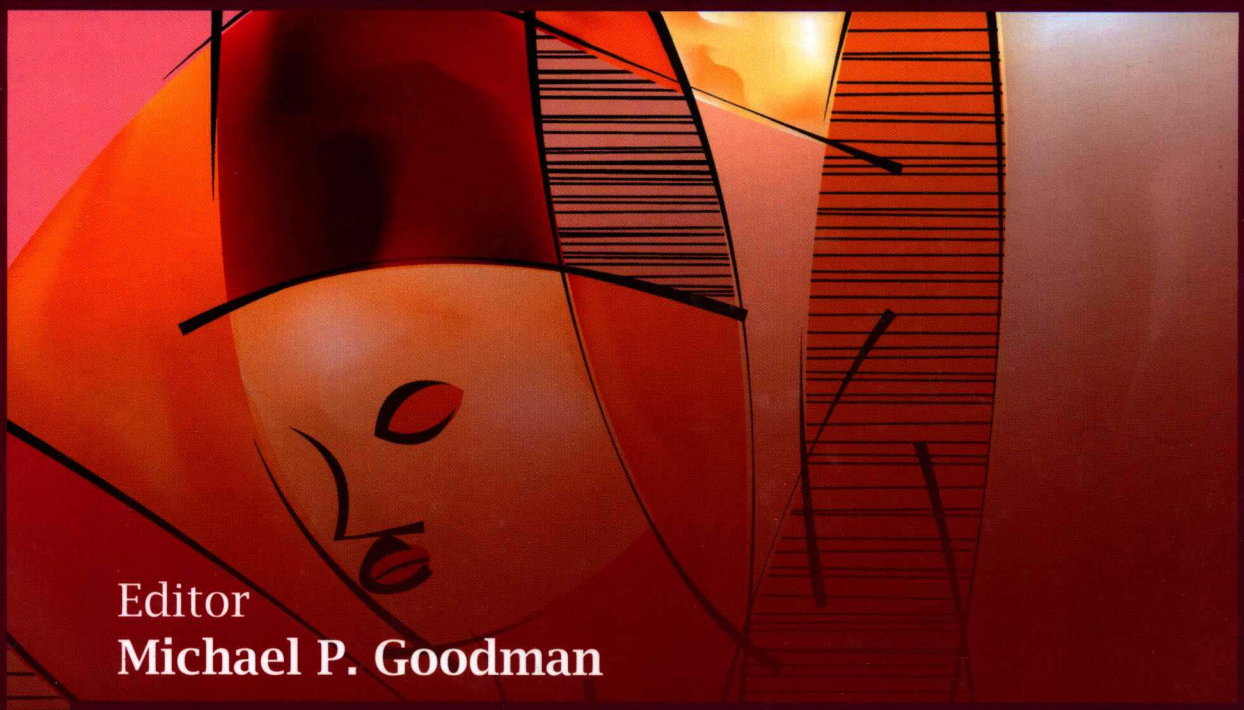

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Female Genital Plastic and Cosmetic Surgery

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Caring for Women Wellness Center
Davis, CA, USA

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Preface

A women has the opportunity to request alteration of her vulva and/or vagina for a variety of reasons. Clinicians in the office hear of cosmetic and self-esteem rationale, as well as functional complaints. Regarding the vulva, distress with the appearance of "flaps" or "elephant ears" or other protrusions beyond the labia majora; self-consciousness; and distress over potential prominence or slippage of hypertrophic labia from beyond the confines of thong-type undergarments or swimwear predominate on websites, blogs, and office commentary. Discomfort ("chafing") with sports, sexual, and other activities; discomfort with tight clothing; necessity to "re-arrange" the labia for sexual intimacy; and hygienic difficulties predominate functional complaints heard in the office. Redundant labia majora are described as "droopy," or the patient dismays over the appearance of "camel toe."

Sexual issues dominate pelvic floor complaints in women inquiring about a vaginal tightening procedure. They describe a "sensation of wide/smooth vagina" (a term popularized by Jack Pardo S. from Chile and Adam Ostrzenski from the United States) with secondary diminishment of friction, less sensation, and greater difficulty achieving orgasm, at times concomitant with displeasure regarding the visual appearance of the introitus.

