Textbook of Gynecology

Edited by

RUSSELL RAMON DE ALVAREZ, M.D.

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Preface

THIS TEXT represents a careful effort to develop a reference text for physicians who deal with the gynecologic patient. Authoritative papers by 29 contributors emphasize diagnosis and treatment to serve the requirements of the gynecologic specialist. Although the coverage is comprehensive, the text does not present scientific data for experimental approaches, nor does it attempt exhaustive coverage of a given topic.

The material appears in six different sections in 33 chapters, all related to clinical diagnosis and treatment. Each chapter includes new discoveries, concepts, and diagnostic and treatment methods.

Section I, "Structure and Development," presents anatomy and physiology of the female reproductive tract, gynecologic cytology, gynecologic genetics, and developmental anomalies from the perspective of clinical management. The chapter on anatomy is clinically oriented, to provide a better understanding of diagnostic criteria and therapeutic applications. The chapter on embryology illustrates how many developmental anomalies encountered in clinical practice result from failure of the ontogenetic process. Chapter 4 discusses the techniques of obtaining cytologic preparations to aid in the diagnosis of various gynecologic disorders; two color plates illustrate the histologic structure described in the text.

Section II, "Function," includes discussions of ovulation, menstruation, and ovarian function, the endocrinopathies, infertility, family planning, the menopause, and the psychosomatic and psychosexual problems encountered in gynecologic practice. Because of the surgical nature of two obstetric problems, ectopic pregnancy and abortion, and the social aspects of the latter, modern concepts and gynecologic approaches related to these two areas are presented in Section III.

Gynecologic neoplasms appear in Section IV, each in its own chapter. Authoritative and up-to-date discussions deal with radiation therapy and modern chemotherapy.

Section V, "Special Entities," includes pediatric and adolescent gynecology, diseases of the vulva, infectious diseases (including venereal diseases) and infestations of the lower genital tract, pelvic inflammatory disease, endometriosis, urinary incontinence, and shock.

Section VI, which concerns gynecologic surgery, presents the principles of pre- and postoperative care, types of and indications for major gynecologic operations, and the surgical management of parturitional injuries and alterations of pelvic support. Minor gynecologic operative procedures are discussed in appropriate sections throughout the book.

It is hoped that physicians in training will find this text useful as a source of fundamental core information, even though its primary purpose is to meet the reference needs of the specialist in gynecology.

I wish to thank my colleagues for their willingness to participate in this effort and for the substantial contributions that they have made. I am indebted to the officers and staff of Lea & Febiger for their collaboration, and to Mr. Edward Wickland, Executive Editor, and Mr. Thomas Colaiezzi, Production Manager, for their wholehearted support. I am especially grateful to Miss Mary Mansor and Mrs. Dorothy Di Rienzi for reviewing and editing the manuscripts and for efficiently guiding the progress of the book from beginning to end.

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Gynecologic Surgery

SECTION I

Structure and Development

1

Anatomy of the Female Reproductive Tract

CRAIG W. MUCKLE

The External Genitalia and Perineum

EXTERNAL GENITALIA

THE FEMALE external genitalia are collectively called the vulva (pudenda or cunnus). They include the mons pubis (mons veneris), the labia majora, the labia minora, the clitoris and the vestibule. Upon the anterior surface of the symphysis pubis lies a cushion of fat covered by skin and curly hairs, which forms the mons pubis. The introitus or entrance to the vagina begins below the clitoris and continues posteriorly to the fourchette; it is limited on either side by the labia minora. This cleft between the labia minora is known as the vestibule. The vagina, the urethra, the paraurethral glands (Skene's glands), and the major vestibular glands (Bartholin's glands) open into the vestibule.

The dermis of the vulva has two layers: the papillary layer and the reticular layer. The connective tissue has numerous blood vessels, lymphatic vessels, and nerves. The outer layer of epithelial cells lies superficially, forming the epidermis.

The clitoris is a small erectile body, about two centimeters long, located above the urethral opening. Homologous to the penis, it is composed of two cylindrical bodies known as the corpora cavernosa. The clitoris consists of a glans, corpus, and two crura, but unlike the penis, it is not perforated by the urethra and does not possess a corpus spongiosum. A fold of skin, the prepuce, covers the glans. The corpora cavernosa are attached to the internal borders of the ischiopubic rami. The bulbocavernosus muscles insert into the dorsum of the clitoris, and a suspensory ligament extends from the lower portion of the abdominal wall to terminate in the dorsum of the clitoris. The ischiocavernosus muscles surround the bases of the crura.

