Text to scanned cases

Chapter heading	Text introduction
Pathology of the uterine cervix	Diseases of the uterine cervix are often caused by infections, mostly transmitted sexually. High-risk type HPV infection is associated with premalignant and malignant changes, some of which are presented here. The introduction of HPV vaccines will change the pattern of cervical pathology in the future.

Case number	1
Diagnosis	High grade intraepithelial lesion (HSIL/CIN3) of the uterine cervix.
Clinical story	43 years old female with abnormal cervical cytology indicating HSIL at screening test. She was referred to the outpatient clinic, where the diagnosis was confirmed by colposcopy with biopsy and cervical curettage. A conization was performed.
Comments	Two longitudinal sections from a cervical cone are presented. At the vaginal or distal end, a normal mature appearing non-keratinizing squamous epithelium is covering the surface, while a mucinous epithelium is found in the endocervical/proximal end. Towards the transformation zone, the squamous epithelium becomes increasingly disorganized and atypical, with mitoses throughout all layers. No maturation of the squamous epithelium is seen in these areas. Downgrowth of dysplastic epithelium into cervical glands may be seen.
Learning goals	To recognize the the pathological changes of the uterine cervix and understand the importance of the transformation zone in the development of many if these lesions.
Case number	2
Diagnosis	Condyloma (LSIL/CIN1) of the uterine cervix.
Clinical story	A 34 years old female with a previous diagnosis of HSIL in a cervical smear showed papillomatous lesions on the portio. Because of suspected dysplasia, biopsies were taken.
Comments	Several small sections through a thickened, hyperplastic squamous epithelium are seen. In the upper half of the epithelium, vacuolization of the cytoplasm and enlarged, hyperchromatic, irregular nuclei (koilocytosis) are seen. In some cells, two nuclei can be observed. These changes are associated with HPV infection. The basal half of the epithelium is focally disorganized, with larger nuclei above the basal layer, but maturation is seen in the upper half. Small areas show normal epithelium, both squamous and mucinous.
Learning goals	You should recognize an ordinary HPV-infection in the squamous epithelium and understand the implications for follow up and treatment, according to the different virus types.

Case number	3
Diagnosis	Squamous cell carcinoma of the uterine cervix.
Clinical story	34 years old female with an irregular squamous atypia (ASC-US) by cervical screening test. HSIL was found in a biopsy from the portio and a conization was performed. The finding of a carcinoma with depth 5 mm and longitudinal growth 12 mm (pT1b) in 5 out of 17 sections from the cone was an unsuspected finding.
Comments	A longitudinal section through the cone is shown. The squamous epithelium is thickened and atypical, with growth deeply into the cervical stroma. Abnormal keratinization is seen both on the surface and in infiltrating areas. The section does not have a free vaginal/distal border. The mucinous epithelium is slightly reactive, but not atypical. Vascular invasion is not seen.
Learning goals	You should recognize an invasive growth pattern, understand why this is a squamous cell carcinoma and know the implications of resection margins and vessel invasion.
Case number	4
Diagnosis	Adenocarcinoma of the uterine cervix, in situ and invasive..
Clinical story	A 32 years old female presented with spotting at intercourse. Cervical cytology (fluid based cytology) showed atypical glandular epithelium (AGUS). The diagnosis was confirmed by colposcopy, biopsy and cervical curettage, and a conization was performed.
Comments	A longitudinal section from the cone shows atypical glands, some of which show transition from normal mucinous epithelium to epithelium with enlarged cells with eosinophilic cytoplasm, pseudostratified and hyperchromatic nuclei, several mitotic figures and intestinal type of mucinous cells (goblet cells). Pathologic changes are found throughout the section, reaching the resection margins. The depth of infiltration is suspicious for invasive growth. The resection margins are easily identified by means of the heat-induced artifacts.
Learning goals	You should be able to identify atypia in the endocervical epithelium.

Chapter heading	**Text introduction**
Uterine corpus pathology	A variety of neoplastic and non-neoplastic conditions affect the uterine corpus. Among the latter is adenomyosis. Tumors can have their origin in the endometrium or the myometrium. In the former, hyperplasia and carcinoma are most frequently seen, whereas in the myometrium leiomyomas by far outnumber malignant tumors.

