Aesthetic Surgery of the Female Genitalia

Malcolm A. Lesavoy and Catherine Huang Begovic

1 Introduction

The first cosmetic vaginal surgery was reported in the literature by Hodgkinson and Hait in 1984 [1]. Recently, there has been an increased interest in cosmetic surgical procedures of the female genitalia [2–5]. The National Health Service (NHS) reported a doubling of the number of labia reductions carried out in the UK in 2004 compared to 1998 [6].

The indications for labia reduction are generally organized in the literature by three categories – women who suffer from physical or functional complaints associated with a genital abnormality, women without physical complaints but want surgical intervention for cosmetic reasons, and women who seek surgery for both functional and aesthetic reasons [7]. In the physical complaint group, several specific complaints were vulvar pain and irritation riding a bike, horseback riding, wearing tight underwear or clothes, and superficial dyspareunia. Enlarged labia can significantly impair a woman’s quality of life – causing constant irritation, difficulty maintaining hygiene, discomfort or embarrassment with clothing, and impairment or pain with exercise or sexual activity [8, 9]. Many women feel emotional embarrassment with enlarged labia. Women often compare themselves with others and protrusion of the labia minora past the labia majora is considered by many women to be unattractive [10]. Miklos et al. found that 93 % of patients sought surgery for purely personal reasons and 7 % admitted to being influenced by a male of female partner, spouse, or friend [7].

2 Embryology and Anatomy

The external female genital organs include the mons pubis, the labia majora and minora, the clitoris, and the vestibule of the vagina. The mons pubis is the fatty tissue on top of the pubic symphysis that forms a round prominence and is covered by hair. The labia majora are paired cutaneous longitudinal folds that extend from the mons pubis to the perineum. Each labium has an outer, pigmented surface and an inner smooth surface covered with sebaceous follicles. The labia minora are also paired cutaneous folds medial to the two labia majora that begin at the clitoris, extend posteriorly along the orifice of the vagina, and end at the posterior edge of the labia majora. Anteriorly, the labium minora divides into an anterior and posterior fold. The anterior fold passes anterior to the clitoris forming the clitoral hood and the posterior fold passes posterior to the clitoris forming the clitoral frenulum. The clitoris is an erectile structure situated between the two folds of the labia minora and is homologous to the penis.

3 Surgical Techniques

3.1 Labia Minora Reduction

Labia minora hypertrophy is variable but has been defined as labia with a longitudinal length longer than 4 cm [11, 12]. Ideally the labia should protrude slightly past the introitus at about 1 cm [13]. In practice, there are wide variations in female genital anatomy and what is normal should be defined by the patient (Fig. 1). Traditionally, labia minora reductions have been performed by trimming the labial edge and then oversewing the cut edge [5, 14–16]. This technique was described by Girling in Plastic and Reconstructive Surgery in 2005. The tissue that protrudes beyond the labia majora is excised and the internal and external edges of the labia are sutured [17]. Before suturing, if there is a disproportion or step-off between the clitoral hood and the newly sized labia
minora, parts of the hood are removed on both sides of the clitoris before the incision is closed [12]. To avoid a continuous scar, another surgeon performed a running W-shaped resection from the frenulum to the posterior fourchette instead of a straight curved line [9].

In 1998 Alter described a labia minora reduction technique using a central wedge or V excision of the most protuberant portion of the labia with re-approximation of the anterior and posterior edges. This technique preserves the normal edge and places the scar line on the inner and outer surface of the labia instead of along the edge. The wedge is excised to create a straight line along the length of each labium with no tension on the suture line. This reduced the vertical dimension of the labia minora but not the superficial excess. The inner wedge is designed as V extending medially into the vagina while the outer wedge is curved lateral and anterior to excise any excess labium and clitoral hood. The inner and external V are shaped differently. In 1998 Alter removed the entire wedge but in 2008 modified this technique to remove only the mucosa and outer skin while attempting to keep most subcutaneous tissue – excising only what is necessary to produce a good cosmetic result [18]. An adaptation of this technique by Giraldo et al. [19] involves cutting two 90° Z-plasties on the internal and

Fig. 1 Normal variations in labia. Patients differ in labia minora length, thickness, symmetry, and clitoral hooding.
external surface to make an irregular wedge shape. They believe this pattern results in an improved functional and aesthetic result. Munhoz et al. [20] described an inferior wedge excision instead of the central wedge described by Alter. The anterior edge of the wedge starts at the middle portion of the labia minora, and the posterior edge is defined by stretching the middle portion posteriorly until an ideal shape is created. They felt that by keeping the excised wedge far away from the clitoris would avoid putting sexual sensitivity at risk.