Size-reducing labia minoraplasty and/or majoraplasty (LP-m; LP-M), size reduction of redundant clitoral hood folds (RCH), posterior colporrhaphy/perineoplasty (PP), and anterior colporrhaphy/vaginoplasty (VP), the latter two colloquially termed "vaginal rejuvenation" (VRJ), are increasingly common women's cosmetic genital surgical procedures and have been subject to scrutiny both in the press and by investigators and editorialists. Another genital plastic procedure, hymenoplasty (HP), is usually performed for religious and cultural reasons, although occasionally requested as a "gift" for one's sexual partner.

In this text, the first to concentrate on plastic and cosmetic procedures specifically designed for elective comfort, self-esteem, and sexuality reasons, the procedures themselves, their rationale and risks, what is presently known regarding outcome, ethical considerations, and psychosexual considerations are discussed. The importance of proper and adequate surgical and sexual medicine training for surgeons is emphasized, along with the specific anatomic adjustments and psychosexual outcomes produced by these procedures.

The specific surgical procedures are defined and described. The importance of proper patient selection and preparation and adequate patient protection are reviewed, along with reminders of the intensely sexual nature of this work and the importance of counseling patients regarding their personal normality, while at the same time acknowledging their right to seek reconstruction.

Above all, this text hopes to familiarize the gynecologic, the plastic and reconstructive, and the cosmetic surgeon with a crucially important area of a woman's body, the intensity of her concentration and concern about the appearance and function of the area, and the availability and potential pitfalls of methods, predominantly surgical at this time, designed to meet her stated goals. We, your editor, associate editors, and contributors, intend to help raise your awareness of the issue and begin to explore the territories entered with an understanding of women's body image, feelings about their genitalia, and surgical and non-surgical options to safely and effectively achieve personal goals.

Michael P. Goodman
Davis, CA, USA

Acknowledgments

First and foremost, I wish to acknowledge Drs. Marco Pelosi II and III and Dr. Red Alinsod. The vision, perseverance, and educational efforts of these friends have resulted in the education and training of hundreds of genital plastic and cosmetic surgeons who are far more likely to accomplish success rather than failure for their patients. They are fine surgeons and educators.

Of course I am indebted to each and every one of the authors and associate editors (especially my friend Dr. Otto Placik) who have worked their behinds off on this project, and without whose efforts this unique book would not be before you. I am personally indebted to Dr. Gary Alter, from whose 1998 publication I initially learned the labiaplasty technique of modified V-wedge, and Dr. David Matlock, from whom a few years later I learned proper technique for curvilinear resection, and who has carefully trained hundreds of genital plastic/cosmetic surgeons. They are pioneers in the field.

Martin Sugden, publisher of the Scientific Textbook Division at Wiley, is my mentor in this book, Pri Gibbons and Jasmine Chang is my editor and Radjan Lourde Selvanadin is the project manager. They both have worked "above and beyond." An author could not ask for a more knowledgeable, flexible, and easy to work with pair of professionals.

I offer my thanks to my family, my friends, especially my son, Sam, from whom I was aloof during the full-term gestation of this project. They all hope this is the termination of my writing—at least for a while!

I thank my professional, empathetic, kind, and flexible office staff. Nicole Sanders is our patient care coordinator, office manager, and first assistant. Raechel Davis is our receptionist and first assistant. Elise Eisele and Heather Kochner were our surgical nurses during this text's gestation. There is absolutely no way I could practice genital plastic surgery without this crew!

And last, but certainly not least, I wish to thank my patients. These intrepid and trusting (!!) souls, women on a mission, wonderfully weave through this text, which would not exist without them.

Contents

CHAPTER 1
Introduction

Michael P. Goodman
Caring for Women Wellness Center, Davis, CA, USA

The time is the time. After the time is sometimes the time. Before the time is never the time.

Francois Sagan

Female genital plastic/cosmetic surgery (FGPS), aka female cosmetic genital surgery (FCGS), vulvovaginal aesthetic surgery (VVAS), aesthetic (vulvo)vaginal surgery (AVS), or cosmeto-plastic gynecology (CPG), has mounted the stage of twentieth-century cosmesis. Adding in the promise of improvement in sexual function makes for an intriguing debut.

As this elective plastic/cosmetic surgical discipline, like many novel surgical and medical disciplines, traces its genesis to a community rather than academic setting, the succession of different but related names have mirrored the semantic directions of individuals and subspecialty organizations. Although any of the terms noted above will do, for the purposes of this textbook the quite descriptive term FGPS will be utilized.

As women become more comfortable with the idea of elective procedures on their faces, breasts, skin, and so forth designed to enhance their appearance and self-confidence, it is not surprising that they may wish to alter, change, "rejuvenate," or reconstruct even more intimate areas of their bodies [1].

