
Contents

<i>Preface</i>	vii
<i>Acknowledgments</i>	ix

CHAPTER 1 **Embryology and Congenital** **Malformations of the Female Genital** **Tract 1**

Primordial Germ Cells	1
Gonadal Primordia	2
Factors Influencing Gonad Differentiation	4
The Duct System	5
Indifferent Stage	5
Duct Development in the Male	6
Duct Development in the Female	6
External Genitalia	9
Indifferent Stage	9
Further Development of the External Genitalia	9
Factors Controlling Development of the Duct System and External Genitalia	9
Human Sexual Abnormalities	10
References	11

CHAPTER 2 **The Vulva 13**

Anatomy	13
Structure	13
Developmental Defects	16

Infectious Diseases of the Vulva	16		
Condylomata Acuminata	16		
Herpetic Vulvitis	18		
Syphilis	19		
Molluscum Contagiosum	21		
Granuloma Inguinale	22		
Lymphogranuloma Venereum	22		
Chancroid	23		
Tuberculosis	23		
Miscellaneous	23		
Inflammatory Diseases (Noninfectious)	24		
Benign Cystic Tumors	26		
Bartholin Cyst	26		
Keratinous Cysts	27		
Mucous Cysts (Dysontogenetic Cysts)	27		
Mesonephric Cysts	28		
Cysts of the Canal of Nuck (Peritoneal Lined Cysts)	28		
Fox-Fordyce Disease	28		
Benign Solid Tumors	28		
Connective Tissue Tumors	28		
Epithelial Tumors	31		
Pigmentation Disorders	34		
Hypopigmented Conditions	34		
Hyperpigmented Lesions	35		
Dystrophic Conditions	36		
Hyperplastic Dystrophy	37		
Lichen Sclerosus	38		
Mixed Dystrophy	40		
Atypia	40		
Intraepithelial Neoplasia	41		
Carcinoma in Situ	43		
Paget's Disease	44		
Malignant Tumors	46		
Invasive Squamous Cell Carcinoma	46		
Melanoma	49		
Other Malignancies	50		
Urethra	51		
Processing of Vulvar Specimens in the Surgical Pathology Laboratory	52		
Vulvar Biopsies	52		
The Superficial Vulvectomy	52		
Total Vulvectomy	53		
The Radical Vulvectomy Specimen	53		
References	55		
 CHAPTER 3			
Diseases of the Vagina	59		
Anatomy	59		
Vascular and Nerve Supply	61		
Lymph Drainage	61		
Mucous Membranes	61		
Inflammatory Lesions	63		
Gonorrhea	63		
Haemophilus vaginalis	63		
Vaginal Candidiasis	68		
Trichomoniasis	68		
Emphysematous Vaginitis	69		
Desquamative Inflammatory Vaginitis	69		
Vaginitis Caused by Parasites	70		
Vaginal Changes Associated with Prolapse	70		
Cysts of the Vagina	70		
Fibroepithelial Polyps of the Vagina	70		
Benign Tumors of the Vagina	73		
Granular Myoblastoma (Granular Cell Tumor)	73		
Malignant Tumors	74		
Microscopic Appearance	74		
Metastatic Spread	75		
Dysplasia and Carcinoma in Situ	76		
Carcinoma of the Vagina in Infancy	76		
Malignant Melanoma	79		
Sarcomas of the Vagina	79		
Metastatic Tumors to the Vagina	83		
References	85		
 CHAPTER 4			
Vaginal and Cervical Abnormalities Related to Prenatal Exposure to Diethylstilbestrol (DES)	87		
Clear Cell Adenocarcinoma	88		
Nonneoplastic DES-related Changes	93		
Preneoplastic Lesions	98		
Summary	100		
Acknowledgments	100		
References	100		
 CHAPTER 5			
Anatomy and Histology of the Cervix	102		
Gross Anatomy	102		
Normal Morphology and Physiology	104		
Squamous Epithelium	104		
Columnar Epithelium	108		
The Transformation Zone	112		
The Cervix during Pregnancy and Puerperium	120		
Vestigial and Heterotopic Structures of the Cervix	121		
Mesonephric Duct Remains	121		

