, and clients with mental health problems, including depressive conditions. The national laws and existing norms for the delivery of sterilization procedures must be considered in the decision process.

There is no medical reason that would absolutely restrict a person's eligibility for sterilization. There may be conditions and circumstances that indicate that certain precautions should be taken.

The classification of the conditions into the different categories is based on an in-depth review of the epidemiological and clinical evidence relevant to medical eligibility. The programmatic implications of these updated medical criteria are still to be addressed taking into account the various levels of service delivery. However, for the particular case of sterilization procedures, the following category definitions were developed.

Definitions

A (Accept):	There is no medical reason to deny sterilization to a person with this condition.
C (Caution):	The procedure is normally conducted in a routine setting, but with extra preparation and precautions.
D (Delay):	The procedure is delayed until the condition is evaluated and/or corrected. Alternative temporary methods of contraception should be provided.
S (Special):	The procedure should be undertaken in a setting with an experienced surgeon and staff, equipment needed to provide general anesthesia, and other back-up medical support. For these conditions, the capacity to decide on the most appropriate procedure and anesthesia regimen is also needed. Alternative temporary methods of contraception should be provided if referral is required or there is otherwise any delay.
NA:	Not applicable.

*Adapted from: World Health Organization (WHO). 1996. *Improving Access to Quality Care in Family Planning: Medical Eligibility Criteria for Contraceptive Use.* Geneva.

Male Sterilization

Condition	Category	Rationale/Comments
Local infections		There is an increased risk of postoperative infection.[a]
scrotal skin infection	D	
active STD	D	
balanitis	D	
epididymitis or orchitis	D	
Previous scrotal injury	C	
Systemic infection or gastroenteritis	D	There is an increased risk of postoperative infection.[a]
Large varicocele	C	The vas may be difficult or impossible to locate; a single procedure to repair varicocele and perform a vasectomy decreases the risk of complications.
Large hydrocele	C	The vas may be difficult or impossible to locate; a single procedure decreases the risk of complications.
Filariasis; elephantiasis	D	The scrotum may be involved in severe elephantiasis making it impossible to palpate the cord structure and testis.
Intrascrotal mass	D	This may indicate an underlying disease.

Male Sterilization (continued)

Condition	Category	Rationale/Comments
Cryptorchidism	C	If cryptorchidism is bilateral, and fertility has been demonstrated, this will require extensive surgery to locate the vas, making the condition category S. If cryptorchidism is unilateral and fertility has been demonstrated, vasectomy may be performed on the normal side and the spermogram checked, as per routine. If sperm continue to be persistently present, more extensive surgery may be required to locate the other vas, and the condition becomes category S.
Inguinal hernia	S	Vasectomy can be performed concurrent with hernia repair.
Sickle cell disease	A	
Coagulation disorders	S	Bleeding disorders lead to an increased risk of postoperative hematoma formation which, in turn, leads to an increased risk of infection.
Diabetes	C	Diabetics are more likely to get postoperative wound infections. If signs of infection appear, treatment with antibiotics needs to be given.
HIV\AIDS[b]		Proper infection prevention procedures must be followed. If the man is currently suffering an AIDS-related illness, the procedure should be performed in an appropriate setting.
HIV positive	A	
high risk of HIV	A	
AIDS	S	

[a] Cohn, I., Bornside G. H. Infections. In Schwartz, S. I., Shires, G. T., Spencer, F. C. (eds.). 1989. *Principles of Surgery*, 5th ed. New York: McGraw-Hill Book Co., 181-215.

[b] Barrier methods, especially condoms, are always recommended for prevention of sexually transmitted diseases, including HIV prevention.

Appendix B

Sample Postoperative Instructions for the Client

- Rest at home until the day after surgery. You may resume your normal activities after one or two days. But avoid work and strenuous exercise for at least 48 hours. This will help the wound heal.
- You may bathe on the day after surgery, but do not let the wound get wet. After three days, you may wash the wound with soap and water.
- Do not pull or scratch the wound while it is healing.
- Wear a snug undergarment or scrotal support for at least two days after surgery. This will help you be comfortable.
- Keep the bandage on for three days after the operation.
- You may have sex with your partner as soon as it is comfortable for you. This is usually two or three days after the operation. Remember, vasectomy does not work immediately, and you can still get your partner pregnant. Sperm should be gone after 20 ejaculations. Use condoms, or ask your partner to use another family planning method until after 20 ejaculations.
- You may have a little pain, bruising, or swelling where the wound is. Watch to be sure that it does not get worse. A small amount of pain, bruising, or swelling that does not get worse is normal. Take the medication provided (recommended) by the doctor. Be sure to follow the instructions given to you. An ice pack may help relieve the pain, bruising, or swelling.
- Return to the clinic or call:
  - If you have a fever within one week of surgery

— If there is any bleeding or pus in the wound

— If there is pain or swelling around the wound that gets worse or does not go away

— If your partner ever misses a period or thinks she is pregnant. This is very important. It may mean the operation has failed, and your partner may be pregnant.

- Stitches are not usually required in no-scalpel vasectomy. But if you do have stitches that must be removed, you must go to a health center for a follow-up visit. This should be done about one week after the operation. A health worker will remove the stitches and check to see how the wound is healing.

- Vasectomy does not provide protection against HIV infection or other sexually transmitted diseases. Aside from abstinence, latex condoms offer the best protection against these infections.

- **Your follow-up appointment is:**

  Day and Date_____

  Time_____

  Place_____

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