Although surgeons for years have unofficially performed surgical procedures resulting in alterations in genital size, appearance, and function (labial size alteration, perineorrhaphy, anterior/posterior colporrhaphy, intersex and transsexual surgical procedures, and alterations on children and adolescents for benign enlargements of the labia minora), Honore and O'Hara in 1978 [2], Hodgekinson and Hait in 1984 [3], and Chavis, LaFeria, and Niccolini in 1989 [4] were the first to discuss genital surgical alterations performed on adults for purely aesthetic reasons. While there are at present no accurate and ongoing published statistics from either the American Society of Plastic Surgeons, American Academy of Cosmetic Surgeons, or American College of Obstetricians and Gynecologists, it has become apparent in the lay press that aesthetic surgery of the vulva and vagina is gaining significantly in popularity. As far back as 2004, Dr. V. Leroy Young, chair of the emerging trends task force of the Arlington Heights, Illinois, American Society of Plastic Surgeons, commented in a personal communication that he felt that "labiaplasty and vaginal cosmetic surgery are the fastest growing emerging growth trend in cosmetic plastic surgery."

Aesthetic surgery of the vulva and vagina has heretofore not been officially described as such, nor "sanctioned" by specialty organizations, as they are community rather than university or academically driven. The operations themselves, however, are really not new; the only new thing is the concept that women may individually wish to alter their external genitalia for appearance or functional reasons, or tighten the vaginal barrel to enhance their sexual pleasure. However, since any surgery has potential for causing morbidity including pain and distress (both physical and psychological) if not performed properly, and especially since FGPS involves concepts and procedures that are not yet fully researched

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nor understood, guidelines for training, surgical technique, and patient selection should be discussed.

This textbook will give an overview of the most commonly performed procedures: labiaplasty of the minora and majora (LP-m; LP-M), size reduction of redundant clitoral hood epithelium (RCH), clitoral hood exposure for symptomatic phimosis (RCH-p), perineoplasty (PP), vaginoplasty (VP), colpoperineoplasty (CP; a combination of VP and PP), and hymenoplasty (HP), and will discuss rationale for surgery, ethical issues, patient expectations, patient selection and patient protection, complications, training issues, psychosexual issues, the procedures themselves, and all presently available outcome data. "Vaginal rejuvenation" (VRJ), a slippery and colloquial—although frequently used—term used to mean elective VP, PP, and/or CP (and for some, even LP) will be discussed.

First performed by community gynecologists or plastic surgeons in response to occasional patient requests in the mid-/late 1990s and early 2000s, by the mid-2000s the alternative of surgical alteration or reconstruction for "enlarged" labia/clitoral hood, and vaginal operations geared primarily to a goal of tightening for reasons of enhancement of sexual satisfaction, became more widely available and a subject of comment, blog, search, and consultation.

Although certainly the vulva and vagina are areas under the purview of gynecology and gynecologic training, *virtually no training* is offered in OB/GYN residencies in plastic technique, cosmetic labiaplasty, or pelvic floor surgery designed specifically for enhancement of female sexual pleasure (see Chapter 21). With the subject adequately addressed by only a portion of plastic surgery residencies (and in these, usually LP/RCH only), an individual patient finds herself on her own when endeavoring to navigate a path to successful reconstruction. With little guidance from specialty or regulatory agencies, "caveat emptor" became the rule, and un- or undertrained surgeons began performing these plastic procedures, frequently with less-than-optimal, and occasionally disastrous, results.

A textbook cannot substitute for a teaching program, observation of proper technique, and actual performance of procedures with expert proctoring. However, this text will point the way and provide guidance toward those ends. It is designed to be a complete teaching guide to be used concomitantly with a hands-on teaching program, designed to develop competency leading to proficiency for female patients putting their trust in the hands of their gynecologic, plastic, or cosmetic surgeon. It is intended to educate the uninitiated and point the way toward the goal of comfort working with—psychologically, sexually, physiologically, and surgically—women who desire a guide to help them achieve their cosmetic, functional, sexual, and psychological goals.

After an introduction to the relatively brief "history" of the surgical specialty and discussion of pertinent anatomy, and after a thorough discussion of patient rationale for surgery, elements of patient protection, and the relevant ethical issues involved, the specifics of the most commonly utilized surgical techniques for both vulvar and vaginal procedures will be dissected and discussed in detail. Following this, patient selection technique and the biomechanics and physiology of tightening operations as they relate to the female orgasmic cascade will be discussed in depth. After a review of surgical risks, individual chapters will be devoted to important topics such as choice of anesthesia, surgical venue, complication avoidance, transgender surgery, and the important topic of revisions and re-operations. The book continues with in-depth discussions of psychosexual issues, up-to-date outcome data, and a chapter devoted entirely to brief "pearls" involving physician and patient protection. The editor's suggestions for implementing training programs and minimal "standards of care" will conclude the book.

