

双语版

Essentials of
Obstetrics and Gynecology

妇产科精要

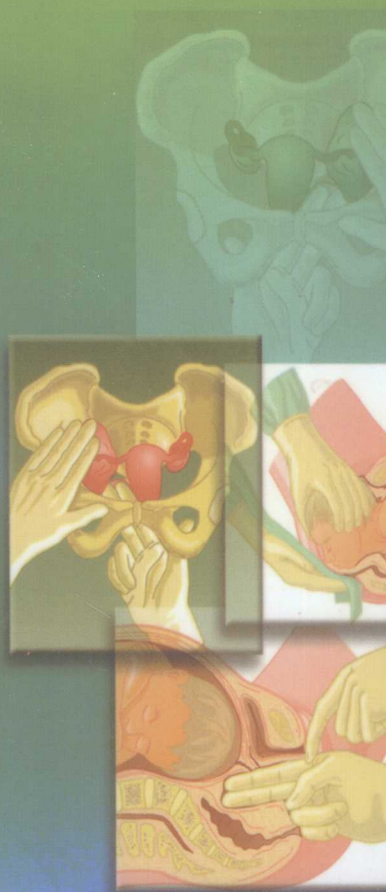
第4版

原著 Neville F. Hacker
J. George Moore
Joseph C. Gambone

主译 丰有吉 陈晓军



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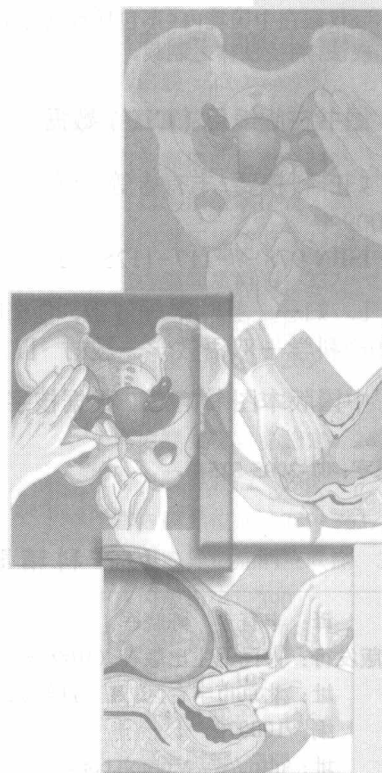
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前言

随着社会的改革开放以及国内医学的迅速发展,一种欲将中国医学推向国际的迫切愿望遍及全国各地。然而,由于语言交流的障碍,不同程度地影响了其国际化程度。为培养国际化人才,医学双语教学、全外语(主要是英语)教学则应运而生。本部中英文对照的妇产科双语教学配套教材旨在为接受妇产科双语教学的中外学生提供英语专业词汇和专业知识理解上的方便。

20世纪60年代,美国许多医学院将妇产科基本知识的教学内容浓缩于“临床医学”或“疾病的病理生理学”的核心课程;将妇产科实习时间从以往的8~16周缩短至6~8周,内容也大为精简。然而,当时的妇产科教材未能适应这些变化,医学生们感到核心课程教材中妇产科的内容浅而不着要点,而传统教材内容又太繁重,使学生在短时间内难以掌握。为满足医学生的需求并有助于住院医生的临床实践,于1986年,美国Elsevier出版社首次出版了由美国加利福尼亚大学著名妇产科教授乔治·摩尔(J. George Moore)主编的《妇产科精要》。经过近20年的应用、修改,再应用、再修改,至其第4版(2004年)时,此教材已深得广大妇产科学者的赞誉:其内容深浅适中、简明扼要,凝练和整合了妇产科基础知识和临床应用要点,尤其适用于医学生和住院医生阅读。又因其全书的章节和内容与我国人民卫生出版社2005年出版、供8年制及7年制临床医学等专业使用的卫生部规划教材《妇产科学》极为相近,若将其编辑成中英文对照,则更可有助于双语教学。因此,我们选择了此书,编辑成中英文对照的《妇产科学》双语教学配套教材,以供8年制及7年制临床医学等专业使用。

本书译者们竭尽全力、花时年余,终成此书。但由于能力有限,书中定有不妥之处,故殷切希望各校师生和妇产科同道批评、指正!