Heterotopic Ectodermal and Mesodermal Structures	122
Acknowledgments	122
References	122

CHAPTER 6 **Benign Lesions of the Cervix 124**

Inflammatory Diseases	124
Nonspecific Acute Cervicitis	124
Nonspecific Chronic Cervicitis	125
Atypia of Repair (Anaplasia of Repair)	125
Hyperkeratosis and Parakeratosis	125
Specific Inflammations	126
Pseudotumors	131
Benign Neoplasms	136
Leiomyomas	136
Acknowledgment	141
References	141

CHAPTER 7 **Cervical Intraepithelial Neoplasia 143**

Terminology and Definitions	143
Epidemiology	149
Etiology	150
Microscopic Morphology	152
Origin	155
Distribution	158
Management	160
Summary	162
Acknowledgments	163
References	163

CHAPTER 8 **Diagnostic Procedures for Lesions of the Cervix 166**

Colposcopy	166
Staining Tests	168
Cytologic Examination	169
Tissue Examination	169
Punch Biopsy	169
Endocervical Curettage	169
Conization Biopsy	170
Acknowledgment	170
References	170

CHAPTER 9 **Carcinoma and Other Malignant Tumors of the Cervix 171**

Invasive Carcinomas	171
Preclinical Microinvasive and Occult Invasive Squamous Cell Carcinomas	171
Occult Invasive Carcinoma	176
Clinical Invasive Squamous Cell Carcinoma	177
Carcinoma of the Cervical Stump	187
Carcinoma in Pregnancy	187
Verrucous Carcinoma	188
Adenocarcinoma of the Cervix	189
Carcinomas of Subcolumnar Reserve Cell Origin	196
Multiple Primary Carcinoma	197
Morphology of the Uterine Cervix Following Ionizing Irradiation	197
Rare Carcinomas	200
Sarcomas of the Cervix	201
Metastatic Disease	202
Acknowledgment	202
References	202

CHAPTER 10 **Hormones of the Menstrual Cycle 206**

Hormonal Activity during the Menstrual Cycle	206
Estrogens	206
Progesterone and 17-O ₃ H-Progesterone	207
Androgens	208
Hypothalamic-Pituitary-Ovarian Relationship	
Feedback Mechanisms	208
Follicle Growth, Maturation, and Atresia	208
Ovulation	209
Corpus Luteum, Maturation and Regression	209
Receptor Sites in Endometrium and Steroid Interaction	209
References	210

CHAPTER 11 **Normal Endometrium 211**

Development of the Uterus	211
Neonatal Uterus	211
Menarche	212
The Adult Uterus	213
Blood Supply	213
Arterial	213
Veinous Drainage	214

Normal Histologic Response of Endometrium to Sex Steroids	214
Menstrual Endometrium	215
Preovulatory Phase of the Cycle	215
Postovulatory Phase	217
The Endometrium at Menopause	225
The Fine Structure of the Endometrium	226
Glandular Epithelium	226
Ultrastructure of Stromal Cells	232
Scanning Electron Microscopy of the Normal Endometrium	234
Proliferative Phase	234
Secretory Phase	236
Menstrual Phase	238
Cell Physiology of Endometrium	238
Histochemistry and Biochemistry	238
Mechanism of Action of Steroid Hormones	240
References	242

CHAPTER 12

Clinical Considerations of Gynecologic Pathology 243

Suggestions for Fruitful Cooperation	243
Dysfunctional Uterine Bleeding	245
Irregular Shedding of the Endometrium	245
Short Luteal Phase	246
Indications for Endometrial Biopsy	246
Techniques for Endometrial Sampling	247
References	248