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CHAPTER 2

Genital plastics: the history of development

Michael P. Goodman
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With a contribution from David Matlock

The only reason some people get lost in thought is because it's unfamiliar territory.

Paul Fix

Documented since the time of the pharaohs in ancient Egypt, women throughout history have modified their genitalia via adornments, devices, colorations, bleaches, and reductive and expansive techniques.

Although gynecologic surgeons have for years performed surgical procedures resulting in alterations in genital size, appearance, and function (repairs after obstetrical delivery, perineorrhaphy, anterior/posterior colporrhaphy, intersex and transsexual surgical procedures), in addition to reductions for pediatric labial hypertrophy, Honore and O'Hara in 1978, Hodgekinson and Hait in 1984, and Chavis, LaFeria, and Niccolini in 1989 were the first to discuss genital surgical alterations performed for aesthetic and/or sexual reasons (see references 2–4 in Chapter 1).

Traditionally taught in OB/GYN residencies as surgical procedures designed for symptomatic pelvic floor herniations of bladder, urethra, rectum, or peritoneal cavity, but never proposed as a sexual-enhancing surgical procedure, traditional anterior and posterior "repairs" (colporrhaphies) are being adapted to improve sexual function by strengthening the pelvic floor and tightening the vaginal barrel to produce greater friction and vaginal wall pressure. This "shifting" of indications and modification of traditional gynecologic surgery primarily for reasons of enhancement of sexual function has not been without controversy, as gynecologic academic organizations such as the American Congress of Obstetricians and Gynecologists (ACOG) have officially decried this representation [1].

In step with ACOG, the Society of Obstetricians and Gynaecologists of Canada (SOGC) published its Policy Statement No. 300, December 2013 [2], in which they opine that the literature "does not support non-medically indicated female cosmetic surgery procedures considering the available evidence of efficacy and safety." This document appears to be a modification of the ACOG Opinion No. 378, September 2007, referenced above and, as was the ACOG opinion, was written by non-community academics, few if any of whom have any experience in the field of genital plastics or the benefit of consultation with or study of women seeking genital cosmetic care.

The same SOGC document advises practitioners in Canada that "Physicians who choose to undertake cosmetic procedures to the vagina and vulva should be appropriately trained in the gynaecologic and/or plastic surgery aspects of cosmetic surgery of the lower genital tract."

Although multiple articles describing vulvar labiaplasty technique, along with small retrospective case series, are available in the literature from the late 1980s onward (3–15), it was not until the early twenty-first century that procedures designed specifically for reduction of labial and clitoral hood size, narrowing of the hymenal aperture, and increasing vaginal wall pressure by surgical narrowing of the vagina were widely publicized in the lay press and online. As an extension of "women's liberation" and the owning of her own sexuality, and with the advent of social sharing