丰有吉 陈晓军

2009年1月

CONTENTS

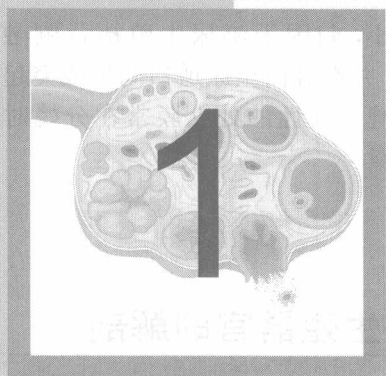
目 录

1	Female Reproductive Anatomy and Embryology	1
	女性生殖器解剖及胚胎学	
2	Female Reproductive Physiology	12
	女性生殖生理	
3	Endocrinology of Pregnancy and Parturition	32
	妊娠和分娩的内分泌学	
4	Maternal Physiologic Adaptation to Pregnancy	43
	母体对妊娠的生理适应性	
5	Antepartum Care: Preconception and Prenatal Care, and Antenatal Fetal Assessment	56
	产前保健: 受孕前、产前保健和产前胎儿评估	
6	Ectopic Pregnancy	78
	异位妊娠	
7	Hypertensive Disorders of Pregnancy	89
	妊娠期高血压疾病	
8	Rhesus Isoimmunization	101
	Rh 同族免疫作用	
9	Multifetal Gestation and Malpresentation	107
	多胎妊娠及胎先露异常	
10	Obstetric Complications: Preterm Labor, PROM, IUGR, Postterm Pregnancy, and IUFD ...	115
	产科并发症: 早产, 胎膜早破, 宫内生长受限, 过期妊娠及死胎	
11	Common Medical and Surgical Conditions Complicating Pregnancy	140
	妊娠合并常见内外科疾病	
12	Normal Labor, Delivery, and Postpartum Care: Anatomic Considerations, and Resuscitation of the Newborn	173
	正常临产、分娩和产褥期保健: 解剖学的考虑和新生儿复苏	
13	Fetal Surveillance During Labor	202
	产程中的胎儿监测	

14	Uterine Contractility and Dystocia	213
	子宫收缩力和难产	
15	Obstetric Hemorrhage and Puerperal Sepsis	222
	产科出血和产褥感染	
16	Puberty and Disorders of Pubertal Development	241
	青春期及青春期发育异常	
17	Amenorrhea, Oligomenorrhea, and Hyperandrogenic Disorders	249
	闭经、月经过少和雄激素过多的疾病	
18	Dysfunctional Uterine Bleeding	267
	功能失调性子宫出血	
19	Menstrual Cycle-Influenced Disorders	270
	月经周期引起的病变	
20	Climacteric	276
	更年期	
21	Dysmenorrhea and Chronic Pelvic Pain	283
	痛经和慢性盆腔痛	
22	Pelvic Infections: Vulvovaginitis, Sexually Transmitted Infections, and Pelvic Inflammatory Disease	294
	盆腔感染: 外阴阴道炎、性传播感染和盆腔炎性疾病	
23	Vulvar and Vaginal Cancer	306
	外阴和阴道癌	
24	Cervical Cancer	318
	子宫颈癌	
25	Uterine Corpus Cancer	330
	子宫体癌	
26	Ovarian Cancer	339
	卵巢癌	
27	Gestational Trophoblastic Neoplasia	353
	妊娠滋养细胞肿瘤	
28	Endometriosis and Adenomyosis	363
	子宫内膜异位症和子宫腺肌病	
29	Congenital Anomalies and Benign Conditions of the Vulva and Vagina	374
	外阴阴道先天性异常及良性疾病	

6 CONTENTS

30	Congenital Anomalies and Benign Conditions of the Uterine Corpus and Cervix.....	382
	子宫体和宫颈的先天性发育异常及良性病变	
31	Congenital Anomalies and Benign Conditions of the Ovaries and Fallopian Tubes	393
	卵巢和输卵管的先天性异常及良性病变	
32	Genitourinary Dysfunction: Pelvic Organ Prolapse, Urinary Incontinence	405
	泌尿生殖道功能障碍: 盆腔器官脱垂, 尿失禁	
33	Human Sexuality.....	422
	人类性行为	
34	Family Planning: Contraception, Sterilization, and Abortion	430
	计划生育: 避孕, 绝育和流产	
35	Infertility and Assisted Reproductive Technologies	438
	不孕症及辅助生育技术	
	英文索引.....	449
	中文索引.....	462



Female Reproductive Anatomy and Embryology

女性生殖器解剖及胚胎学

Joseph C. Gambone and J. George Moore

A physician cannot effectively practice obstetrics and gynecology without understanding the physiologic processes that transpire in a woman's life as she passes through infancy, adolescence, reproductive maturity, and the climacteric. As the various clinical problems are addressed, it is important to consider those anatomic, developmental, and physiologic changes that normally take place at key points in a woman's life cycle.