CHAPTER 13

Benign Diseases of the Endometrium 249

Inflammatory Endometrial Lesions	249
Acute Endometritis	249
Chronic Endometritis	252
Endometrial Polyps	257
Malignancy in Endometrial Polyps	259
Abnormal Patterns of Endometrial Maturation	260
Iatrogenic Abnormalities in Maturation	262
References	264

CHAPTER 14

Endometrial Hyperplasia 265

Endometrial or Glandular Hyperplasia	266
--------------------------------------	-----

Clinical Observations	266
Gross and Histologic Appearance	266
"Swiss Cheese Hyperplasia"	267
Adenomatous Hyperplasia	267
Gross and Microscopic Appearance	269
Scanning Electron Microscopy	270
Atypical Adenomatous Hyperplasia	270
Carcinoma in Situ	272
Estrogens, Hyperplasia, and Carcinoma of the Endometrium	272
References	277

CHAPTER 15

Carcinoma of the Endometrium 278

Adenocarcinoma of the Endometrium	278
Incidence	278
Epidemiology	278
Diagnosis	279
Gross Appearance	279
Microscopic Appearance	281
Ultrastructure of Adenocarcinoma of Endometrium (Transmission Electron Microscopy)	285
Scanning Electron Microscopy of Endometrial Carcinoma	286
Staging	289
Mode of Spread of Adenocarcinoma	290
Prognosis	290
Treatment	291
Adenocanthoma of the Endometrium	292
Occurrence	292
Epidemiology	292
Gross Appearance	292
Microscopic Appearance	292
Prognosis	292
Adenosquamous Carcinoma	292
Occurrence	292
Gross Appearance	293
Microscopic Appearance	293
Prognosis	294
Primary Squamous Cell Carcinoma of the Endometrium	294
Clear Cell Carcinoma	294
Occurrence	294
Clinical Picture	294
Gross and Microscopic Appearance	294
Prognosis	295
Histochemistry	296
Tumors Metastatic to Endometrium	297
References	298

CHAPTER 16 Benign Lesions of the Myometrium 299

Introduction	299
Leiomyomata	299
Epidemiology	300
Clinical Picture	300
Gross and Microscopic Appearance	300
Treatment	305
Vascular Leiomyomata	306
Clear Cell Leiomyomata	306
Cellular Leiomyomata	307
Bizarre Leiomyomata	307
Adenomyoma or Adenofibroma	307
Intravenous Leiomyomatosis	307
Benign Metastasizing Leiomyoma	310
Hemangiopericytoma	310
Adenomyosis	312
Clinical Data	312
Gross Appearance	313
Microscopic Appearance	313
Histogenesis	314
Adenomyosis and Associated Conditions	314
Endolymphatic Stromal Myosis	316
Benign Mesodermal Tumors	316
Lymphangioma	317
Plexiform Tumorlets	319
References	320

CHAPTER 17 Uterine Sarcomas 322

Introduction	322
Classification	322
Leiomyosarcoma	323
Occurrence	323
Clinical Findings	323
Gross Appearance	324
Histologic Appearance	324
Therapy and Prognosis	327
Endometrial Stromal Sarcoma	328
Clinical Findings	328
Gross Appearance	328
Microscopic Appearance and Prognosis	328
Therapy	330
Malignant Mixed Müllerian Tumors	331
Histogenesis	331
Incidence	331
Clinical Features	331
Gross Appearance	331

Microscopic Appearance	331
Prognosis	336
Course and Treatment	339
Müllerian Adenosarcoma of the Uterus	339
Primary Malignant Lymphoma of Uterus	339
References	340

