Clinical Features ophthalmology

Hordoleum (Stye)	Painful, erythematous, tender pus-filled nodule Spontaneous perforation and purulent discharge after a few days
Blepharitis	Chronic or recurrent red, swollen eyelids and irregular eyelid margins Crusty, scaly plaques, and/or oily deposits on the eyelid margin and eyelashes Crusting usually represents seborrheic disease. A ringlike collection around the eyelashes (collarette) with ulceration upon removal (ulcerative blepharitis) is typical of staphylococcal disease. A smooth tubular collection at the base of the eyelash is typical of Demodex. Eye irritation and visual abnormalities Pain Itchiness Foreign body sensation, watering of the eye Photophobia, blurred vision
Chalazion	Chronic (slow-growing), firm, rubbery nodule on the eyelid Heaviness of the eyelid Can cause visual disturbances, if large enough
Herpes Zoster Ophthalmicus	Fever and skin symptoms as in shingles (see “Clinical features” above) Herpes zoster conjunctivitis Herpes zoster keratitis Involvement of the ophthalmic nerve: reduced corneal sensitivity with severe pain in the innervated regions (forehead, bridge and tip of the nose) Involvement of the nasociliary nerve: Possible severe intraocular infection (uveitis, iritis, conjunctivitis, keratitis, and optic neuritis) Positive Hutchinson sign of the nose: a vesicular rash on the nasal alae
Molluscum contagiosum	Physical examination: single or multiple lesions in healthy patients; especially widespread in immunocompromised patients [3] Nontender, skin-colored, pearly, dome-shaped papules with central umbilication (individual lesions may also be painful or pruritic) Usually 2–5 mm in diameter (giant lesions (> 15 mm) are encountered in immunocompromised patients) Papules contain a caseous plug. Predilection sites: In children: face , trunk , and extremities (e.g., axilla, antecubital and popliteal fossa) In adults: lower abdomen, groin, genitalia, and proximal thighs Chronic follicular conjunctivitis may occur as molluscum contagiosum viral particles spread into the conjunctiva of the eye (see “Molluscum contagiosum conjunctivitis”).

Acute dacryoadenitis	Rapid onset and progression Unilateral pain/discomfort over the lacrimal gland (lateral upper eyelid) Characteristic S-shaped ptosis , possibly proptosis Palpebral conjunctival hyperemia and chemosis; possibly mucopurulent discharge Limitation of eye movement, diplopia (indicates orbital cellulitis) Ipsilateral preauricular lymph node enlargement and fever may be present.
Chronic dacryoadenitis	Can be unilateral or bilateral Insidious onset with painless swelling over the lacrimal gland S-shaped ptosis; proptosis rare Features of underlying disease may be present
Acute dacryocystitis	Erythema, edema, warmth, and significant pain below the medial canthus of the eye Pressure on the swelling causes pain and purulent discharge from the punctum. Epiphora Fever (may be present)
Chronic dacryocystitis	Persistent epiphora Mucopurulent discharge from the punctum No signs of acute inflammation; no fever
Lacrimal gland tumors	Age Benign tumors manifest between 20–40 years of age Malignant tumrs manifest > 40 years of age Unilateral swelling of the lateral orbit Unilateral proptosis: painless in benign tumors and painful in malignant tumors Restricted eye movement and diplopia
Viral conjunctivitis	Unilateral or bilateral [2] Clear, watery discharge (with mucoid component) Increased lacrimation (epiphora) Extraocular signs of viral infections (e.g., upper respiratory symptoms, preauricular lymphadenopathy)
Acute Bacterial conjunctivitis	Typically unilateral but may be bilateral Thick mucopurulent discharge Difficulty opening eyes in the morning
Gonococcal conjunctivitis	Unilateral or bilateral Hyperacute conjunctivitis Marked eye swelling Profuse purulent discharge Preauricular lymphadenopathy Possibly, corneal infiltrates or ulcers May be accompanied by urogenital infection