DEVELOPMENT OF THE EXTERNAL GENITALIA

Prior to the 7th week of development, the appearance of the external genital area is the same in males and females. Elongation of the genital tubercle into a phallus with a clearly defined terminal glans portion is noted in the 7th week, and gross inspection at this time may lead to faulty sexual identification. Ventrally and caudally, the urogenital membrane, made up of both endodermal and ectodermal cells, further differentiates into the genital folds laterally and the urogenital folds medially. **The lateral genital folds develop into the labia majora, whereas the urogenital folds develop subsequently into the labia minora and prepuce of the clitoris.**

The external genitalia of the fetus are readily distinguishable as female at approximately 12 weeks. In the male, the urethral ostium is located conspicuously on

若不理解女性一生——从婴儿期、青春期、生育期至更年期（现称绝经期）——的生理过程，则不能有效地从事妇产科工作。当论述临床各种问题时，重要的是要考虑那些正常发生于女性生命周期中关键时机的解剖、发育以及生理的变化。

女性外生殖器官的发育

发育第7周前，男性和女性外生殖器官部位的外观是相同的。第7周时，可发现生殖结节延伸至初阴，后者为轮廓分明的末端头部分，肉眼检查可导致错误的性识别。腹尾侧内胚层和外胚层细胞组成的泌尿-生殖膜进一步分化为两侧的生殖皱襞和中线的泌尿生殖褶。侧生殖皱襞发育成大阴唇，而泌尿生殖褶继后发育成小阴唇和阴蒂包皮。

约12周时，女性胎儿外生殖器官可辨别。此时，男性胎儿的尿道口明显地位于拉长的初阴，后者

the elongated phallus by this time and is smaller, owing to urogenital fold fusion dorsally, which produces a prominent raphe from the anus to the urethral ostium. In the female, the hymen is usually perforated by the time delivery occurs.

ANATOMY OF THE EXTERNAL GENITALIA

The perineum represents the inferior boundary of the pelvis. It is bounded superiorly by the levator ani muscles and inferiorly by the skin between the thighs. Anteriorly, the perineum extends to the symphysis pubis and the inferior borders of the pubic bones. Posteriorly, it is limited by the ischial tuberosities, the sacrotuberous ligaments, and the coccyx. **The superficial and deep transverse perineal muscles cross the pelvic outlet between the two ischial tuberosities and come together at the perineal body. They divide the space into the urogenital triangle anteriorly and the anal triangle posteriorly.**

The urogenital diaphragm is a fibromuscular sheet that stretches across the pubic arch. It is pierced by the vagina, the urethra, the artery of the bulb, the internal pudendal vessels, and the dorsal nerve of the clitoris. Its inferior surface is covered by the crura of the clitoris, the vestibular bulbs, the greater vestibular (Bartholin's) glands, and the superficial perineal muscles. Bartholin's glands are situated just posterior to the vestibular bulbs, and their ducts empty into the introitus just below the labia minora. They are often the site of gonococcal infections and painful abscesses.

VULVA

The external genitalia are referred to collectively as the vulva. **The vulva includes the mons veneris, labia majora, labia minora, clitoris, vulvovaginal (Bartholin's) glands, fourchette, and perineum.** The most prominent features of the vulva, the labia

较小, 归因于泌尿生殖褶背侧融合, 并在肛门至尿道口间形成突起的缝。女性的处女膜常在分娩时撕裂。

外生殖器官的解剖

会阴为盆腔的下界, 其上为肛提肌, 下为两腿间的皮肤。前面, 会阴伸展至耻骨联合与盆骨下界; 后面, 与坐骨结节、骶结节韧带和尾骨为界。会阴浅和深横肌于两侧坐骨结节间穿过骨盆出口, 并聚向会阴体, 其将此间隙分成: 前部泌尿生殖三角和后部肛门三角。

泌尿生殖膈为伸展越过耻骨弓的纤维肌性膜, 其间有阴道、尿道、球动脉、阴部血管和阴蒂背神经穿过。泌尿生殖膈下覆阴蒂脚、前庭球、前庭大腺(巴氏)和会阴浅肌。前庭大腺位于前庭球正后方, 其管开口于小阴唇正下方的阴道口。前庭大腺为淋球菌感染和疼痛性脓肿的好发部位。