CHAPTER 18 Pathology of the Fallopian Tube 341

Introduction	341
Anatomy	341
Histology	342
Physiology	344
Benign Rests and Cysts	345
Salpingitis	347
Acute Salpingitis	347
Chronic Salpingitis	348
Hydrosalpinx	349
Granulomatous Salpingitis	350
Tuberculous Salpingitis	350
Schistosomiasis	351
Actinomycosis	352
Pinworm	352
Sarcoid	352
Crohn's Disease	352
Foreign Body	352
Salpingitis Isthmica Nodosa	353
Torsion, Prolapse, and Intussusception	353
Endometriosis	354
Endosalpingiosis	355
Infertility of Tubal Origin	355
Benign Tumors	356
Benign Epithelial Tumors	356
Benign Mesodermal Tumors	356
Mesothelioma	356
Benign Teratoma	357
Adrenal Rests	358
Hilus Cells	358
Wolffian Adenoma	358
Glial Implants	358
Leiomyomatosis Peritonealis Disseminata	358
Malignant Tumors	359
Carcinoma in Situ	359
Invasive Primary Tubal Adenocarcinoma	359
Sarcomas	361
Lymphomas	362
Trophoblastic Tumors	362
References	362

CHAPTER 19 Anatomy and Histology of the Human Ovary 365

Gross Anatomy	365
Orientation	365
Ectopic Ovarian Tissue	365
Blood Supply	366
Nerve Supply	368
Lymphatic Supply	368
Histology and Histochemistry	368
Orientation	368
Structure of the Follicle	375
Structure of the Corpus Luteum	378
The Ovary in Pregnancy	382
Alterations Induced by Age	383
References	385

CHAPTER 20 Inflammatory Diseases of the Ovary 387

Acute Oophoritis	387
Ovarian and Tubovarian Abscess	388
Chronic Perioophoritis	389
Chronic Granulomatous Oophoritis	389
Tuberculosis	389
Sarcoidosis	391
Actinomycetes as a Cause of Oophoritis	391
Granulomatous Oophoritis due to <i>Enterobius vermicularis</i>	391
Genital Schistosomiasis and Oophoritis	391
References	392

CHAPTER 21 Nonneoplastic Cysts of the Ovary 393

Serous Inclusion Cyst	393
Follicle Cyst	394
Corpus Luteum Cyst	397
Theca Lutein Cyst	397
Polycystic (Sclerocystic) Ovaries and Hyperthecosis	398
Polycystic Ovaries in Association with Estrinism	401
Stein-Leventhal Syndrome	401
Association of Endometrial Carcinoma with Stein-Leventhal Syndrome	401
Virilism	401
Endocrine Abnormalities in Polycystic Ovarian Syndrome	401

Etiology	402
References	402

CHAPTER 22 Pelvic Endometriosis 404

Ectopic Sites of Endometrium	404
Incidence	404
Pathogenesis	405
Symptomatology—Relationship to Pathologic Alterations	408
Diagnosis	409
Pathologic Alterations in the Ovary	409
Gross Findings	409
Microscopic Appearance	409
Endometrioid Carcinoma of the Ovary Arising from or Coexistent with Endometriosis	414
Endometriosis Involving the Gastrointestinal System	416
Clinical Manifestations and Diagnosis	416
Gross and Microscopic Appearance	417
References	418

CHAPTER 23 Disorders of Female Sex Differentiation 420

Normal Sexual Differentiation	420
Abnormal Genetic Sex Differentiation	421
Monogenic Sex Disorders	421
Cytogenetics and Sex Chromosome Disorders	421
Sex Chromatin	427
Sex Chromosome Abnormalities	429
Abnormal Gonadal Sex Differentiation	429
True Hermaphroditism	429
Gonadal Dysgenesis	432
Gonadal Dysgenesis—45X (X-Chromosome Monosomy)	432
Gonadal Dysgenesis—Mosaicism for Monosomy X with Structurally Normal X Chromosomes	436
Gonadal Dysgenesis—X-Chromosome Structural Aberrations	438
Gonadal Dysgenesis—Autosomal Chromosomal Abnormalities	440
Pure Gonadal Dysgenesis—46XX or 46XY	442
Mixed Gonadal Dysgenesis	443
Gonadal Dysgenesis—An Overview	443
Abnormalities of Phenotypic Sex Differentiation	443
Male Pseudohermaphroditism	444