Case number	5
Diagnosis	Endometrium with hyperplasia without atypia
Clinical story	48 year old woman with menorrhagia. A pipelle is submitted for examination.

Comments	An endometrium with enlarged cystic glands is seen. Normal appearing glands are also seen in areas. There is no crowding of glands and no cytologic atypia. Only few mitotic figures are seen and many if the cystic glands show a fallopian tube-type (serous) epithelium, a phenomenon which is a common response to increased estrogen.
Learning goals	To achieve knowledge about the different types and stages of hyperplasia of the endometrium.
Case number	6
Diagnosis	Uterus with intramucosal, well differentiated endometrioid adenocarcinoma (Type I)
Clinical story	40 years old female with irregular menstrual bleeding during the last 6 months. Curettage showed adenocarcinoma in the endometrium. Admitted to hospital for hysterectomy.
Comments	Endometrium with tightly packed, atypical glands with only little intervening stroma. Many glands are situated “back to back”, have an irregular form or grow in a cribriform pattern. The epithelium is clearly atypical with loss of polarization pseudostratification and atypical nuclei. Few mitoses are found. Some glands contain mucous and leukocytes. No infiltration into the myometrium is seen. The basal layer of the glands is intact.
Learning goals	To recognize type I endometrial adenocarcinoma and understand its etiology, diagnosis, staging and prognosis.
Case number	7A
Diagnosis	Uterus with high grade adenocarcinoma, probably of serous type (Type II)
Clinical story	89 years old female with hypertension and cystocele. Uterine bleeding over several months. Admitted to the outpatient clinic for D&C, followed by hysterectomy.
Comments	Section through the uterine wall with an infiltrating tumor, extending deeply into the myometrium. In some areas tumor cells grow in solid masses, in other areas atypical glands with scalloped inner surface and hobnailing, as well as papillary structures are found. Tumor cells have high-grade atypia, with nuclei that show considerable pleomorphism and distinct nucleoli. Multiple mitotic figures are seen.
Learning goals	To recognize type II endometrial adenocarcinoma and understand its etiology, diagnosis, staging and prognosis.

Case number	7B
Diagnosis	Uterus with clear cell adenocarcinoma (Type II)
Clinical story	64 years old female with tumor in the uterine corpus. Suspicion of myometrial invasion by MRI. Hysterectomy, bilateral salpingo-oophorectomy and lymphadenectomy.
Comments	Section through the uterine wall shows an endometrial polyp with development of an adenocarcinoma with cells that have overtly atypical nuclei and clear cytoplasm. Cells have distinct cell borders and line glandular spaces with

	hobnailing.
Learning goals	To recognize type II endometrial adenocarcinoma and understand its etiology, diagnosis, staging and prognosis.
Case number	8A
Diagnosis	Uterus with leiomyoma
Clinical story	57 years old female with chronic pelvic pain and a clinically diagnosed myoma of the uterus. Laparoscopic removal of the uterus.
Comments	Section through part of a leiomyoma, with smooth muscle fiber bundles, partly in a “criss-cross” pattern. Normal myometrium with less compact strands of muscle fibers is seen in the periphery. There is no atypia of the myocytes in the myoma.
Learning goals	To recognize benign leiomyomas as tumors and understand their symptomatology, morphology and treatment.
Case number	8B
Diagnosis	Uterus with leiomyosarcoma
Clinical story	75 years old female diagnosed with a large uterine tumor. Hysterectomy, bilateral salpingo-oophorectomy and appendectomy. An 8 cm tumor at gross examination.
Comments	Section through an overtly malignant tumor consisting of spindle cells with high-grade atypia and multiple mitotic figures.
Learning goals	To recognize the morphology and clinical characteristics, including treatment and prognosis, of uterine leiomyosarcoma.
Case number	9A
Diagnosis	Endometriosis
Clinical story	33 years old female with periodic pain in the area of a scar from a cesarean sectio A tumor was found in the abdominal wall, close to the scar The tissue was remov and a section taken for histological examination.
Comments	You see fat, connective tissue and islands of endometrial tissue, many with dilate glands filled with blood. The glands partly show columnar, partly flattened, cuboidal epithelium. Endometrial stroma with small vessels and hemorrhages are found around the glands. Some smaller stromal areas with no glands are also seen but all in all, the distribution of gland and stroma is balanced.
Learning goals	To recognize displaced endometrium, outside the uterus, and according to location, know the different theories about its origin. You should be able to discuss the most important complications and differential diagnoses.
Case number	9B
Diagnosis	Adenomyosis
Clinical story	A 52 years old woman with meno/metrorrhagia and an enlarged uterus. A leiomyoma was suspected and a supravaginal hysterectomy performed. Grossly, the uterus appeared diffusely enlarged, with a coarse myometrium with small brown dots or cysts in the inner part of the myometrium. No leiomyoma was see The section is from the anterior wall.