外阴

外生殖器又统称为外阴。其包括阴阜、小阴唇、大阴唇、阴蒂、外阴阴道腺(前庭大腺)、阴唇系带和会阴。外阴最显著的特征为大阴唇, 其为覆有毛发的皮肤大皱襞,

majora, are large, hair-covered folds of skin that contain sebaceous glands and subcutaneous fat and lie on either side of the introitus. The labia minora lie medially and contain no hair but have a rich supply of venous sinuses, sebaceous glands, and nerves. The labia minora may vary from scarcely noticeable structures to leaf-like flaps measuring up to 3cm in length. Anteriorly, each splits into two folds. The posterior pair of folds attach to the inferior surface of the clitoris, at which point they unite to form the frenulum of the clitoris. The anterior pair are united in a hoodlike configuration over the clitoris, forming the prepuce. Posteriorly, the labia minora may extend almost to the fourchette.

The clitoris lies just in front of the urethra and consists of the glans, the body, and the crura. Only the glans clitoridis is visible externally. The body, composed of a pair of corpora cavernosa, extends superiorly for a distance of several centimeters and divides into two crura, which are attached to the undersurface of either pubic ramus. Each crus is covered by the corresponding ischiocavernosus muscle. Each vestibular bulb (equivalent to the corpus spongiosum of the penis) extends posteriorly from the glans on either side of the lower vagina. Each bulb is attached to the inferior surface of the perineal membrane and covered by the bulbocavernosus muscle. These muscles aid in constricting the venous supply to the erectile vestibular bulbs and also act as the sphincter vaginae.

As the labia minora are spread, the vaginal introitus, guarded by the hymenal ring, is seen. Usually, the hymen is represented only by a circle of carunculae myrtiformes around the vaginal introitus. The hymen may take many forms, however, such as a cribriform plate with many small openings or a completely imperforate diaphragm.

The vestibule of the vagina is that portion of the introitus extending inferiorly from the hymenal ring between the labia minora. The fourchette represents the posterior portion of the vestibule just above the perineal body. **Most of the vulva is innervated by the branches of the pudendal nerve. Anterior to the**

并含有皮脂腺和皮下脂肪,位于阴道口两侧。小阴唇位于中间,无毛发,但有非常丰富的静脉窦、皮脂腺和神经。小阴唇大小不一,可从几乎见不到的组织到长达3cm的叶样瓣。在小阴唇前方,每侧分裂成两片皱襞;后面一对皱襞附着于阴蒂下方表面,于此两皱襞融合、形成阴蒂系带。前面一对皱襞呈冠状样形状在阴蒂上方融合,形成包皮。小阴唇向后伸展,几乎可达阴唇系带。

阴蒂位于尿道正前方,包括头、体和脚。外观仅见阴蒂头。阴蒂体由一对海绵体组成,向上伸展数公分后分成一对脚,分别附着于耻骨支的内侧面。每侧脚外覆相应的坐骨海绵体肌。每侧前庭球(相当于阴茎的海绵体)向后伸展至阴道下段外侧,附着于会阴膜的下端表面,外覆球海绵体肌。这些肌肉有助于能勃起的前庭球的静脉收缩,并有阴道括约肌作用。

因小阴唇是展开的,故可见由处女膜环防护的阴道口。处女膜一般仅为围绕阴道口的肉阜状铜钱样环。然而,处女膜可有多种形状,例如具有许多小口的筛孔板样或完全无孔的隔膜。

阴道前庭为从处女膜环向下伸展两侧小阴唇间的阴道口部位。阴唇系带为会阴体正上方的前庭部位。外阴大部分组织受阴部神经的分支支配。尿道之前的外阴受髂腹股沟和生殖股神经支配。阴部阻滞

urethra, the vulva is innervated by the ilioinguinal and genitofemoral nerves. This area is not anesthetized adequately by a pudendal block, and repair of paraurethral tears should be supplemented by additional subcutaneous anesthesia.

INTERNAL GENITAL DEVELOPMENT

The upper vagina, cervix, uterus, and fallopian tubes are formed from the paramesonephric (müllerian) ducts. Although human embryos, whether male or female, possess both paired paramesonephric and mesonephric (wolffian) ducts, **the absence of Y chromosomal influence leads to the development of the paramesonephric system** with virtual total regression of the mesonephric system. With a Y chromosome present, a testis is formed and müllerian-inhibiting substance is produced, creating the reverse situation.