Female Pseudohermaphroditism	447
Nonadrenal Female Pseudohermaphroditism—Maternal	
Androgens and Progestogens	448
Defects of Wolffian–Müllerian Duct	
Development	449
References	449

CHAPTER 24

Primary Epithelial Tumors of the Ovary 453

Introduction	453
Serous Tumors	455
Serous Cystadenoma	455
Borderline Serous Cystadenoma	456
Serous Cystadenocarcinoma	461
Cystadenofibroma	463
Adenofibroma	467
Malignant Adenofibroma	467
Mucinous Tumors	469
Mucinous Cystadenoma	469
Borderline Mucinous Cystadenoma	472
Mucinous Cystadenocarcinoma	473
Endometrioid Tumors	475
Endometrioma	475
Endometrioid Carcinoma	477
Clear Cell Carcinoma	482
Brenner Tumor	485
Benign Brenner Tumor	485
Proliferating Brenner Tumors	489
Malignant Brenner Tumor	493
Mixed Epithelial and Mesenchymal Tumors	494
Carcinosarcoma	494
Mixed Mesodermal Tumors	495
Adenomatoid Tumor	497
Adenocarcinoma Not Otherwise Classifiable	499
Luteinized and Enzymatically Active Stromal Cells in	
Primary Ovarian Epithelial Tumors	499
References	501

CHAPTER 25

Sex Cord–Stromal Tumors 505

Classification and Nomenclature	505
Granulosa–Stromal Cell Tumors	506
Granulosa Cell Tumor	506
Tumors in the Thecoma–Fibroma Group	511
Sertoli–Leydig Cell Tumors (Androblastomas)	517
Gynandroblastoma	523
Unclassified Sex Cord–Stromal Tumors	523
Conclusion	525
References	525

CHAPTER 26

Germ Cell Tumors of the Ovary 527

Classification	527
Germ Cell Tumors	528
Dysgerminoma	528
Endodermal Sinus Tumor	538
Embryonal Carcinoma	546
Polyembryoma	548
Choriocarcinoma	550
Teratoma	552
Mixed Germ Cell Tumors	568
Tumors Composed of Germ Cells and Sex Cord	
Stroma Derivatives	569
Gonadoblastoma	569
Mixed Germ Cell–Sex Cord Stroma Tumor	575
References	579

CHAPTER 27

Ovarian Neoplasms of Childhood and Adolescence 586

Introduction	586
Clinical Manifestations	587
Paraneoplastic Syndromes	587
Etiologic Aspects	588
Classification	588
Relative Frequency of Histogenetic Categories	589
Germ Cell Neoplasms	589
Germinoma (Dysgerminoma, Gonocytoma I, Ovarian Seminoma)	589
Embryonal Carcinoma (Teratoblastoma)	592
Yolk Sac Carcinoma (Endodermal Sinus Tumor: Vitelline Carcinoma)	594
Choriocarcinoma	594
Teratocarcinoma (Malignant Teratoma: Malignant Mixed Germ Cell Tumor)	595
Immature Teratoma (Complex Teratoma, Solid Teratoma, Fetal Teratoma, Malignant Teratoma, Partially Differentiated Teratoma)	597
Mature Teratoma (Benign Cystic Teratoma)	600
Mixed Germ Cell Tumors	606
Coelomic Epithelial Neoplasms (Epithelial–Stromal Neoplasms)	606
Serous (Tubal) Cell Neoplasms	607
Mucinous (Endocervical) Cell Neoplasms	607
Sex Cord–Sex Mesenchyme Tumors	612
Granulosa Cell Tumor	612
Sertoli Cell Tumor (Tubular Androblastoma)	613
Thecoma	613
Sclerosing Stromal Tumor	614

