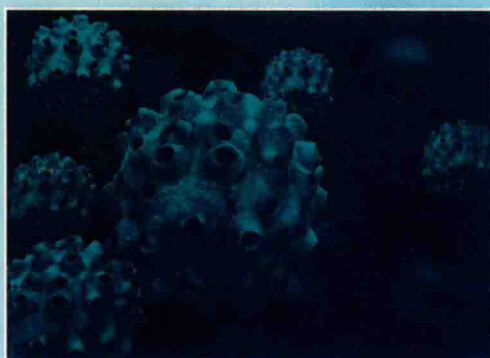


GYNECOLOGY IN PRACTICE

Series editor **Aydin Arici**

Sexually Transmitted Diseases



Edited by
Richard H. Beigi

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 **WILEY-BLACKWELL**

Sexually Transmitted Diseases

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*This book is dedicated to all of my excellent mentors and
to my family for their ongoing support.*

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Series Foreword

In recent decades, massive advances in medical science and technology have caused an explosion of information available to the practitioner. In the modern information age, it is not unusual for physicians to have a computer in their offices with the capability of accessing medical databases and literature searches. On the other hand, however, there is always a need for concise, readable, and highly practicable written resources. The purpose of this series is to fulfill this need in the field of gynecology.

The *Gynecology in Practice* series aims to present practical clinical guidance on effective patient care for the busy gynecologist. The goal of each volume is to provide an evidence-based approach for specific gynecologic problems. "Evidence at a glance" features in the text provide summaries of key trials or landmark papers that guide practice, and a selected bibliography at the end of each chapter provides a springboard for deeper reading. Even with a practical approach, it is important to review the crucial basic science necessary for effective diagnosis and management. This is reinforced by "Science revisited" boxes that remind readers of crucial anatomic, physiologic or pharmacologic principles for practice.

Each volume is edited by outstanding international experts who have brought together truly

gifted clinicians to address many relevant clinical questions in their chapters. The first volumes in the series are on *Chronic Pelvic Pain*, one of the most challenging problems in gynecology, *Disorders of Menstruation*, *Infertility*, and *Contraception*. These will be followed by volumes on *Sexually Transmitted Diseases*, *Menopause*, *Urinary Incontinence*, *Endoscopic Surgeries*, and *Fibroids*, to name a few. I would like to express my gratitude to all the editors and authors, who, despite their other responsibilities, have contributed their time, effort, and expertise to this series.

Finally, I greatly appreciate the support of the staff at Wiley-Blackwell for their outstanding editorial competence. My special thanks go to Martin Sugden, PhD; without his vision and perseverance, this series would not have come to life. My sincere hope is that this novel and exciting series will serve women and their physicians well, and will be part of the diagnostic and therapeutic armamentarium of practicing gynecologists.

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Preface

Sexually transmitted diseases (STDs) have been recognized for centuries, are the subject of many ancient writings, and have likely been present for at least as long as humans, given the necessity of human reproduction. Early descriptions of syphilis, gonorrhea, herpes simplex virus, and other STDs (and their associated clinical syndromes) have been found in both medical and nonmedical documents. On a global scale, STDs remain one of the most prevalent infectious diseases among the human race. Despite numerous technological advances in the past century, including the introduction of effective antimicrobial agents, STDs persist, and even thrive in varied locales.

There are numerous obstacles internationally to the successful control of STDs, including, in many instances, social, financial, and political underpinnings complicating control efforts. The health threats posed by many STDs also frequently extend to unborn fetuses and/or neonates, increasing their global importance. Because of the substantial prevalence of many of these clinical entities, as well as the significant toll on health and associated societal costs, clinicians caring for girls and women of all ages should have a thorough working knowledge of STD recognition, diagnosis, and management.

For the typical women's health provider, STDs and their associated morbidities represent a sizable portion of the daily efforts directed at improving and maintaining health, in addition to treating acute ailments. Also, many clinical efforts focus on STDs as a part of the larger goal of promoting disease prevention among women. In addition to the well-known STDs, the infec-

tious vulvovaginitis syndromes are a major cause of discomfort, remain one of the main reasons women seek care and use antimicrobial agents, and are thus discussed thoroughly. Given significant overlap in clinical presentation, many noninfectious conditions of the female genital tract are also commonly seen by busy women's health providers and are occasionally misdiagnosed as STDs and/or infectious vulvovaginitis. This is also true for the relatively rare, but clinically apparent, vulvovaginal cancers. The awareness of these noninfectious clinical entities has increased in recent years, and burgeoning research has demonstrated the relatively high frequency of many of these conditions. Thus, special attention is given in this text to some of these more common entities.