Mesonephric duct development occurs in each urogenital ridge between weeks 2 and 4 and is thought to influence the growth and development of the paramesonephric ducts. **The mesonephric ducts terminate caudally by opening into the urogenital sinus.** First evidence of each paramesonephric duct is seen at 6 weeks' gestation as a groove in the coelomic epithelium of the paired urogenital ridges, lateral to the cranial pole of the mesonephric duct. **Each paramesonephric duct opens into the coelomic cavity cranially** at a point destined to become a tubal ostium. Coursing caudally at first, parallel to the developing mesonephric duct, the blind distal end of each paramesonephric duct eventually crosses dorsal to the mesonephric duct, and the two ducts approximate in the midline. **The two paramesonephric ducts fuse terminally at the urogenital septum, forming the uterovaginal primordium.** The distal point of fusion is known as the **müllerian tubercle (Müller's tubercle)** and can be seen protruding into the urogenital sinus dorsally in embryos at 9 to 10 weeks' gestation. **Later dissolution of the septum between the fused**

不能充分麻醉此区域,如做尿道旁组织撕裂修补术时,应补加另外的皮下麻醉。

内生殖器官发育

阴道上段、子宫颈、子宫和输卵管起源于副中肾管(苗勒管)。不管男性或女性胎儿虽都具有成双的副中肾管和中肾管(午非),若无Y染色体的作用,则导致副中肾管系统发育,伴中肾管系统的完全退化。若有Y染色体,则睾丸形成,产生副中肾管抑制物质,造成相反的结果。

第2~4周时,生殖脊处中肾管发育,影响副中肾管的生长和发育。中肾管尾端开口于泌尿生殖窦。最初的组织学迹象为第6周时可见副中肾管,其似沟状孕育于生殖脊体腔上皮中,侧居于中肾管的头端。副中肾管头端开口于体腔,其后成为输卵管伞端口。初时,副中肾管尾端的发育与中肾管的发育平行,副中肾管头侧的盲端最后从背侧跨过中肾管,两管在中线接近。两侧副中肾管末端在泌尿生殖膈处融合,形成子宫阴道始基。融合处远侧称为副中肾管结节(苗勒结节),胚胎第9~10周时可见其突出于泌尿生殖窦的背侧。继后,副中肾管融合处的泌尿生殖膈退化,引起子宫体、子宫颈,及阴道上段(有些研究者认为)发育。

paramesonephric ducts leads to the development of a single uterine fundus, cervix, and, according to some investigators, the upper vagina.

Degeneration of the mesonephric ducts is progressive from 10 to 16 weeks in the female fetus, although vestigial remnants of the latter may be noted in the adult (Gartner's duct cyst, paroöphoron, epoöphoron). The myometrium and endometrial stroma are derived from adjacent mesenchyme; the glandular epithelium of the fallopian tubes, uterus, and cervix is derived from the paramesonephric duct.

Solid vaginal plate formation and lengthening occur from the 12th through the 20th weeks, followed by caudad to cephalad canalization, which is usually completed in utero. Controversy surrounds the relative contribution of the urogenital sinus and paramesonephric ducts to the development of the vagina, and it is uncertain whether the whole of the vaginal plate is formed secondary to growth of the endoderm of the urogenital sinus or whether the upper vagina is formed from the paramesonephric ducts.

VAGINA

The vagina is a flattened tube extending posterosuperiorly from the hymenal ring at the introitus up to the fornices that surround the cervix its epithelium, which is stratified squamous in type, is normally **devoid of mucous glands** and hair follicles and is nonkeratinized. Gestational exposure to diethylstilbestrol (taken by the mother) may result in columnar glands interspersed with the squamous epithelium of the upper two-thirds of the vagina (vaginal adenosis). Deep to the vaginal epithelium are the muscular coats of the vagina, which consist of an inner circular and an outer longitudinal smooth muscle layer. Remnants of the mesonephric ducts may sometimes be demonstrated along the vaginal wall in the subepithelial layers and may give rise to **Gartner's duct cysts**. The adult vagina averages about 8cm in length, although its size varies considerably with age, parity, and the status

第10~16周时,女性胎儿的中肾管退化,虽然成年时可见中肾管遗迹残余(中肾管囊肿、卵巢旁体、卵巢冠)。子宫肌层和子宫内膜间质起源于邻近的间充质;输卵管、子宫和子宫颈的腺上皮则起源于副中肾管。

实质性阴道板形成和延长发生于第12~20周,其后从尾侧至头侧腔化,通常终止于子宫。围绕泌尿生殖窦和副中肾管在阴道形成中的相对作用存在分歧:尚未明了整个阴道板形成是从属于泌尿生殖窦内胚层的发育,抑或阴道上段是形成于副中肾管。