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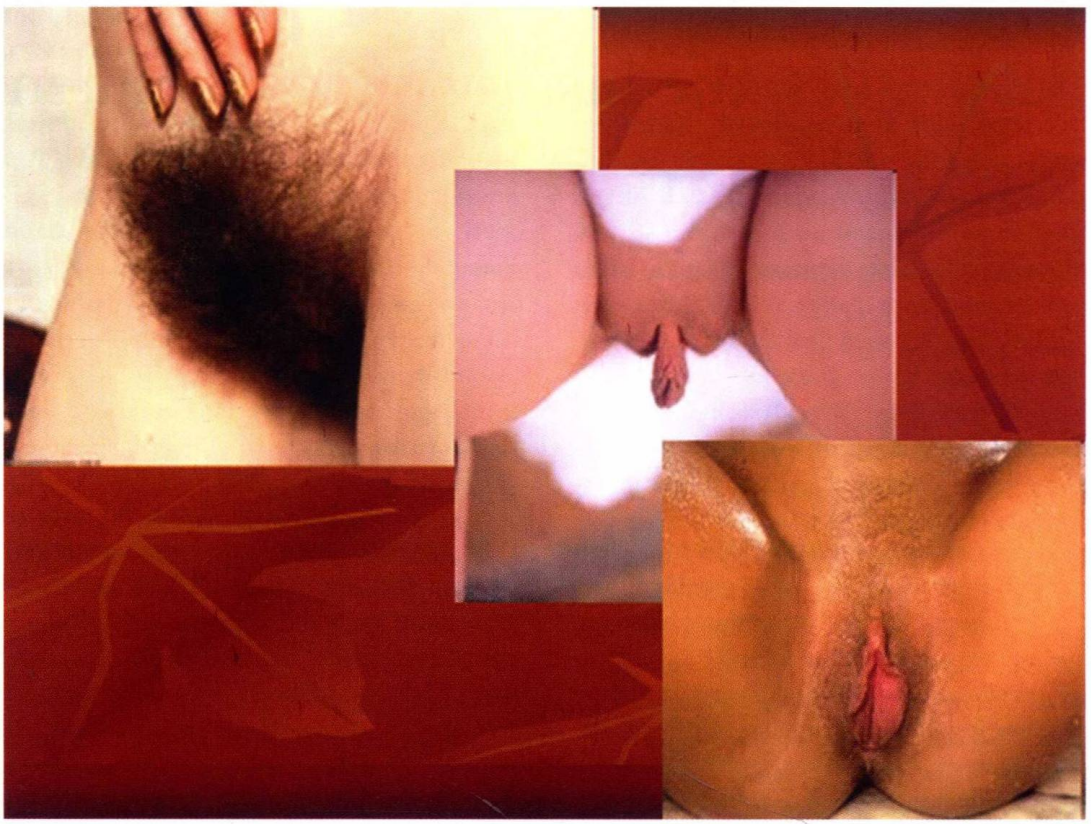

Figure 2.1 Visibility and "cushioning" of vulvar structures. Source: Michael P. Goodman. Reproduced with permission.

sites, more vulvar visibility secondary to various depilation techniques (Figure 2.1), and wishing to improve one's self-image to "feel more comfortable in her own skin," women in increasing numbers are seeking vulvar and vaginal aesthetic and plastic modifications.

While no "official" statistics on the varied FGPS procedures are kept by either the American Academy of Cosmetic Surgeons, the British Association of Aesthetic Plastic Surgeons, or the American Society of Plastic Surgeons (ASPS), the ASPS did note a 30% increase in "VRJ" procedures between 2005 and 2006 (793 to 1,030) but did not keep statistics beyond 2006 (16). The American Society for Aesthetic Plastic Surgery (ASAPS) kept demographic data for "VRJ" procedures in 2007 and found that of 4,505 procedures noted, 38.1% were in the 19–34 age group, 54.4% age 35–50, 2.4% 18 and under, and 5.1% 51 and older (17). According to the ASAPS 2012 statistics presented at their 2013 annual meeting, over 3,500 vaginal rejuvenation (CP, VRJ, PP) procedures were performed, representing a 64% increase from 2011. Informal polls of high-volume genital plastic/cosmetic surgeons by the editors of the journal of the ASAPS, along with the increase in volume of liability actions referable to genital cosmetic surgery, suggest a continued rise in the public's interest in these procedures. Although, in this author's estimation, obstetrician-gynecologists perform a volume equal to that of plastic surgeons, gynecology specialty organizations have taken no interest in promoting these procedures in any way, including keeping statistics involving numbers performed annually by their members. I suspect both plastic surgery and OB/GYN societies would be surprised at the actual volume.

Mirzabeigi *et al.* in 2009 surveyed members of the ASPS via electronic mail (18); 750 surgeons responded (a 19.7% response rate.) Although selection bias very likely increased the rate, 51% of the sample currently offered labiaplasty, and responding members performed a total of 2,255 procedures in the previous 2 years (2007, 2008).

A major milestone in the development of surgical technique was reported in the 1998 article by Gary Alter, MD (8), describing the "modified V-wedge" procedure for reducing labial volume. Developed in response to the often poor cosmetic appearance and edge sensitivity noted by many patients receiving a linear resection-based labiaplasty performed with large-caliber suture and

often a continuous running suture technique, Alter's procedure, although requiring a longer learning curve and representing an increased risk of wound disruption, offered the promise of better cosmetic appearance and little risk of neurological alteration, a potential benefit not proven by prospective research.