Taken together, these conditions require a thorough understanding and disciplined approach to the evaluation and management in order to optimize women's health globally. Importantly, human immunodeficiency virus (HIV), while a sexually transmitted pathogen, is not discussed directly in this text, primarily because its scope and breadth warrants an entire text unto itself.

It is my sincere hope that this text provides a thorough yet user-friendly guide to the common STDs, vaginitides, and the gynecologic noninfectious syndromes that are frequently encountered in clinical practice. I also hope and believe that the combination of excellent contributors, along with the unique chapter selections, will serve as an invaluable resource for busy women's health providers across the world.

Richard H. Beigi, MD, MSc

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Standard Clinical Evaluation

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Introduction

The clinical evaluation of women presenting with genital tract complaints requires a standard approach that leads to an objective, reproducible evaluation. This is a critical point to understand given the diverse conditions that are being evaluated. These diverse conditions, however, often have very closely overlapping clinical presentations, requiring the standard approach to maximize diagnostic accuracy and optimize outcomes. In general, the evaluation of women with lower genital tract complaints without physical examination and/or laboratory testing has been demonstrated to be suboptimal. Self-diagnosis has also been demonstrated to be inaccurate, and is generally discouraged. The syndromic management of women, based on subjective presentation alone, has been used in developing countries (and still is in certain settings) where a health infrastructure is lacking. However, thorough and careful history-taking, physical examination, and selected laboratory methods can significantly improve objectivity and, whenever possible, are strongly recommended in developed nations with an existent healthcare infrastructure. A recommended and reproducible approach to all women with lower genital tract complaints is described below.

Clinical evaluation

A thorough understanding of the vulvar, vaginal, and internal female genital tract anatomy is the key first step in assessing vulvovaginal complaints among women. As noted in Figure 1.1, the vulva is bound by the genitocrural folds laterally, the anus posteriorly, and the upper mons pubis superiorly. Importantly, hair follicles (coarse) are present on the inferior, lateral, and superior tissues of the vulva, but are lacking from the inner labia majora, labia minora, and the vaginal vestibule. The vaginal vestibule is separated from the inner labia minora by an artificial anatomic line, called the Hart line. This is an important landmark because it separates the nonmucous-secreting outer skin from the inner, mucous-secreting moist tissues of the vaginal vestibule and the hymenal ring. The vaginal vestibule is where the Bartholin and minor vestibular glands are located and produce lubricating fluids, where the vaginal orifice begins, and where the urethra opens at its meatus. Delineating and appreciating the exact anatomical location of physical findings is very important in deciphering the underlying etiology as well as administering effective treatment of sexually transmitted diseases (STDs) and the associated vulvovaginal syndromes/conditions.

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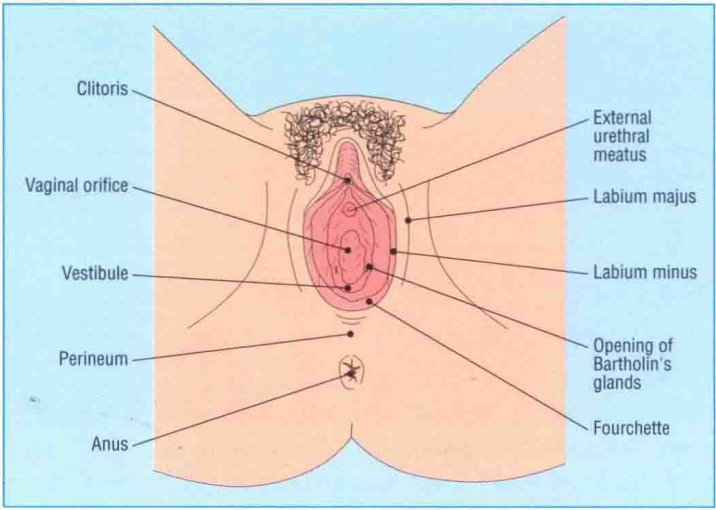


Figure 1.1. Female external genitalia. (Reproduced from Rogstad KE, et al., *ABC of Sexually Transmitted Infections*, 6th edn. Blackwell Publishing: Oxford, 2011, with permission.)