Comments	The border between endometrium and myometrium is irregular , with deep extensions of endometrium into the myometrium. Some glands are dilated. Ther is no hyperplasia or atypia.
Learning goals	To recognize displaced endometrium within the uterine wall and understand its implications for disease and possibility of recurrence after endometrial ablations.

Chapter heading	**Text introduction**
Ovarian and fallopian tube pathology	The ovary has the most diverse array of tumors in the female gynecological tract, including epithelial, sex cord stromal and germ cell tumors, as well as metastases and rare entities. Epithelial tumors are of different histological type and have a variable degree of malignancy. Functional conditions are additionally encountered.

Case number	10
Diagnosis	Ovary with corpus luteum cyst
Clinical story	During a kidney transplant operation, a cyst was found in the left ovary. The ovary with the cyst was removed. The ovary with the cyst measured approximately 4 cm in diameter and the cyst had a smooth wall.
Comments	Transverse section from the cyst and ovary. The cyst contains fibrin and a proteinaceous substance. The cyst wall is composed of luteinized granulosa cells which are rich in cytoplasm and have eccentrically located nuclei and prominent nucleoli. Multiple primordial follicles in a characteristic cortical stroma with a “criss-cross” pattern of connective tissue fibers are seen adjacent to the cyst wal Follicular cysts of varying size with granulosa cells and underlying theca cell layers are also found.
Learning goals	To recognize functional ovarian cysts.
Case number	11
Diagnosis	Polycystic ovary
Clinical story	39 years old female, undergoing *in vitro* fertilization (IVF) treatment for infertility. Ultrasonic examination showed bilateral polycystic ovaries. Wedge resection of both ovaries was performed and a section from the left ovary was taken for histological examination.
Comments	Ovarian wedge resection with multiple cortical cysts. The cysts are composed of granulosa cells. Also present in the ovarian cortex are multiple primordial follicles, more mature follicles and atretic follicles. Corpora lutea or albicantes are not seen.
Learning goals	To understand the diagnostic criteria for polycystic ovary, as well, as the etiology, clinical features and treatment of this condition.
Case number	12
Diagnosis	Ovary with serous cystadenoma
Clinical story	73 years old female with a cyst in the right ovary. The cyst and a segment of the