The labia minora are longitudinal folds of connective tissue covered by skin. Anteriorly, the labia divide to form a prepuce and a frenulum for the clitoris, and posteriorly they fuse to form the fourchette. Covered by skin externally, the labia minora have a thinner stratified squamous epithelium on the medial aspect.

Lateral to the labia minora lie the labia majora, which are large folds of fatty and connective tissue covered by skin containing sebaceous glands, and by coarse, curly hair on the lateral aspects.

The hymen is a connective tissue membrane covered by stratified squamous epithelium. It covers the posterior portion of the vaginal introitus and varies in extent and thickness. It is usually present only in virgins. After the first coitus it is represented only by the carunculae hymenales (carunculae myrtiformes), small projections of mucous membrane on the medial aspect of the labia minora. Although various types of hymens have been described, only the imperforate hymen is clinically important. When such a hymen completely occludes the vaginal orifice, it usually results in hematocolpos and hematometra. Occasionally, a very tough hymen may prevent coitus and require incision.

The hypogastric branch of the common iliac artery is the source of most of the blood supply of the pelvic organs as well as the external genitalia. The labia are supplied by the internal and superficial pudendal arteries.

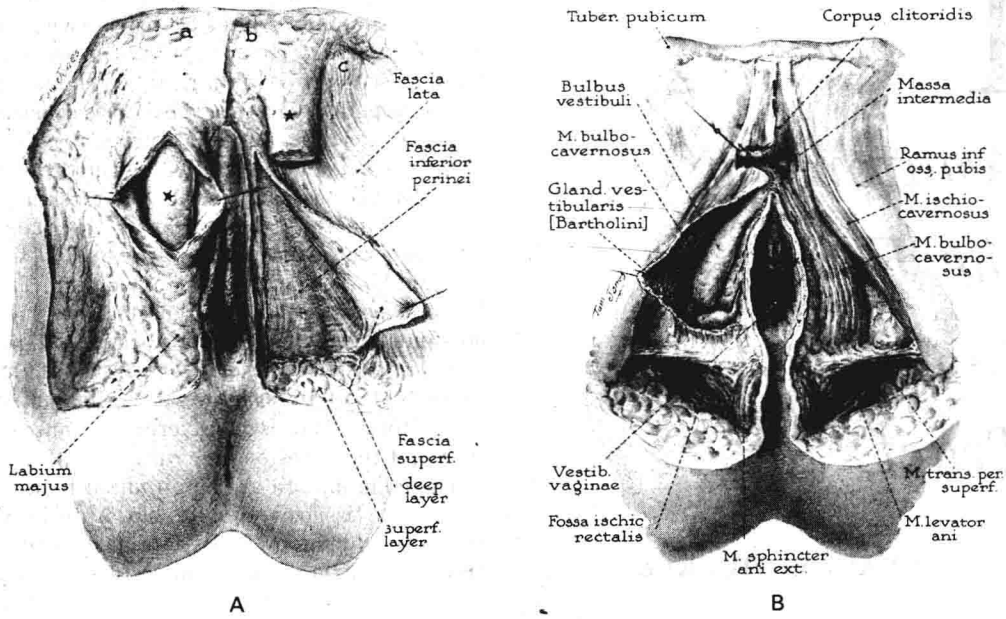


FIG. 1-1. (A) Female perineum: dissection showing subcutaneous structures and fasciae of the urogenital part of the perineum. On the left, the superficial layer of the superficial fascia has been exposed and incised longitudinally where it covers the labial portion of the diverticular process (at star). Over the front of the pubis, much of the fat of the superficial layer has been removed in three levels to show, successively, the immediately subcutaneous tissue, a; the covering of the diverticulum, b; the diverticulum itself, at star; and the subjacent fascia lata, c. (From Anson, B.J.: An Atlas of Human Anatomy. ed. 2. Philadelphia, W.B. Saunders, 1963.) (B) Female perineum: dissection showing ischiorectal fossa and superficial perineal compartment. (From Anson, B.J.: An Atlas of Human Anatomy. ed. 2. Philadelphia, W.B. Saunders, 1963.)