The standard position for most gynecological examinations is the dorsal lithotomy (on back, with knees flexed, thighs flexed and apart, feet resting in stirrups). This positioning (Figure 1.1) allows in most scenarios the best physiologic view of the female anatomy and optimizes specimen collection for most laboratory analyses. Occasionally, due to anatomic restrictions, lack of mobility, or other factors, different positioning may be necessary or undertaken. This may be especially true for young women or girls who have never had pelvic examinations performed

or are reticent for such an examination (covered more extensively in Chapter 2).

It is likewise essential for practitioners caring for women to have a thorough understanding of the internal female genital tract anatomy (Figure 1.2). This cross-section demonstrates the relationship of the vagina, cervix, uterus, and adnexae to each other as well as the relationship to the two other important organ systems in the pelvis – the gastrointestinal tract (large bowel) and the urinary system (urethra and bladder). Distinguishing signs and/or symptoms attributable to the genital

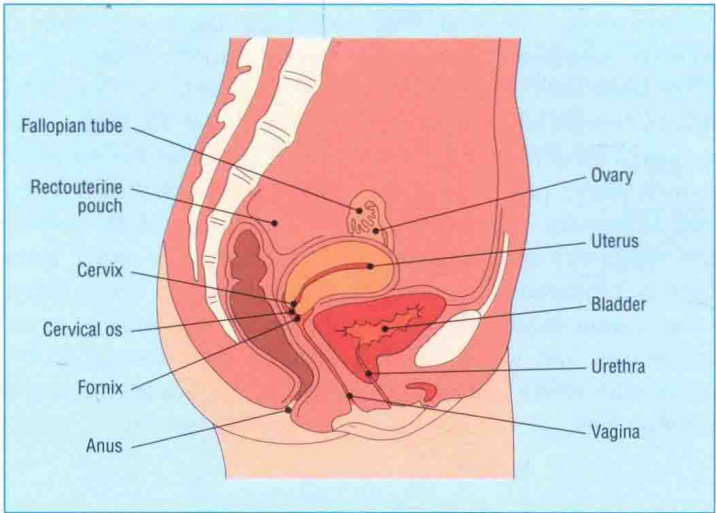


Figure 1.2. Female internal genitalia. (Reproduced from Rogstad KE, et al., *ABC of Sexually Transmitted Infections*, 6th edn. Blackwell Publishing: Oxford, 2011, with permission.)

tract versus the other adjacent organ systems is often challenging but occasionally very important to successful management.

With this basic understanding of the female anatomy, history-taking becomes the next key step (as in nearly all clinical evaluations). Focusing on specific symptomatology, exact timing of the onset of symptoms and length of time, alleviating and exacerbating factors, recent therapies (including self-chosen and nonprescription remedies) and presence/absence of partner(s) symptoms will help to narrow the differential diagnoses. The Centers for Disease Control and Prevention (CDC) has recommended an approach to sexual history-taking (5 Ps), which is covered more extensively in Chapter 17 (Prevention of Sexually Transmitted Diseases). This approach is strongly recommended to assist providers' ability to obtain key information in these evaluations that will lead to the correct diagnosis and management, thus improving clinical outcomes. Use of nonjudgmental, open-ended questions is suggested when eliciting a sexual history as this approach is more likely to produce meaningful and accurate information about sexual practices and risk factors.

After taking a thorough history and with a thorough understanding of the anatomy, all evaluations begin with an inspection of the vulvar area. Close attention to all elements of the external genital anatomy, the presence of any lesions, appearance and color of the skin, labia majora and minora, as well as any atypical findings is required. Obvious large lesions or other major findings should be noted and captured in a drawing for future reference. More subtle findings such as fissuring, labial agglutination, or small ulcers should also be sought, as they often give direct insight into the etiology of symptoms. Lymph nodes in the inguinal region should be routinely palpated for enlargement and/or tenderness (or rarely, fluctuance). For some of the vaginitides (i.e. vaginal candidiasis) and especially the noninfectious and/or dermatologic conditions, vulvovaginal inspection is often a high-yield component of the examination. After a thorough examination of the vulvar tissues (specific attention to color, tissue appearance, lesions, scaling, etc.), the vaginal introitus should be inspected for color changes, the presence of

lesions, and vaginal tissue rugosity (as a sign of endogenous estrogen stimulation).