	uterine tube were removed, and a section was taken for histological examinatior By gross examination, the ovary has two thin-walled cysts with serous fluid and smooth surfaces.
Comments	Section through an adnex shows microscopically a corpus albicans, as well as a cross-section of a fallopian tube. In the ovary, one large and one small cyst can be seen. Flattened or cuboidal serous epithelium is lining the cysts. The epithelium is similar to the one in the fallopian tube.
Learning goals	To recognize serous cystadenoma of the ovary. Additionally, to understand the division of epithelial tumors of the ovary by histological type and the degree of malignancy.
Case number	13
Diagnosis	Ovary with Mucinous cystadenoma
Clinical story	33 years old female with a cystic mass in the right ovary. A right-sided oophorectomy was performed.
Comments	Gross examination shows a multilocular cyst with mucinous content and remains of the fallopian tube. Section through the cyst wall reveals a multilocular tumor with cysts lined by mucinous, columnar epithelium. The epithelium is regular, with no excrescences, and polarized cells with small nuclei. A cross-section of the fallopian tube is also present. Ovarian stroma may be recognized by scattere primordial follicles.
Learning goals	To recognize mucinous cystadenoma of the ovary. Additionally, to understand the division of epithelial tumors of the ovary by histological type and the degree of malignancy.
Case number	14
Diagnosis	Ovary with mucinous cystadenoma with atypia (mucinous borderline tumor)
Clinical story	62 years old female with a large cystic tumor in the left ovary. Hysterectomy, bilateral salpingo-oophorectomy, omentectomy and appendectomy. The enlarge ovary weighed 984 g, with a largest diameter of 17 cm.The surface was smooth. The cut section showed partly cystic, partly solid tumor with mucous.
Comments	Microscopy reveals multiple cystic spaces of variable diameter. The cysts are line by columnar epithelium with mucin in the cytoplasm. The degree of atypia is variable, with some areas containing atypical cells with overlapping nuclei.
Learning goals	To recognize borderline mucinous tumor of the ovary. Additionally, to understand the division of epithelial tumors of the ovary by histological type and the degree of malignancy, as well as the potential of borderline tumors to become adenocarcinomas.
Case number	15
Diagnosis	Ovary with serous cystadenoma with atypia (serous borderline tumor)
Clinical story	55 years old female with a palpable mass in the right flank. Ultrasound showed a large cyst measuring 20x20x16 cm. The cyst and the right ovary were removed.
Comments	Grossly, a 1.8 kg cyst with a hemorrhagic serous content. The surface was adherent to the omentum. On the inside of the cyst, several excrescences and

	some larger projections were found. Section from the cyst wall with excrescences shows microscopically a thick, fibrous cyst wall. Areas of the cyst surface are covered mainly with simple cuboidal epithelium, but columnar epithelium of the serous type is also seen. In some areas, the epithelium is flattened. Papillary growth with a pseudostratified epithelium and varying degre of nuclear atypia is also found. Tumor infiltration into the stroma is not seen.
Learning goals	To recognize borderline serous tumor of the ovary. Additionally, to understand the division of epithelial tumors of the ovary by histological type and the degree of malignancy, as well as the potential of borderline tumors to become adenocarcinomas.
Case number	16
Diagnosis	Ovary with serous adenocarcinoma, high grade
Clinical story	63 years old female with an abdominal tumor and large-volume ascites, discover incidentally. Salpingo-oophorectomy and resection of part of the omentum maju
Comments	By gross examination, the ovary contains a partitioned cystic tumor, approximately 10 cm in diameter and weighing 250 g. Papillary projections were present on the ovarian surface. Section from the ovary shows tumor growth in the stroma and on the surface. The tumor has a partially papillary growth on the surface, with pseudostratified epithelium with many mitoses and significant atypia. In the stroma, the tumor grows with a more solid pattern. Cells have overt atypia and multiple mitotic figures, some atypical. Incidental findings are benign cysts in the ovarian stroma.
Learning goals	To recognize high-grade serous adenocarcinoma and understand its clinical significance and differences from low-grade serous adenocarcinoma.
Case number	17
Diagnosis	Ovary with mucinous adenocarcinoma, well differentiated
Clinical story	76 years old female with a pelvic tumor, admitted for surgical treatment. Frozen section from the left ovary showed an adenocarcinoma. The uterus, ovaries, and omentum were removed.
Comments	Grossly, the adnexa contained a large tumor, approximately 8 cm in diameter, most likely originating from the left ovary. Section from the tumor in relation to the left ovary. Microscopically, ovarian stroma with infiltration of an adenocarcinoma with cysts of different sizes, with simple to pseudostratified mucinous epithelium. Cells are atypical. The cysts are filled with mucous, and infiltration into the ovarian stroma is apparent.
Learning goals	To recognize mucinous adenocarcinoma and understand its clinical significance and differences from other histotypes of ovarian adenocarcinoma.
Case number	18
Diagnosis	Ovary with Brenner tumor
Clinical story	58 years old woman who previously underwent hysterectomy. A cystic tumor of the right ovary was detected by CT. Bilateral salpingo-oophorectomy was performed.
Comments	Gross appearance: the right ovary consisted of a large (20x10x10 cm)