Leydig (Hilus) Cell Tumor (Berger's Tumor)	615	Placenta Previa	646
Sertoli-Leydig Cell Tumor (Arrhenoblastoma, Arrhenoma)	615	Placenta Accreta	646
Granulosa-Theca Cell Tumor (Thecagranulosa Tumor)	616	Ectopic Pregnancy	647
Tumors of Nonspecialized Gonadal Mesenchyme	616	Umbilical Cord and Major Vessels	655
Sarcomas	616	Length of Cord	655
Malignant Lymphoma	617	Absence of One Umbilical Artery	655
Nonneoplastic Tumors of the Ovary	618	Velamentous Insertion of Cord	655
Follicle and Luteinized Follicle Cysts in Infants and Children	618	Placental Membranes	655
Follicle and Lutein Cysts in Postmenarchial Children and Adolescents	620	Amnionic Bands and Rupture	656
Massive Edema of the Ovary	621	Meconium	656
Massive Hemorrhagic Infarct of the Normal Ovary	623	Amnion Nodosum	656
References	623	Amnionitis and Chorionitis	659
		Twins	659
		Amniotic Fluid Embolism	662
		Abnormal Placental Architecture	663
		Succenturiate Lobe	663
		Placenta Membranacea	664
		Circummarginate and Circumvallate Placenta	664
		Disturbances of Circulation	665
		Infarction	665
		Abruptio Placentae	667
		Toxemia of Pregnancy	668
		Erythroblastosis Fetalis	668
		Chorangioma	668
		Placentitis	669
		References	671
CHAPTER 28			
Metastatic Carcinoma in the Ovary	627	CHAPTER 31	
Primary Endometrial Carcinoma	627	The Vascular Supply of the Placenta in Normal and Abnormal Pregnancy	673
Gastrointestinal Tract Primary	629	Normal Pregnancy	674
Primary Breast Carcinoma	632	Early Pregnancy	675
Other Primary Sites	632	Late Pregnancy	677
Pathways of Spread of the Tumor to the Ovary	632	Pregnancies Complicated by Fetal Growth Retardation	684
Surface Implantation	632	Acknowledgments	689
Lymphatic Metastases	635	References	689
Hemic Metastases	635		
Hormonal Activity of Metastatic Carcinoma to Ovary	637	CHAPTER 32	
References	637	Abortion	691
		Spontaneous Abortion	691
		Threatened Abortion	694
		Habitual Abortion	694
		Missed Abortion	695
		Induced Abortion	695
		References	697
CHAPTER 29			
Fertilization, Implantation, and Placentation	638		
Site of Fertilization	638		
Implantation	638		
Placentation	638		
Involution of the Placental Site	645		
References	645		
CHAPTER 30			
Abnormalities and Diseases of the Placenta, Membranes, and Umbilical Cord	646		
Abnormal Sites of Implantation	646		

CHAPTER 33 Gestational Trophoblast Disease 698

Introduction	698
Hydatidiform Mole	699
Invasive Mole	704
Choriocarcinoma	705
References	709

CHAPTER 34 Amniotic Fluid: Biochemical Assays Relating to Fetal Viability 710

Introduction	710
Indications for Amniotic Fluid Examination	711
Higher-Risk Identification	711
Time Dependent Factors	711
Obtaining a Specimen for Examination	712
Specimen Handling, Interferences	712
Fetal Death <i>in Utero</i>	712
Early Amniocentesis	713
Congenital Malformations	713
Predelivery Amniocentesis	718
Erythroblastosis Fetalis	719
Estimation of Fetal Maturity	719
Estimation of Fetal Lung Maturity	720
References	724

CHAPTER 35 Pathologic Factors Involved in Infertility 734

Physiologic Factors	734
Sperm Capacitation	735
Sperm Transport	735
Capacity of the Fallopian Tube to Supply Nutrition to the Fertilized Ovum during the Transit Period	735
Timing of Tubal Transport	735
Immunologic Capacity to Destroy Sperm Antibodies and Prevent Antisperm Antibodies from Forming	735
Disease Processes	735
The Semen	736
The Vagina	736
The Cervix	736
Endometrium	737
Fallopian Tube	737
The Ovary	739
Endometriosis of the Ovary	740