Subsequent to the thorough inspection of the external anatomy and vaginal introitus, an appropriately sized speculum should be placed into the vaginal vault, and the vaginal tissues and cervix inspected. Again, attention to tissue color, texture, presence of discharge, anatomic origin of the discharge (vaginal vs. cervical os), and other signs should be noted on every patient. Origin of discharge is a key point, as cervical discharge has a vastly different etiology, evaluation, and management compared to discharge emanating from the vaginal tissues. Evaluation of discharge microscopically is also a very important component of nearly all genital tract evaluations (when considering infectious conditions) and can often yield highly valuable information. The specifics of these techniques will be discussed in ensuing chapters. Close attention to the cervical appearance is also a key to this part of the examination. Once this is performed (and any appropriate specimens obtained for testing), the speculum is removed.

Internal bimanual pelvic examination is then carried out in the usual fashion using two fingers in the posterior vagina to palpate and move the cervix, while placing the other hand on the lower abdomen to simultaneously palpate the internal genital organs. This component of the examination is done with specific attention to the findings of pelvic tenderness on motion of the cervix (i.e. cervical motion tenderness) and any adnexal and/or uterine findings. This too is an important part of the examination that can often give vital information about upper genital tract infection that requires specific (often prolonged) therapy. Rectovaginal examination is also an often used method to help to discern further the nature of any findings on pelvic examination, as well as specific findings in the anorectal canal itself, and should be used liberally.

Conclusion

Use of this standard and reproducible approach on every patient will improve the ability of the provider to objectively determine the cause of the symptomatology. This in turn will improve the management and patient outcomes from these often physically and psychologically debilitating conditions.

Specific Considerations for Pediatric and Adolescent Patients

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Introduction

The management of sexually transmitted infections (STIs) in children and adolescents requires the practitioner to apply a different approach from the one used for adult women.

To understand the screening and treatment algorithms, one must understand some basic epidemiology and behaviors that differentiate these patients from their counterparts. It is also important to understand the indications, techniques, and alternative methods of screening utilized with this population, especially because these patients may be hesitant to be screened and examined in the traditional way. When dealing with children and adolescents, understanding local law and state statutes regarding the confidentiality of their reproductive healthcare is also important as it dictates the type of services they can receive without parental notification and also determines the rules and regulations for reporting. This is not only noted in the presence of certain infections such as chlamydia, but more importantly among those patients who might have been victims of sexual abuse.

In general, children are screened and treated for STIs related to involuntary intercourse or genital contact. Examples of these inappropriate contacts may include sexual abuse with penetration or

simply the placement of male genitals in contact with the child's vulva. The management of children with STIs requires a multidisciplinary approach and should include collaboration between the governmental agencies (such as child protective services), laboratory, and clinicians. Some infections acquired after the neonatal period are consistent with sexual abuse (i.e. gonorrhea), while other diseases such as HPV may not be. A full understanding of the management of victims of sexual abuse is important for those caring for this population and is beyond the spectrum of this chapter.

Adolescents, on the contrary, are more commonly screened and treated for acquired infections due to consensual sex. The approach to each of these scenarios is different, and the evaluation and management for each patient and conditions will be presented in separate sections.

The physical examination

Prepubertal girls

The initial step in the examination of children is to obtain the cooperation of the child. While explaining the examination to the patient, allow her to have some say in the process (e.g. give the child a choice of examination gown to wear).

Starting with an overall assessment of the child before initiating the genitalia examination is recommended as it will provide an opportunity for the patient to become comfortable with the examiner and proceed with the genital examination.

In order to be able to visualize the genitalia of children, positioning plays a key component to the success of the examination. Multiple positions have been described to allow adequate visualization, and, in some situations, more than one position may be required to complete an adequate genital examination. The frog-leg is the most commonly used position in the younger patient, allowing her to have a direct view of the examiner and herself (Figure 2.1). The knee-chest position is adjunctively helpful in some cases in visualizing the lower and upper vagina with the use of an otoscope or other low-power magnification. This position may be especially helpful in those patients for whom a vaginal discharge may be a complaint (Figure 2.2). As the child grows older, the use of stirrups and the lithotomy position may provide the best visualization of the area. Having the mother hold her daughter on her lap may also be of assistance. In certain instances, even the most experienced examiner will be unable to complete the examination because the child will not fully cooperate. In these patients, the emergent nature of the complaint and the clinical consequence of the pathology

must be considered. A multivisit examination or an examination under anesthesia may be warranted.