	multilocular serous lesion, grossly diagnosed as a cystadenoma. An enlarged left ovary (7x4x4 cm) with a yellow to white cut was also found. A section from the left ovary was taken for histopathological examination. Microscopy: groups and strands of epithelial cells in an abundant, fibrous stroma. Some of the epithelial cell nests have lumina with eosinophilic material or mucin. The majority of epithelial cells are polygonal and pale with oval nuclei, some of which have a central longitudinal groove. Areas with calcification (blue areas) are found.
Learning goals	To recognize Brenner tumor, its association with mucinous tumors and its unclear histogenesis.
Case number	19a
Diagnosis	Ovary with mature teratoma
Clinical story	18 years old female with right-sided abdominal pain. Removal of the right ovary with tumor. No peritoneal gliomatosis was found, and a blood sample proved negative for alpha-fetoprotein (AFP).
Comments	Grossly, cystically enlarged ovary, 11 cm in diameter. Cross-section showed multiple cavities filled with a gel-like matter. Section from the ovarian tumor. Microscopy: lesion that is partly cystic, with a cavity containing keratin masses and lined with squamous epithelium. Below the epithelium, sebaceous glands and hair follicles are seen. In close proximity, nerve tissue with astrocytes and immature ganglion cells are seen. Retinal cells containing melanin are found in areas with cerebral differentiation. In other areas, differentiation in the direction of smooth muscle tissue and of gastric mucosa, with a foveolar surface and regular oxyntic glands, are also present.
Learning goals	To recognize teratoma as a germ cell tumor; To identify its different components; To understand its potential to become malignant.
Case number	19b
Diagnosis	Ovary with immature teratoma
Clinical story	25 years old female with a large (16 cm) tumor in the left ovary. Low volume ascites. No metastases.
Comments	Grossly, heterogeneous cut section, partly cystic and partly solid. Section from the ovarian tumor. Microscopy: Mature components from all 3 germ layers are seen in the tumor. Additionally, large areas with immature neuroectodermal differentiation are found, some with tubule formation, some solid and recognized as blastemal pattern. The area with immature elements was large, qualifying for grade 3 tumor.
Learning goals	To recognize immature teratoma as a germ cell tumor; To identify its different components; To understand the clinical significance of malignant transformation in terms of metastasis, treatment and prognosis.
Case number	19c
Diagnosis	Ovary with dysgerminoma
Clinical story	21 years old female with a large tumor in the right ovary. Enlarged para-aortal