Another group describes a technique that excises a minimal amount of tissue. Choi and Kim preserve the entire outer edge of the labia minorum and simply de-epithelialize the central portion of the labia minorum [21]. They then re-approximate the margins of the raw surface with a running 4.0 catgut suture. They feel this technique preserves the neurovascular supply as well as the natural color, contour, and texture of the labia minora edge.

### 3.2 Clitoral Hood Reduction

Clitoral hood reduction can be performed in conjunction with labial minora reduction. Alter et al. stop the lateral incision at the lateral labium and excise the clitoral hood with a medial ellipse extending along the edge of the clitoral hood vertically thus excising excessive clitoral hood tissue but preserving enough to close the skin edges [18]. In his description of labia minora reduction, Pardo similarly describes trimming the clitoral hood to allow for a gentle transition from minora to clitoral hood that avoids a step-off [12].

### 3.3 Hymenoplasty

In 1998, Logmans et al. described their technique of hymenoplasty. The epithelial layer that has grown over the ruptured hymen is removed, and the hymenal remnants are re-approximated by a circular running suture [22]. When the hymenal remnants are insufficient, a narrow strip of posterior vaginal wall is dissected for reconstruction. Ou et al. also used Logman’s approximation technique. The epithelium and scar tissue of the hymenal remnants are removed and all edges are approximated with 5.0 chromic catgut suture [23]. They also describe a cerclage method where a 5-0 chromic catgut suture is introduced at the 6-o’clock position about 2–3 mm into the edge of the hymenal remnants and then run clockwise into the submucosa to the 12-o’clock position. The ends of the suture are tied for tightening.

### 4 Author-Preferred Technique

For labia minora reduction, the author performs a straightforward excision of the labia minora anterior edge contoured to the patient’s preference. The edges of the labia minora to be excised are marked in a symmetric fashion on both labia. The excisions are tailored to remove more of the mucosal surface than the external squamous epithelium thereby making the scars more inconspicuous since they are placed on the medial (inside) surfaces of the labia. The excessive protuberant area is excised and the remaining edge is oversewn with a running suture. All sutures used are absorbable (Figs. 2, 3, 4, and 5).

---

**Fig. 2** Illustration of authors’ preferred technique. The edges of the labia minora to be excised are marked in a symmetric fashion on both labia. The excisions are tailored to remove more of the mucosal surface than the external squamous epithelium thereby making the scars more inconspicuous since they are placed on the medial (inside) surfaces of the labia. The excessive protuberant area is excised and the remaining edge is oversewn with a running suture.
Postoperatively patients are given antibiotics and told to apply a significant amount of lubricant to the surgical site for 2–3 weeks. They are instructed to refrain from sexual intercourse for 3–4 weeks. Complications include infection, hematoma, and dehiscence. Hypertrophic scars are rare.

### 4.1 Dyspareunia

The author has also performed several operations for dyspareunia. Often times there is a web contraction at the posterior fornix causing pain and discomfort during intercourse and in severe cases result in severe ulceration of the posterior fornix. The author has successfully released the web by performing a large Z-plasty (Fig. 6). Also, the web can be incised and a skin graft placed (Fig. 7). All of the patients whom the author has performed these procedures on have had significant relief of their symptoms.

---

**Fig. 3** Photograph demonstrating the incision on the medial surface of the labia minora

**Fig. 4** Preoperative, intraoperative, and postoperative photographs of a patient with labia minora hypertrophy with asymmetric clitoral hooding on the left
Fig. 5  Preoperative, intraoperative, and postoperative photographs of a patient with labia minora hypertrophy

Fig. 6  Preoperative, intraoperative, and postoperative photographs of a patient with dyspareunia repaired with a large Z-plasty
References