Instruction in plastic tissue handling and suturing technique and the specific procedures of cosmetic labiaplasty and aesthetic hood reduction, as well as sexual pleasure-enhancing perineoplasty, is absent from virtually all OB/GYN residency programs. Cosmetic labiaplasty technique is taught in only a percentage of plastic surgery residencies (and pelvic floor surgery rarely taught). Due to the lack of training in academic centers, it was inevitable that community surgeons would respond to the emerging and burgeoning demand for cosmetic female genital procedures. Unfortunately, many gynecologists, by virtue of being vaginal surgeons and having observed or performed a limited number of extirpative labial techniques (for in situ or invasive malignancies) in residency, feel that they are equipped to perform both labial reductive and vaginal floor-tightening procedures for reasons of enhancing sexual pleasure. Although gynecologists are trained in pelvic floor restoration, they are undereducated in the use of these surgical techniques specifically for sexual indications. The reality is that, in the absence of any meaningful instruction in careful plastic technique, or instruction in aesthetic labiaplasty or sexuality-oriented vaginoplasty/perineoplasty, general gynecologists, as well as a large percentage of plastic surgeons, are ill equipped to perform these procedures. Academic physicians, most recently Cheryl Iglesia, MD [19], who write editorials, "regulations," and "practice advisories," are also not specifically trained and/or experienced in these procedures and appear to shun what they do not understand.

In his own words, Dr. David Matlock, one of FGPS's early pioneers, describes his seminal experience.

> The history of the development of female genital plastic and cosmetic surgery
>
> *David Matlock*
>
> My path in FGPS started in 1996. In general, my interest in cosmetic surgery started in 1987 with the implementation of liposuction into my gynecology practice. The tumescent liposuction technique revolutionized liposuction and eventually was employed in other procedures including breast reductions performed via tumescent liposuction. During this time, I was also interested in the emerging trend of laser technologies for surgery. I took as many hands-on laser courses as available and read the latest textbooks. It wasn't long before I had a desire to apply this cosmetic and laser knowledge to vaginal surgery. My goal at the time was to restore form, function, and appearance.
>
> To formulate my knowledge base and surgical technique I reviewed research papers and pertinent chapters of *Gray's Anatomy*, *Te Linde's Operative Gynecology*, and *Grabb and Smith's Plastic Surgery*. The objective was to extrapolate from scientific knowledge and formulate a procedure consistent with the goals of enhancing form, function, and aesthetic appearance. The vulvovaginal structures of young nulliparous patients in my practice served as a model to emulate in surgery. A big part of cosmetic surgery is restoring youth or creating a more youthful appearance. I took a common gynecologic procedure, anterior, posterior colporrhaphy and perineorrhaphy, with well-documented outcomes, efficacy, risk, and complications and modified it to accomplish cosmetic and sexual objectives. The modifications included a tumescent solution infiltration of the vaginal mucosa, a 980 nm diode laser to perform all the cutting and dissecting, plastic surgery suturing techniques, attention to detail and alignment of structures (hymenal ring, ends of the labia minora and outer border of the labia majora). The patients were also given a pudendal block with 0.5% Marcaine with epinephrine, which provided prolonged post-op pain-control anesthesia. I felt the purpose of the procedure would be better served if I thought more like a plastic surgeon than a gynecologist.
>
> My first case was a 42-year-old G4 P4 with mild stress urinary incontinence and a POP 2 cystourethrocele and rectocele. She was consented for an anterior, posterior colporrhaphy and perineorrhaphy. Her surgery and post-operative course were uneventful. Shortly after resuming normal sexual activity the patient and her husband called me and she said, "Sex is great now." The patient's husband went on to say, "It is like having the same wife, but a new woman." I didn't make much of it at the time. Instead, I kind of filed it away in the back of my mind.
>
> Shortly after this, the patient's friend came in requesting the same procedure because her friend had reported improved sex. This patient was 38 years old with three children. She noted that her sexual gratification had diminished with the birth of each subsequent child. She stated that she didn't have a functional problem such as stress urinary incontinence, rather wanted the procedure to enhance sexual gratification. After careful thought and consideration, I ultimately performed the procedure and achieved similar results as with the first patient. This second patient reported enhancement of sexual gratification for her and her partner. Shortly thereafter, I coined the term Laser Vaginal Rejuvenation (LVR).
>
> Over time, more and more patients came in requesting LVR for enhancement of sexual gratification. It eventually became clear to me that a true need existed for this type of procedure. Prior to launching a program, I wanted to

establish parameters to avoid going against the grain of the "medical establishment." These were as follows:

- The procedures were viewed as strictly cosmetic, fee for service, not covered by insurance.
- As with any cosmetic surgery (breast augmentation, breast reduction, liposuction, rhinoplasty, blepharoplasty, etc.), LVR is more about lifestyle, personal preference, and choice.
- Patients had to request the surgery under their own volition. If they were coerced, influenced, or forced, the surgery would be denied.
- If patients had body dysmorphia syndrome, psychological disorders, sexual dysfunction, pelvic pain, unrealistic expectations, and so forth, the procedure would be denied.
- If the patient wanted the procedure to produce vaginal orgasms due to the fact that she only experienced clitoral orgasms, the procedure would be denied. It would also be explained to the patient that perhaps this was normal for her. I wanted to convey that the procedure was for the enhancement of sexual gratification, which among other things is directly related to the amount of frictional forces generated. This was a clinical observation.
- The environment had to be one where patients felt comfortable in opening up to discuss their medical, physical, sexual, and social self.
- Patients' participation in their healthcare and surgical design was strongly encouraged. In the final portion of the consultation, patients were given a mirror and were shown what the procedure entailed.
- The husband/partner was encouraged to be present during the consultation, if the woman so desired.
- A mission statement was developed: Our mission is to empower women with knowledge, choice and alternatives.
- Medical legal concerns: I collaborated with a healthcare attorney to devise a comprehensive informed consent document.

My launch strategy initially involved marketing and media, feeling additionally that research on a new procedure/technique/concept, and so forth is to be done as soon as feasible. Like most new procedures (e.g., laparoscopic hysterectomy) time is required to build caseloads and surgical experience before embarking on research. I felt that it was more prudent to help create awareness among physicians and patients and in so doing caseloads could be developed and ultimately research would be done. I also felt that I was on solid ground since LVR was based upon a standard existing surgical procedure.

I went on and placed an ad in a weekly newspaper. Over time, the practice was inundated with calls, consultations, and surgeries. I had to pull the ad because I couldn't keep up with the demand.

Local, national, and international media began requesting interviews on the subject matter. Additionally, patients started requesting reduction of their labia minora and the excess prepuce. I approached each request with literature searches, extensive review of the anatomy, and lab work on animal models (pig ears). I continued until I successfully developed a laser reduction labioplasty with the reduction of the excess prepuce and named this technique Designer Laser Vaginoplasty (DLV). Each of the procedures was developed based upon the request of women. All of the procedures were developed with systems and methods in mind, so that they could easily be reproduced and taught to other surgeons. The procedures are as follows:

- [laser reduction] labioplasty of the labia minora;
- reduction of the excess prepuce;
- [laser reduction] labioplasty of the labia majora via a vertical elliptical incision;
- [laser] perineoplasty as a modification of posterior colporrhaphy;
- liposuction of the fatty mons pubis and superior aspect of the labia majora;
- augmentation of the labia majora via autologous fat transfer;
- supra-pubic lift of the vulvar structures;
- [laser] hymenoplasty.

Around 1998, I started getting calls from gynecologists from around the country inquiring about a training program. This was something I had not thought about. While pursuing a healthcare executive MBA program at the University of California at Irvine, I developed a training program with the assistance of my professors and fellow graduate students. By the time I matriculated in 2000, I had a comprehensive business plan to launch a training program called the Laser Vaginal Rejuvenation Institute of America. The course would be three days in length and include eight hours of didactics, a full day of intraoperative observation of the procedures, and a day in the inanimate lab. The lab was where the surgeons would perform all of the procedures on animal models. As of 2013, 411 surgeons including gynecologists, plastic surgeons, and urologists from over 46 countries have been trained.

I have had the privilege of treating patients from all 50 states and over 65 countries. As predicted, FGPS has been brought into the mainstream. Surgeons are performing the procedures throughout the world and the research is flowing!

Politically, the waters remain muddy. Although a robust literature regarding the rationale, safety, and effectiveness of genital plastic/cosmetic procedures exists, and is quoted extensively throughout this text, this literature apparently "disappears" for the authors of "official positions" for the hierarchy of some specialty organizations. ACOG, the organization purporting to represent OB/GYNs, made clear their opinion, discussed above, in 2007. Their position was further discussed in 2012 as a "College Statement of Policy" ("The Role of the Obstetrician-Gynecologist in Cosmetic Procedures") [20], where they opined that "Obstetrician-gynecologists who offer procedure typically provided by other specialists should possess

an equivalent level of competence," and that "the obstetrician-gynecologist must be knowledgeable of the ethics of patient counselling and informed consent." This opinion finds no argument from your editor. However, they also advise that "Special care must be taken when patients are considering procedures in a effort to enhance sexual appearance and function, as female sexual response has been shown to be an intricate process determined predominantly by brain function and psychosocial factors, not by genital appearance." As discussed and referenced especially in Chapter 17 in this text, the authors of this statement have not been diligent in their research, as there is a robust literature (21–26) showing exactly the opposite: that female sexual response, while admittedly complex, *is* certainly influenced by genital appearance.