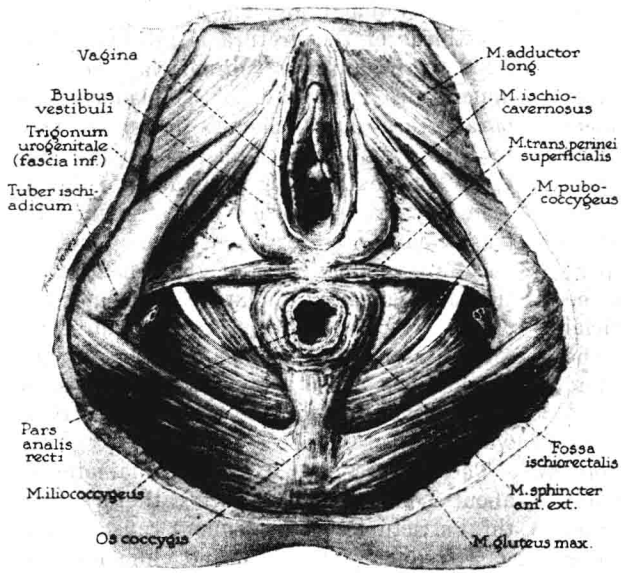
The internal pudendal artery arises from the anterior division of the hypogastric artery, and the superficial pudendal artery arises from the femoral artery. These vessels supply labia and clitoris. The veins of the vulva form a large venous plexus. The external pudendal veins drain the clitoris and the anterior portion of the labia, emptying into the great saphenous or the femoral veins. The internal pudendal vein drains the perineum and empties into the internal iliac vein.

PERINEUM

The perineum consists of all the soft parts, both muscular and fascial, that close off the inferior outlet of the bony pelvis. This is the area between the thighs bounded by the arcuate ligaments and the symphysis pubis in front, the tip of the coccyx behind, and the inferior rami of the pubis, ischium, and the sacrotuberous ligament. An imaginary line connecting the ischial tuberosities divides the perineum into an anterior urogenital triangle and a posterior anal triangle. The urethra and vagina pass through the urogenital triangle anteriorly. The anal triangle contains the anal canal, the anal sphincter, the anococcygeal body, the ischiorectal fossa, and blood vessels, nerves, and lymphatics.

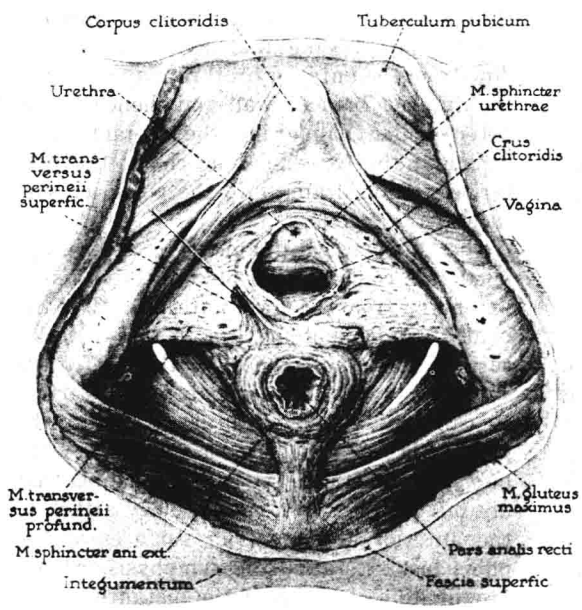
INNERVATION OF EXTERNAL GENITALIA AND PERINEUM

The nerve supply of the perineum and external genitalia is particularly important in connection with local anesthesia. The chief innervation of this area is via the pudendal



A

FIG. 1-2. (A) Female perineum: dissection showing erectile bodies (cavernous tissue) and muscles of the superficial perineal compartment and the musculature of the pelvic diaphragm. (From Anson, B.J.: An Atlas of Human Anatomy. ed. 2. Philadelphia, W.B. Saunders, 1963.)



B

FIG. 1-2. (B) Female perineum: dissection showing muscular contents of the deep perineal compartment. (From Anson, B.J.: An Atlas of Human Anatomy. ed. 2. Philadelphia, W.B. Saunders, 1963.)

nerve, which arises from the second, third, and fourth sacral nerves. Passing through the greater sciatic foramen and going between the piriformis and coccygeus muscles, it crosses beneath the ischial spine on the medial side of the internal pudendal artery. It continues toward the ischial tuberosity, dividing into three branches: the inferior hemorrhoidal nerve, the perineal nerve, and the dorsal nerve of the clitoris.