The use of gentle traction with lateral and downward pulling may improve visualization while maintaining the integrity of the normal prepubertal genitalia (Figures 2.3 and 2.4). The examiner must be careful not to cause any trauma or pain in the area, as it will promptly make the patient uncomfortable and possibly lead to a premature termination of the examination. In the prepubertal female, the unestrogenized nature of the hymenal tissue makes it sensitive to touch and easily torn.

Although the evaluation of the internal pelvic organs may not be easy, the use of a recto-abdominal examination may assist in the palpation of the internal organs as well as possible pelvic masses. Proper nomenclature of the female genitalia should be used when reporting a pediatric genital examination to prevent confusion between examiners. Components of such an examination include assessment of pubertal development (Tanner stage), visualization and measurement of the clitoris, and description of the labia majora and minora including any discoloration, pigmentation, or lesion. The appearance of the urethra, meatus, and hymen (including type or shape, estrogen status, and abnormalities) should be detailed. Estrogenization at puberty thickens the hymen, which



Figure 2.1. A 5-year-old child demonstrating the supine “frog-leg” position. (Reproduced from McCann JJ, Kerns DL. *The Anatomy of Child and Adolescent Sexual Abuse: A CD-ROM Atlas/Reference*, Intercort, Inc.: St. Louis, MO, 1999 with permission.)

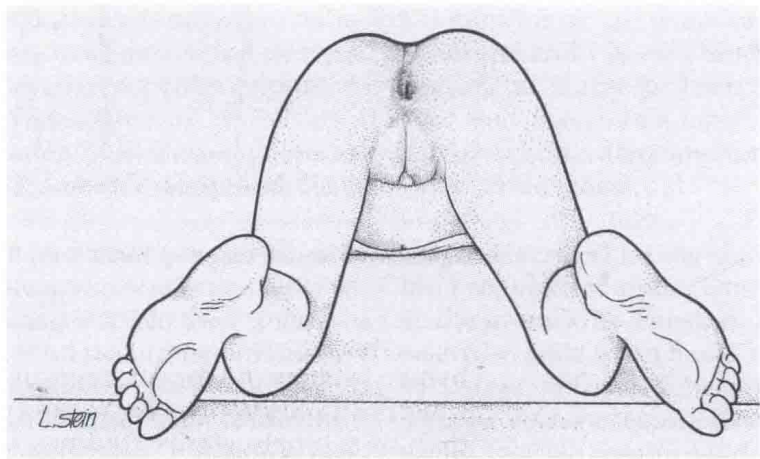


Figure 2.2. Technique for examination of female genitalia in prone knee–chest position. (Reproduced from Finkel MA, Giardino AP (eds.). *Medical Examination of Child Sexual Abuse: A Practical Guide*, 2nd edn. Sage Publications: Thousand Oaks, CA, 2002; pp. 46–64, with permission.)

becomes pale pink and is often more redundant in its configuration, but in the prepubertal patient the hymen is thin, red, and unestrogenized. If the cervix is visualized in the knee–chest position, it is important to document its appearance.

Using special techniques to obtain specimens

The hymenal opening is small in this age group, and traditional cotton swabs create discomfort. When vaginal specimens for culture must be collected, moistened small Dacron swabs (male

urethral size) may be used as they are thin and easy to insert without touching the hymen. While making the collection of the sample less traumatic, the accuracy of the test does not change. Another helpful method is a catheter-within-a-catheter technique in which a 4-inch intravenous catheter is inserted into the proximal end of a No. 12 red rubber bladder catheter. This is then connected to a fluid-filled syringe passed carefully into the vagina. The fluid is then injected and aspirated multiple times to allow a good