Further "guidance" has been forthcoming from ACOG, following up on their 2007 statement of "caution." In regards to vaginal tightening procedures [1], a new Committee Opinion, replacing a 2008 statement on non-traditional surgical procedures, was issued in October of 2013 [27]. The statement was written by the ACOG's Committee on Ethics and published in the November 2013 issue of *Obstetrics and Gynecology* [27], ACOG's official publication. In it, ACOG acknowledges that "the importance of patient autonomy and increased access to information, especially information on the Internet, has prompted more requests for surgical interventions not traditionally recommended." In drafting the statement, the committee aimed "to provide an ethical framework to guide physicians' responses to patient requests for surgical treatment that is not traditionally recommended." While written more for the eventualities of elective Cesarean section before onset of labor, and prophylactic removal of ovaries in a woman at very significant risk for breast or ovarian cancer, the committee notes that, "depending on the context, acceding to a request for a surgical option that is not traditionally recommended can be ethical," and that "decisions about acceding to patient requests for surgical interventions...should be based on strong support for patients' informed preferences and values."

While the politics remain interesting, the handwriting is on the wall: patient autonomy (see Chapter 6) is paramount, and physicians can and will perform these procedures, provided that the patient is well informed, not pressured, and the physician adequately trained for the specific procedure he or she plans to perform.

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CHAPTER 3
Anatomic considerations

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Introduction

Pelvic floor dysfunction is a common health issue in women [1], with an 11.1% lifetime risk of undergoing pelvic floor reconstructive surgery [2]. Researchers have predicted that surgery for stress urinary incontinence (SUI) and pelvic organ prolapse (POP) will have increased by 47.2% over the next four decades [1]. In addition, female genital cosmetic surgery has became more available in the general population [3]. Integrity of the pelvic floor is a basis for the physiology of this complex anatomical region, as it is involved in functions such as defecation, urination, and sexual activity. The prevention of POP and maintenance of continence also depend on the pelvic floor supportive system.

This chapter focuses on the functional anatomy of the pelvic floor and relations to female genital cosmetic surgery. The chapter is divided into three sections: general pelvic floor anatomy, external genital anatomy and inter-relationships, and internal anatomy/inter-relationships.

General pelvic floor anatomy

The bony pelvis

The bony pelvis is composed of sacrum, ileum, ischium, and pubis. The pelvis is divided into the major (false) and minor (true) pelvis. The major pelvis is a part of the abdominal cavity that is superior to the pelvic brim. The minor pelvis is an inferior and narrower continuation of the major pelvis (Figure 3.1). The anatomical landmark of major and minor pelvis consists of the pelvic symphysis, coccyx, and sacrum at the back. A wider transverse inlet and narrower obstetrical conjugate predispose the female to subsequent pelvic floor disorders [4]. For pelvic reconstructive surgeons, various parts of the bony pelvis can be used clinically as surgical landmarks. The ischial spine is an anatomical landmark that can be used to identify the sacrospinous ligament. The sacrospinous ligament is attached from the ischial spine to the lateral margins of the sacrum and coccyx, which are located anterior to the sacrotuberous ligament. The sacrotuberous ligament extends from the ischial tuberosity to the coccyx. The greater and lesser sciatic foramena are above and below the sacrospinous ligament. The anterior superior iliac spine (ASIS) is a bony landmark that helps the surgeon's orientation for placing endoscopic ports. The inguinal ligament is attached from the ASIS to the pubic tubercle. The ileopectineal ligament (Cooper's ligament) is attached from the posterior aspect of the inguinal ligament anteriorly to the iliopectineal eminence posteriorly. Cooper's ligament is an important anatomical landmark for Burch colposuspension [5] (Figure 3.1). The arcus tendineus fascia pelvis (ATFP) or white line is an anatomical landmark for paravaginal defect repair (Figure 3.1). The ATFP is a thickening of the endopelvic fascia over the obturator internus muscle, which is attached from the pubic symphysis anteriorly to the ischial spine posteriorly on each side of the pelvis. The vagina and its surrounding connective tissue attach to this dense fibrous structure to form a slinglike structure that runs under the urethra and bladder neck in a position to support the urethra. The average distance of the ATFP is 9 cm and is correlated

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