阴道

阴道为扁平的管道,从阴道口的处女膜起,向后、向上伸展至围绕子宫颈的穹隆。阴道上皮为复层鳞状上皮,正常阴道上皮无腺体、毛囊和角化。妊娠期暴露于己烯雌酚(母亲服用)可导致柱状上皮腺体点缀于阴道上2/3段的鳞状上皮间(阴道腺病)。阴道上皮深部为阴道肌层,含有内环和外纵的平滑肌。有时,可见阴道壁上皮层下中肾管残余,发生加特内管囊肿。成年人阴道平均长约8cm,然而,其大小因年龄、生育和卵巢功能状况不同而不同。阴道最重要的特征为阴道后穹隆与直肠子宫陷凹非常接近,后穹隆穿刺术或阴道切开术易

of ovarian function. An important anatomic feature is the immediate proximity of the posterior fornix of the vagina to the pouch of Douglas, which allows easy access to the peritoneal cavity from the vagina, by either culdocentesis or colpotomy.

UTERUS

The uterus consists of the cervix and the uterine corpus, which are joined by the isthmus. The uterine isthmus represents a transitional area wherein the endocervical epithelium gradually changes into the endometrial lining. In late pregnancy, this area elongates and is referred to as the lower uterine segment.

The cervix is generally 2 to 3cm in length. In infants and children, the cervix is proportionately longer than the uterine corpus. The portion that protrudes into the vagina and is surrounded by the fornices is covered with a nonkeratinizing squamous epithelium. **At about the external cervical os, the squamous epithelium covering the ectocervix changes to simple columnar epithelium, the site of transition being referred to as the squamocolumnar junction.** The cervical canal is lined by irregular, arborized, simple columnar epithelium, which extends into the stroma as cervical "glands" or crypts.

The uterine corpus is a thick, pear-shaped organ, somewhat flattened anteroposteriorly, that consists of largely interlacing smooth muscle fibers. The endometrial lining of the uterine corpus may vary from 2 to 10mm in thickness (which may be measured by ultrasonic imaging), depending on the stage of the menstrual cycle. Most of the surface of the uterus is covered by the peritoneal mesothelium.

Four paired sets of ligaments are attached to the uterus. Each round ligament inserts on the anterior surface of the uterus just in front of the fallopian tube, passes to the pelvic side wall in a fold of the broad ligament, traverses the inguinal canal, and ends in the labium majus. **The round ligaments are of little supportive value in preventing uterine prolapse but**

于从阴道进入腹腔。

子宫

子宫由子宫颈和子宫体组成, 两者以峡部相连。子宫峡部为子宫颈管上皮逐渐转变为子宫内膜的过渡区。妊娠晚期时, 子宫峡部伸展、转变为子宫下段。

子宫颈一般长为 2~3cm。婴儿和儿童的子宫颈于比例上长于子宫体。突出于阴道, 并围以穹隆的子宫颈部分覆有无角化的鳞状上皮。在子宫颈外口附近, 覆盖于子宫颈阴道部的鳞状上皮转变成单纯柱状上皮, 此转换区称为鳞柱交接。子宫颈管衬有不规则、树枝分支状的单纯柱状上皮, 其如子宫颈“腺体”或隐窝状伸展至间质。

子宫体为一厚的梨状器官, 有时前后略扁平, 由大量交织的平滑肌纤维组成。子宫体腔内膜厚度不一, 从 2mm 到 10mm 不等(可由超声影像测量), 取决于月经周期的阶段。大多数子宫表面外覆腹膜间皮。

四对韧带附着于子宫。圆韧带在输卵管正前方植入子宫, 另端穿越阔韧带的皱褶、直达盆腔侧壁、后横穿腹股沟管、终止于大阴唇。圆韧带几无预防子宫脱垂的支撑价值, 但有助于维持子宫前倾。子宫骶韧带为骨盆内筋膜增厚而成, 起

help to keep the uterus anteverted. **The uterosacral ligaments** are condensations of the endopelvic fascia that arise from the sacral fascia and insert into the posteroinferior portion of the uterus at about the level of the isthmus. These ligaments contain sympathetic and parasympathetic nerve fibers that supply the uterus. They provide important support for the uterus and are also significant in precluding the development of an enterocele. **The cardinal ligaments (Mackenrodt's)** are the other important supporting structures of the uterus that prevent prolapse. They extend from the pelvic fascia on the lateral pelvic walls and insert into the lateral portion of the cervix and vagina, reaching superiorly to the level of the isthmus. **The pubocervical ligaments** pass anteriorly around the bladder to the posterior surface of the pubic symphysis.