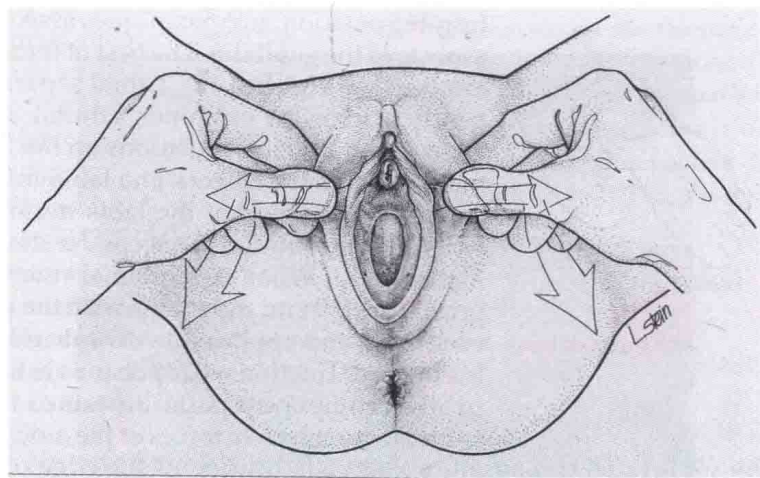


Figure 2.3. Labial traction technique for examination of female genitalia in the supine frog-leg position. (Reproduced from Finkel MA, Giardino AP (eds.). *Medical Examination of Child Sexual Abuse: A Practical Guide*, 2nd edn. Sage Publications: Thousand Oaks, CA, 2002; pp. 46–64, with permission.)

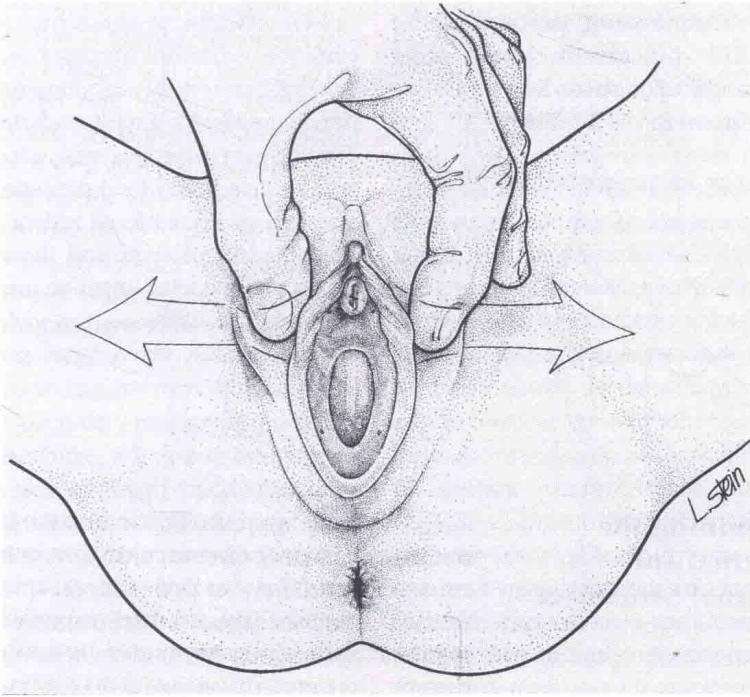


Figure 2.4. Labial separation technique for examination of female genitalia in the supine frog-leg position. (Reproduced from Finkel MA, Giardino AP (eds.). *Medical Examination of Child Sexual Abuse: A Practical Guide*, 2nd edn. Sage Publications: Thousand Oaks, CA, 2002; pp. 46–64, with permission.)

mixture of secretions. These specimens may be sent for culture as needed without affecting the sensitivity or specificity of the tests (Figure 2.5).

As some children age, they may be able to tolerate more office procedures without the need for sedation. In this case, a pediatric feeding tube connected to a 20-mL syringe filled with warm water or saline may be used to irrigate the contents of the vagina and collect the secretions for culture or wash out small pieces of foreign body material such as toilet paper. This can make the need for specula unnecessary in these prepubertal patients who have a small hymenal aperture that would be injured with the insertion of a speculum.

★ TIPS & TRICKS

- When collecting specimens in children, moisten your swabs.
- Do not touch the hymen or you may lose the patient as she may not tolerate the remainder of your examination.
- If using water for vaginal rinse make sure it is warm.

When documenting the findings of the examination and anatomical variations one should merely described the findings and not make

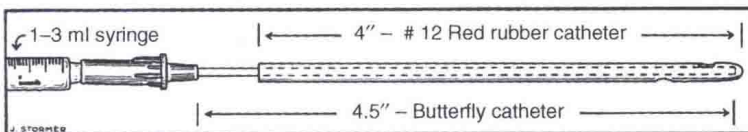


Figure 2.5. Assembled catheter-within-a-catheter aspirator, as used to obtain samples of vaginal secretions from prepubertal patients. (Reproduced from Pokorny SF, Stormer J: Atraumatic removal of secretions from the prepubertal vagina. *Am J Obstet Gynecol* 1987; **156**: 581–582, © 1987 Mosby with permission.)