	lymph nodes, metastasis cannot be ruled out.
Comments	Grossly, 25 cm tumor, weight 1750 g. Cut surface showing solid yellowish tissue. Section from the ovarian tumor. Microscopy: The ovary is diffusely infiltrated by a malignant tumor consisting of dissociated cells with clear cytoplasm and atypical nuclei containing one or more nucleoli. Fibrous septae with lymphocytes are additionally found. There were no other germ cell elements in the tumor. One lymph node was shown to contain small tumor cell groups.
Learning goals	To recognize dysgerminoma as a germ cell tumor with similar morphology as its testicular counterpart; To understand its origin from gonadoblastoma; To understand the clinical significance of malignant germ cell tumors in terms of metastasis, treatment and prognosis.
Case number	20
Diagnosis	Ovary with granulosa cell tumor of adult type
Clinical story	55 years old female with endometrioid adenocarcinoma of the uterine corpus, probably well-differentiated, confirmed by curettage. Additionally, chronic lymphocytic leukemia. Hysterectomy, bilateral salpingo-oophorectomy and selective lymphadenectomy.
Comments	Grossly, thickened endometrium without definitive myometrial infiltration. Both adnexae evaluated as normal by gross examination. Microscopy: A 1.2 cm solid tumor in the right ovary. Tumor cells form pseudo-rosettes (Call-Exner bodies). The cells contain moderate amounts of cytoplasm with round to oval nuclei, which in many contain a longitudinal groove ('coffee-bean' nuclei). No mitoses are found.
Learning goals	To recognize Granulosa cell tumor as a sex cord stromal tumor; To identify Call-Exner bodies; To understand the differential diagnosis of this tumor and its hormone-producing potential; To understand its potential to become malignant.
Case number	21
Diagnosis	Ovary with Leydig cell tumor
Clinical story	57 years old female with abnormal hair growth and elevated testosterone levels. Clinically, a testosterone-producing ovarian tumor was suspected. Laparoscopy showed an enlarged left ovary, which was removed.
Comments	Gross appearance: enlarged ovary with a diameter of 5 cm. The ovary had a lumpy surface. Sectioning showed a well demarcated lesion, 1.6 cm in diameter, with a color of light to dark brown. Section from the left ovary. Microscopy reveals ovarian cortex with multiple corpora albicantia and a circumscribed tumor, with cells with a low nuclear/cytoplasmic ratio. The cytoplasm is acidophilic, the nuclei mainly eccentrically located, vesicular and with conspicuous nucleoli. Some cells are multinuclear. No mitoses are seen.
Learning goals	To recognize Leydig cell tumor as a sex cord stromal tumor; To understand its hormone-producing potential; To understand its clinical behavior.

Chapter heading	Text introduction
Gestational and placental disease	Examples of early and late complications of pregnancy and pregnancy-related diseases are discussed in this chapter. The recognition of changes requires, as in all pathology diagnostics, knowledge of general pathology and normal histology.

Case number	22
Diagnosis	Tubal pregnancy
Clinical story	A 30 years old woman with a positive pregnancy test and abdominal pains. One year earlier, she had been diagnosed with a tubal pregnancy of the right side. An ultrasound confirms the suspicion of a pregnancy in the remaining tube.
Comments	Two cross sections through a dilated fallopian tube are presented. Immature placental villi with cyto- and syncytiotrophoblasts along and in the fallopian wall are recognized. Fetal remnants are seen. The villi of the fallopian mucosa show fibrosis and adhesions, consistent with an earlier salpingitis.
Learning goals	To recognize a normal pregnancy in an abnormal place and understand the possible complications.
Case number	23
Diagnosis	Molar pregnancy, complete hydatiform mole
Clinical story	38 years old female, 14 weeks pregnant. Ultrasound showed and "empty ovum" and changes suspicious of hydatiform mole, and a uterine evacuation of abundan material was performed. At gross inspection, multiple small cysts were recognized.
Comments	Blood clots and enlarged, irregular and avascular placental villi with considerable hydropic appearance are seen. The trophoblast layer is focally thickened and with numerous syncytiotrophoblasts, randomly distributed along the villous surface. No normal villi with polarized trophoblastic growth and vessels are found.
Learning goals	To recognize pathological villi of early pregnancy and have knowledge about the etiology and epidemiology.
Case number	24
Diagnosis	Choriocarcinoma of the uterus
Clinical story	29 years old female with persistent bleeding following a miscarriage. Curettage showed malignant trophoblastic proliferation. The patient was treated with chemotherapy for four months, but a relapse was detected after three months. As a result, the uterus was removed. Grossly, a well demarcated hemorrhagic and necrotic tumor was seen in the isthmus.
Comments	The section is from the tumor with its relation to the cervical wall. A highly atypical, infiltrating tumor with hemorrhages and necroses is seen. The tumor consists of sheets of trophoblastic cells with one to several nucleoli and well-demarcated cell borders, and scattered, larger syncytial cells with several nuclei and a relatively acidophilic cytoplasm. Mitotic figures are numerous, and