Gonadal Dysgenesis	741
Premature Ovarian Failure	741
References	742

CHAPTER 36 Cytology of the Female Genital Tract 744

General Discussion	744
Normal Components of the Routine Gynecologic Smear	744
Epithelial Cells	744
Nonepithelial Components of the Smear	746
Nonmalignant Disorders	748
Changes in Cellular Pattern	748
Changes within Epithelial Cells	749
Squamous Metaplasia	749
Specific Inflammations	751
Intraepithelial Neoplasia of the Cervix	755
Mild Dysplasia and Dyskaryosis	755
Moderate Dysplasia	756
Severe Dysplasia/Carcinoma in Situ	756
Invasive Neoplasms of Cervix	759
Invasive Squamous Carcinoma of the Cervix	759
Adenocarcinoma	760
Changes in Epithelia Secondary to Therapy	761
Effects of Radiation	761
Cryosurgery	762
Folic Acid and/or Vitamin B ₁₂ Deficiency	762
Alkylating Agents	763
Neoplasms of the Female Genital Tract Other than Cervical	763
Hormonal Cytology	767
Numerical Indices	767
The Vaginal Smear	768
Effects of Progestogens on the Vaginal Smear	769
Hormonal Cytology in the Endocrinopathies	769
Methods of Obtaining Material from the Female Genital Tract	770
Cervical Smear	770
Vaginal Smear	770
Posterior Fornix Aspiration	770
Endometrial Aspiration	770
References	770

CHAPTER 37 Gross Description and Processing of Obstetric and Gynecologic Tissue 772

General	772
---------	-----

Equipment	772
Processing of Tissue for Transmission Electron Microscopy	773
Endometrial Curettings	773
Tissue from Evacuation of a Hydatid Mole	773
Endocervical Curettings	774
Cervix	774
Cone of the Cervix	774
Gross Examination of the Uterus	774
Tumors of the Cervix	778
Tumors of the Endometrium	778
Sarcoma of the Uterus and/or Cervix	778
Gross Examination of the Fallopian Tube	778
Gross Examination of the Ovary	779
Gross Examination of the Vagina	781
Gross Examination of the Vulva	781
Examination of the Placenta	782
Indications for Examination	782
Procedure	783
Umbilical Cord	788
Gross Description of the Placenta in Twinning	788
Examination of Tissue from Spontaneous and Missed Abortion	789
Appendix I: Basic Instruments and Supplies	795
Appendix II: Injection Technique for Staining the Fetal Vessel Walls	795
References	796

CHAPTER 38

Animal Models for Tumors of the Ovary and Uterus 797

General Introduction	797
Animal Models for Tumors of the Ovary	797
The Ovary as a Tumor Model	798
Pathology and Histogenesis of Ovarian Tumors	805

Assessment of the Present Animal Tumor Models of Ovarian Cancer	807
Animal Models for Tumors of the Uterine Fundus and Placenta	808
The Uterus as a Tumor Model	808
Animal Models for Tumors of the Uterine Cervix, Vagina, and Vulva	812
Assessment of the Animal Tumor Models for Cancer of the Uterus	816
Laboratory Animals as Hosts for Human Tumors	816
References	816

CHAPTER 39

Spontaneous Tumors of the Uterus and Ovaries in Animals 822

General Introduction	822
Spontaneous Tumors of the Uterus	823
Domesticated Animals: General Survey	823
Laboratory Animals: General Survey	825
Wild Animals, Animals in Zoos, and Birds: General Survey	827
Domesticated Animals: Detailed Account	828
Laboratory Animal: Detailed Account	830
Spontaneous Tumors of the Ovary	833
Domesticated Animals with Infrequently Reported Tumors	833
Laboratory Animals	834
Wild Animals, Animals in Zoos, and Birds	836
Insect Study	839
Domesticated Animals with Most Frequently Reported Tumors	839
Summary	856
References	856
Index	863
List of Contributors	ii