A PRACTICAL GUIDE TO VULVAL DISEASE: Diagnosis and Management

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A Practical Guide to Vulval Disease
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Diagnosis and Management

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The vulva is a complex organ, due to its embryologic derivation from the three germ layers belonging to the embryonic disc:

- ectoderm (squamous epithelium);
- mesoderm (connective epithelium);
- endoderm (vulval vestibule).

This embryological derivation is responsible for the different variants in morphology that occur during the development of the vulva.

A correct and thorough knowledge of the ‘normal’ vulva is vital for several reasons. Firstly, it is important in order to recognize some of the normal anatomical variants in order to differentiate them from pathological features. This will prevent unnecessary excision and treatment of normal areas. Secondly, it leads to a more specific and logical approach in treating vulval disorders. In some conditions, the normal anatomy of the vulva is altered and this can give diagnostic clues. It is important to note that the ‘normal’ vulva modifies itself during a woman’s lifetime, depending on age, obstetrical and gynaecological history.

**Normal Vulval Anatomy**

The vulva may be considered as the combination of the mucosal, cutaneous, muscular and connective tissue structures that compose the lower part of the female genital tract. The peculiarity of this localization means that the vulva is in close association with urological structures (urethra and bladder), gynaecological structures (vagina), and intestinal structures (rectum and anus).

The borders of the vulva are: mons pubis anteriorly, perineal body posteriorly, genital crural folds laterally and hymen medially (Figure 1.1). In this triangular-shaped region, with naked-eye examination, five distinct structures clearly appear: the labia majora, the clitoris, the vestibule, the labia minora and the hymen (Figure 1.2 a, b).

There is usually a limited description of the internal structures of the vulva in gynaecological and dermatological textbooks. These structures reach the plane of the perineal fascia (or urogenital membrane) under the skin. A knowledge of the anatomy of these structures and planes then encompasses the clitoral body, the minor vestibular bulbs and glands, the urethral opening and the paraurethral glands, which are all part of the vulva. A good understanding of the anatomy, together with its embryological development, allows a comprehensive approach to vulval morphology and correct surgical dissection if required.
The labia majora are two cutaneous folds, even and symmetrical, arising from the lateral portions of the mons pubis and extending to the posterior triangle of the perineum. Laterally they terminate on the genito-crural fold, and medially continue to the external aspects of the labia minora, forming the interlabial sulci. On the outer surface, they are covered by hair-bearing skin. The hair follicles are lost on the inner surface but many sebaceous glands remain.

The labia minora are two thin structures that are connected anteriorly to form the clitoral hood and, below the clitoral body, form the frenulum. Posteriorly the labia minora unite to define the

Figure 1.1 The vulva.

Figure 1.2 Normal vulva (a) – outer and (b) – inner vulva.
fourchette The epithelium starting from the internal side of the fourchette to the hymen is called the navicular fossa. The labia minora do not have hair follicles but they are covered by numerous sebaceous glands and sweat glands.

The clitoris develops from an outgrowth in the embryo called the genital tubercle. It contains trabeculated erectile tissue, similar to the male penis, and is composed of the body (the shaft and the glans) and the crura. The glans is covered by the clitoral hood, formed by the fusion of the anterior portions of the labia minora. The body of the clitoris continues in each crus (singular form of ‘crura’), attached to the corresponding ischial ramus, beneath the descending pubic rami. Hence only about 30% of the clitoris is visible (Figure 1.3).

The vestibule is the space between the hymenal ring and the internal aspect of labia minora. Its boundaries are the clitoris anteriorly, the fourchette posteriorly and the ‘Hart’s line’ laterally, which runs down the internal side of the labia minora. It represents the junction between the mucosal epithelium and the keratinized skin of the vestibule (Figure 1.4). Some authors define the lateral extension of the vestibule as the free edge of labia minora, therefore including the two types of epithelium (mucosa and skin).

Several structures open into the vestibule. The urethral opening is clearly seen with the paraurethral Skene’s glands laterally. The ducts of the Bartholin’s glands and the lesser vestibular glands open into the lower third of the vaginal introitus.

The bulb of the vestibule is located deeply and, as aggregations of erectile tissue, this may be considered as an internal part of the clitoris.

The hymen is an elastic ring-shaped structure, covered by mucosal epithelium that separates the vagina from the vulval vestibule. After the first penetrative sexual intercourse it can be torn apart, leaving one or more scars on its surface. Very rarely the hymen may be septate or cribriform.

The mons pubis lies in front of and above the upper part of the symphysis pubis. A thick cushion of subcutaneous fat is covered by hair-bearing keratinized epithelium.

The vulva obtains its blood supply from the internal pudendal artery and drains via the external pudendal vein. The nerve supply is from branches of the perineal nerve but the clitoris is supplied by the dorsal nerve of the clitoris, a branch of the pudendal nerve. Lymphatic drainage is to the inguinal and internal iliac nodes.
Normal Vulval and Vaginal Flora

The vagina is colonized by several strains of bacteria. At puberty, lactobacilli increase and the glycogen metabolized by them produces lactic acid, giving a normal vaginal acidic pH of 4.5 or less. A change in the normal discharge can occur if levels of *Candida albicans* or *Streptococcus agalactiae* (beta haemolytic streptococcus) increase but this does not necessarily require any treatment.

Further Reading


Normal Anatomical Variants

The shape and morphology of the vulva depend on the appearance of all the structures involved. The differences in the developmental process and integration into the whole of each structure render the vulva a unique organ. For this reason it is usual to find some variants; that should be considered normal. However, these can cause great worry to a woman when she first looks at her vulva. In addition, the explosion in cosmetic surgery for the external genitalia in recent years in order to reach a ‘perfect vulva’ has greatly increased the focus of attention on vulval appearance. As a consequence, aesthetic vulval surgery is performed, modifying structures that are normal, without any pathological reason.

Common normal vulval variants are considered here.

- **Agenesis of the labia minora.** This is a normal finding in women but should not be confused with labial adhesion. The latter condition is an acquired disease, more frequent in girls under 2 years due to several predisposing factors such as oestrogen deprivation, inadequate personal care, local irritants, infections or previous trauma. This situation may mimic labial reabsorption in lichen sclerosus but generally resolves spontaneously.

- **Asymmetry of the labia minora.** There is great variability in the size and shape of the labia minora. In one study, the length and width of the labia minora were examined in 50 women aged from 18 to 50. The length varied from 20 to 100 mm and the width from 7 to 50 mm. Sometimes a duplication of the labia minora may occur, without any pathological consequence (Figure 1.5). The edge of the labia minora may become rugose and the rim is often pigmented.