	some are atypical.
Learning goals	To recognize the high grade of atypia and proliferative activity of choriocarcinomas, know about the etiology and risk factors.
Case number	25
Diagnosis	Placenta with infarction
Clinical story	31 years old female admitted to the hospital due to severe preeclampsia in week 30. She was given anti-hypertensive treatment, but three weeks later no fetal sound was audible. The child was small for size but showed no other pathology at autopsy. The placenta showed grossly dark red to brighter, pink or white areas, consistent with fresh end older infarctions, constituting approximately 50% of the tissue. Sections were taken from a pink area and from normal-looking placental tissue.
Comments	The section through the pinkish area shows a hemorrhagic infarction. Individual cells are difficult to distinguish, but can be recognized as "ghosts" with necrotic nuclei. A blood clot is blocking a former spiral artery, which appears as an opening in the maternal surface. The intervillous tissue is eosinophilic, with fibrin, erythrocytes and debris. The adjacent placental tissue shows increased amount of terminal villi as a reaction to ischemia ("premature maturation").
Learning goals	To understand the different vascular compartments of the placenta and its different circulation related diseases.
Case number	26
Diagnosis	Immature placenta with villitis due to Toxoplasma infection
Clinical story	34 years old female, 13 weeks pregnant. Toxoplasma gondii infection detected. An induced abortion was carried out.
Comments	Immature placental tissue with increased trophoblastic proliferation is seen. Many villi show fibrosis. Small necroses with neutrophilic infiltration can be seen in scattered villi. Parasites are difficult to find, but are present as small cysts with basophilic (blue) dots. (Immunohistochemical examination with antibodies against toxoplasma gondii identifies scattered parasites more easily.)
Learning goals	To recognize blood born infections in the placenta.

Chapter heading	**Text introduction**
Testicular pathology	Testicular malignancies are tumors in young males and show rising incidence in many parts of the world, including Norway. Testicular pathology is also of importance in the evaluation of infertility.

Case number	27
Diagnosis	Testicular atrophy
Clinical story	44 years old male with long-standing left-sided varicocele and diminished size

	of the left testicle, which was removed. Gross appearance showed a small testicle and a spermatic cord with a substantially dilated vein plexus.
Comments	The cross section through the testicle reveals strands of atrophic tissue with hyalinized tubules or with seminiferous tubules of reduced caliber and with reduced number of germ cells. In some tubuli haploid cells in the form of round and elongated spermatids, as well as some sperms, are visible. Leydig cell accumulations are seen in the testicular stroma. Part of a dilated plexus pampiniformis can be seen adjacent to the testicle.
Learning goals	Recognize the pathological changes in atrophy and have knowledge about the different condition causing atrophy.
Case number	28
Diagnosis	Testis with a non-seminoma, differentiated as a yolk sac tumor.
Clinical story	39 years old male with a tumor in the right testicle. The gross appearance was of an enlarged testicle weighing more than 100 grams and with an intact capsule. Cross-section showed a dark brown tumor, displacing most of the testicular tissue.
Comments	The tumor tissue is partly necrotic, consisting of epithelial-like pleomorphic cells, growing in sheets or with gland- like structures. Some papillary structures with central vessels can be seen, indicating differentiation into endodermal sinus tumor. Adjacent to the tumor, atrophic testicular tissue with atypical germ cells with enlarged and hyperchromatic nuclei is found in some tubuli, consistent with in-situ changes.
Learning goals	To recognize the malignant germ cell tumor of a seminoma type and understand the different routes of development in germ cell derived tumors in males.
Case number	29
Diagnosis	Testis with seminoma.
Clinical story	31 years old male with an enlarged left testicle. Grossly, the tumor tissue showed a homogenously white cut surface. The tunica albuginea appeared intact.
Comments	The tumor tissue consists of dissociated atypical cells with one or more nucleoli. In the tumor, fibrous strands with lymphocytes are found. Adjacent to the seminoma, atrophic tubuli with no spermatogenesis and atypical germ cells, consistent with in situ changes, are seen.
Learning goals	To recognize the malignant germ cell tumor of a seminoma type and understand the different routes of development in germ cell derived tumors in males.

Chapter heading	**Text introduction**
Pediatric pathology	Pediatric pathology is different from pathology in adults. Important are malformations and tumors, the latter often

	belonging to the so called small blue cell tumor types.