In addition, there are four peritoneal folds. Anteriorly, **the vesicouterine fold** is reflected from the level of the uterine isthmus onto the bladder. Posteriorly, **the rectouterine fold** passes from the posterior wall of the uterus, to the upper fourth of the vagina, and thence onto the rectum. The pouch between the two folds forms a cul-de-sac, called the pouch of Douglas. Laterally, **the two broad ligaments** each pass from the side of the uterus to the lateral wall of the pelvis. Between the two leaves of each broad ligament are contained the fallopian tube, the round ligament, and the ovarian ligament, in addition to nerves, blood vessels, and lymphatics. **The fold of broad ligament containing the fallopian tube is called the mesosalpinx.** Between the end of the tube and ovary and the pelvic side wall, where the ureter passes over the common iliac vessels, is the infundibulopelvic ligament, which contains the vessels and nerves for the ovary. The ureter may be injured when this ligament is ligated during a salpingo-oophorectomy procedure.

FALLOPIAN TUBES

The oviducts are bilateral muscular tubes (about 10cm in length) with lumina that connect the uterine

源于骶骨筋膜,在峡部水平植入子宫。这些韧带含有支配子宫的交感和副交感神经纤维,并在预防肠疝的发生和支撑子宫承担重要的作用。主韧带(Mackenrodt)是支撑子宫、预防子宫脱垂的另一重要组织。其源自盆腔侧壁的筋膜,融入子宫颈和阴道旁组织,上至峡部水平。耻骨子宫颈韧带沿膀胱向前,直至耻骨联合后表面。

另外,有四处皱褶。前方,膀胱子宫皱褶从子宫峡部水平反折至膀胱。后方,直肠子宫皱褶从子宫后壁至阴道上1/4段,然后延至直肠。皱褶间窝形成陷凹,称为直肠子宫陷凹。侧方,两侧阔韧带源自子宫侧方,直至盆腔侧壁。阔韧带两叶间除神经、血管和淋巴管外,还含有输卵管、圆韧带及卵巢韧带。包裹输卵管的阔韧带皱褶称为输卵管系膜。在输卵管末端、卵巢和盆腔侧壁间,输尿管越过髂总血管处,为骨盆漏斗韧带,其含有卵巢的血管和神经。输卵管-卵巢手术中结扎该韧带时,有可能损伤输尿管。

输卵管

输卵管为双侧肌性管道(长约10cm),其管腔联通子宫腔和腹腔。

cavity with the peritoneal cavity. They are enclosed in the medial four-fifths of the superior aspect of the broad ligament. The tubes are lined by a ciliated, columnar epithelium. That segment of the tube within the wall of the uterus is referred to as the **interstitial portion**. The medial portion of each tube is superior to the round ligament, anterior to the ovarian ligament, and relatively fixed in position. This nonmobile portion of the tube has a fairly narrow lumen and is referred to as the **isthmus**. As the tube proceeds laterally, it is located anterior to the ovary; it then passes around the lateral portion of the ovary and down toward the cul-de-sac. The **ampullary and fimbriated portions** of the tube are suspended from the broad ligament by the meso-salpinx and are quite mobile. The mobility of the fimbriated end of the tube plays an important role in fertility. The ampullary portion of the tube is the most common site of ectopic pregnancies.

NORMAL EMBRYOLOGIC DEVELOPMENT OF THE OVARY

The earliest anatomic event in gonadogenesis is noted at approximately 4 weeks gestational age (i.e., 4 weeks from conception), when a thickening of the peritoneal, or coelomic, epithelium on the ventromedial surface of the urogenital ridge occurs. A bulging **genital ridge** is subsequently produced by rapid proliferation of the coelomic epithelium in an area that is medial, but parallel, to the mesonephric ridge. Prior to the 5th week, this indifferent gonad consists of germinal epithelium surrounding the internal blastema, a primordial mesenchymal cellular mass designated to become the ovarian medulla. After 5 weeks, projections from the germinal epithelium extend like spokes into the mesenchymal blastema to form **primary sex cords**. Soon thereafter in the 7th week, a testis can be identified histologically if the embryo has a Y chromosome. In the absence of a Y chromosome, definitive ovarian characteristics do not appear until somewhere between