Case number	30
Diagnosis	Neuroblastoma in adrenal gland
Clinical story	A 1 year old boy with failure to thrive. By ultrasound, a circumscribed tumor was discovered in the adrenal gland. No metastases were found after X-ray of the lungs and abdominal MR. The tumor was resected without prior chemotherapy and measured 2.5 cm in diameter.
Comments	The cortex of the adrenal gland is intact around the tumor, which is situated in the medulla. The tumor nuclei are slightly pleomorphic, lying in an eosinophilic matrix of neuropil, and with a lobular appearance due to small vessels. The typical organization of nuclei in rosettes is seen. Mature ganglion cells are not found.
Learning goals	Recognize the tumor, its typical location, origin and diagnostics.
Case number	31
Diagnosis	Embryonal rhabdomyosarcoma, in the nose
Clinical story	A 5 years old girl with a "chronic cold" and difficulty of nose breathing. Examination of the nasal cavity showed a polypoid tumor, protruding from the orifice.
Comments	Pieces of polypoid (botryoid) tissue covered by squamous epithelium are seen The tumor appears paucicellular, with hypocellular myxoid areas and several vessels. There is increased cellularity around vessels and along the surface (cambium layer). The cells have nuclei with round to oval shape and spindled cytoplasm which is difficult to distinguish, but partly appears eosinophilic. Cross striations are found. An inflammatory reaction with granulocytes complicates the histological picture.
Learning goals	Have knowledge about the primitive tumors typical of childhood, the so called small blue cell tumors.
Case number	32
Diagnosis	Nephroblastoma of the kidney (Wilms tumor)
Clinical story	A 2 1/2 years old boy presented with hematuria and abdominal pain. A large tumor was found in the right kidney. Fine-needle aspiration cytology showed malignant cells and the kidney was removed. Grossly, a protruding tumor of 4.5 cm was found in the upper pole, growing into, but not through the capsule. The cut surface showed a solid tumor with yellow to more white areas.
Comments	The tumor shows the characteristic forms of differentiation: Epithelial structures in the form of sheets and nodules of cells with distinct cytoplasm and gland-like structures; areas of blastematous differentiation with cells with a high nuclear/cytoplasmic ratio, and areas of mesenchymal differentiation with strands of fibroblast like cells. No severe atypia is found. Between the tumor and the adjacent normal kidney tissue is an area of reactive fibrosis.
Learning goals	Recognize the typical triphasic pattern of this tumor-
Case number	33

Diagnosis	Immature lung with respiratory distress syndrome (RDS)
Clinical story	A woman went into labor on a boat trip, 29 weeks pregnant. Delivery was performed and the newborn was brought to the next maternity ward by an emergency helicopter. The child weighed 1400 grams and showed labored breathing at arrival in the hospital and respirator treatment was initiated. Despite intensive treatment, the child died from respiratory failure. At autopsy, small collapsed lungs were found.
Comments	Section taken from one of the lungs shows immature tissue with vessels filled with erythrocytes in the alveolar walls and an atelectatic appearance. Only few of the alveoli contain air, which appears as dilated, cystic areas. The alveoli contain eosinophilic fibrin, which is compressed towards the periphery of the alveoli like "hyaline membranes".
Learning goals	Recognize the tissue as immature lung tissue and understand the pathophysiology of the development of changes.
Case number	34
Diagnosis	Cystic renal dysplasia
Clinical story	41 years old woman, 36 weeks pregnant with twins. By ultrasound, one twin was diagnosed with a severe heart malformation and bilaterally enlarged kidneys. The twin died a few hours after birth. At autopsy, the kidneys were enlarged with multiple cysts. The ureters were convoluted and with changing caliber. No stenoses were found.
Comments	The section from one kidney shows multiple cysts with flattened epithelium. Normal tubules and glomeruli are seen, but the tissue is dominated by immature, loose mesenchyme and tubular structures of varying caliber. Smaller tubules, surrounded by tightly-packed, concentrically oriented connective tissue, can also be seen.
Learning goals	Recognize the tissue as a malformed kidney and discuss the probable reasons for the disease.