其正中 4/5 段被围于阔韧带上方的皱褶中。输卵管衬以纤毛柱状上皮。子宫壁间的输卵管段称为间质部。中间段输卵管位于圆韧带上方、卵巢韧带前方,为相对固定部分。输卵管不能活动部分的管腔相当狭窄,称为峡部。随着输卵管向侧边伸展,输卵管位于卵巢前方,然后沿着卵巢侧方、垂向直肠子宫陷凹。输卵管壶腹部和伞部依附输卵管系膜而悬于阔韧带外,完全可移动。输卵管伞端的移动性对生育有着重要的作用。输卵管壶腹部为异位妊娠最好发的部位。

正常卵巢胚胎的发育

约妊娠 4 周时(即受精后 4 周),即可见性腺发育的早期解剖改变,即泌尿生殖脊腹侧正中的腹膜或体腔上皮变厚,平行于中肾脊的正中处体腔上皮快速增殖,继而形成突起的生殖脊。第 5 周前,未分化的性腺由围绕内胚基的生发上皮和后来成为卵巢髓质的原始间质细胞团组成。第 5 周后,突起的生发上皮像辐条(自行车轮钢丝)样伸展至间质胚基,形成原始性索。第 7 周后,若胚胎含有 Y 染色体,则组织学上可辨别睾丸。如缺乏 Y 染色体,于第 12 周和第 16 周间,才出现明确的卵巢特征。

the 12th and 16th weeks.

As early as 3 weeks' gestation, relatively large primordial germ cells appear intermixed with other cells in the endoderm of the yolk sac wall of the primitive hindgut. These germ-cell precursors migrate along the hindgut dorsal mesentery and are all contained in the mesenchyme of the undifferentiated urogenital ridge by 8 weeks' gestation. Subsequent replication of these cells by mitotic division occurs, with maximal mitotic activity noted up to 20 weeks' gestation and cessation noted by term. These oogonia, the end result of this germ-cell proliferation, are incorporated into the cortical sex cords of the genital ridge.

Histologically, the first evidence of follicles is seen at about 20 weeks, with germ cells surrounded by flattened cells derived from the cortical sex cords. These flattened cells are recognizable as granulosa cells of coelomic epithelial origin and theca cells of mesenchymal origin. The oogonia enter the prophase of the first meiotic division and are then called primary oocytes. It has been estimated that more than 2 million primary oocytes, or their precursors, are present at 20 weeks' gestation, but only about 300,000 primordial follicles are present by 7 years of age.

Regression of the primary sex cords in the medulla produces the rete ovarii, which are found histologically in the hilus of the ovary along with another testicular analogue called Leydig's cells, which are thought to be derived from mesenchyme. Vestiges of the rete ovarii and of the degenerating mesonephros may also be noted at times in the mesovarium or mesosalpinx.

ANATOMY OF THE OVARIES

The ovaries are oval, flattened, compressible organs, approximately $3 \times 2 \times 2$ cm in size. They are situated on the superior surface of the broad ligament and are suspended between the ovarian ligament medially and the suspensory ligament of the ovary or infundibulopelvic ligament laterally and superiorly. Each

早在妊娠 3 周时,原始后肠的卵黄囊壁的内胚层出现相对较大的原始生殖细胞并混杂着其他细胞。妊娠 8 周时,早期生殖细胞沿着后肠的背肠系膜迁移,直至未分化生殖脊的间质。随后,这些细胞发生有丝分裂,至妊娠 20 周,有丝分裂达顶峰;至足月时,有丝分裂停止。生殖细胞增殖形成的卵原细胞掺和至生殖脊的皮质性索中。

约 20 周时,可见卵泡最初的组织学迹象,即生殖细胞外绕皮质性索来源的扁平细胞。这些扁平细胞为体腔上皮来源的颗粒细胞和间质来源的卵泡膜细胞。卵原细胞进入第 1 次减数分裂的前期,称为初级卵母细胞。据估计,妊娠 20 周时,初级卵母细胞,或其前身,可达 200 万,但至 7 岁时,仅有 30 万原始卵泡。

卵巢髓质中的原始性索退化,形成卵巢网,组织学发现其位于卵巢门,伴其他的类似睾丸的间质细胞(莱迪希细胞),有人认为后者来源于间质。退化中肾的卵巢网遗迹可见于卵巢系膜和输卵管系膜。

卵巢解剖

卵巢为扁平、可压缩的卵圆形器官,大小约为 $3 \text{ cm} \times 2 \text{ cm} \times 2 \text{ cm}$ 。其位于阔韧带上方,并悬吊于正中侧的卵巢韧带和侧方的卵巢悬韧带或骨盆漏斗韧带之间。每侧卵巢占据卵巢窝位置(瓦尔代尔窝),其为