Trachoma	Unilateral or bilateral Often chronic infection Active phase Conjunctival follicles Inflamed upper tarsal conjunctiva Cicatricial phase Conjunctival scarring Corneal ulcers and opacities Superficial neovascularization with cellular infiltration (corneal pannus) Entropion Trichiasis May be accompanied by urogenital infection
Allergic conjunctivitis	Bilateral Itching Conjunctival injection Discharge and crust formation Chemosis Burning or foreign-body sensation
Neonatal gonococcal conjunctivitis	Similar to gonococcal conjunctivitis in other age groups Profuse, purulent ocular discharge Pronounced eyelid swelling
Chlamydial neonatal conjunctivitis	Unilateral or bilateral Purulent or mucopurulent ocular discharge; may be blood-stained [5] Eyelid edema Bulbar conjunctival injection Concurrent infection of nasopharynx, genitals, or lungs
Neonatal HSV conjunctivitis	Nonpurulent ocular discharge Corneal ulceration Periocular vesicles May exhibit other features of neonatal HSV infection, e.g., meningoencephalitis Mild conjunctival
Aseptic neonatal conjunctivitis	Mild conjunctival injection
Giant papillary conjunctivitis	Clinical features of conjunctivitis Reduced tolerance for contact lens use Blurred vision Mucoid discharge Formation of giant papillae of superior tarsal conjunctiva (cobblestone appearance) Eyelid edema Ptosis
Keratoconjunctivitis sicca	Dry eyes Burning or itching sensation; see also "Clinical features of

	conjunctivitis." Blurred vision (does not usually lead to vision loss) Slit-lamp examination findings may include: Conjunctival injection (usually symmetric and bilateral) Punctate epithelial erosions (superficial punctate keratitis) Epithelial filaments on the corneal surface (filamentary keratitis) Symptoms of connective tissue disorders may also be present.
Ocular cicatricial pemphigoid	Can manifest as a chronic condition with periods of remission and exacerbation Early stages: unilateral with general signs and symptoms of conjunctivitis Advanced disease Bilateral Progressive scarring of the conjunctiva: subepithelial fibrosis → fornix shortening → symblepharon → ankyloblepharon or immobilization of the globe Vision loss Extraocular features of mucous membrane pemphigoid may be present, including: Oral lesions Skin lesions of the head, neck, or upper trunk
Toxic keratoconjunctivitis	Unilateral or bilateral Hyperemia, chemosis, eyelid edema (see also "Clinical features of conjunctivitis") Conjunctival follicles Conjunctival scarring and corneal ulceration with chronic exposure
Pinguecula	Yellowish raised plaque Most commonly located on the medial conjunctiva but can also develop on the lateral conjunctiva Does not develop on the cornea Symptoms of local irritation: redness, lacrimation, foreign body sensation
Pterygium	Triangular, fibrovascular wedge of conjunctival tissue Typically grows laterally starting from the nasal conjunctiva Can extend to the cornea, leading to visual impairment Symptoms of local irritation: scleral/corneal redness, lacrimation, foreign body sensation Mild visual impairment
Subconjunctival hemorrhage	Painless red focal lesion visible against the sclera Signs and symptoms of traumatic eye injury Changes in visual acuity, photophobia, eye pain, foreign body sensation Bullous SCH: elevated hemorrhage indicates underlying severe intraocular injury (e.g., scleral laceration)
conjunctival	Iris heterochromia

melanosis	Patchy slate-gray or bluish discoloration of the sclera Usually unilateral Subepithelial location without involvement of the conjunctiva (lesion is not displaceable with motion of the conjunctiva) Increased pigmentation of the ipsilateral fundus
Primary acquired melanosis	Flat, brown, irregularly arranged pigmentation Displaceable with motion of the conjunctiva Usually unilateral Without cyst formation
Conjunctival nevus	Well-defined macula with small, clear inclusion cysts Usually unilateral and most commonly in the lateral eyelid region Pigmentation can be partial or complete Pigmentation may increase or decrease with hormonal changes (e.g., pregnancy).
Conjunctival squamous carcinoma	A white, bulging, painless mass with an irregular surface Lesion can be pigmented, especially in equatorial populations Feeder vessel is often present Mostly located in the (nasal) interpalpebral fissure Typically unilateral Signs of ocular inflammation: redness, tearing, blurry vision, photophobia, foreign body sensation
Conjunctival melanoma	Poorly defined, painless brown or pink lesion on the conjunctiva Surrounding nodules and feeder vessels are often present Can cause blurry vision, visual field defects, flashing lights, redness, irritation, and sensation of pressure Most common sites of metastases are ipsilateral preauricular/submandibular lymph nodes, the brain, lung, and liver.
Episcleritis	Acute onset of symptoms Mild eye pain/irritation and watering Eye redness Vision is not affected
Scleritis	Subacute onset of symptoms Severe deep, aching, and boring eye pain that is exacerbated by eye movement and palpation; may radiate to the rest of the face Eye redness Photophobia and/or loss of vision Fixed scleral nodules (esp. in anterior nodular scleritis) Scleral thinning (esp. in scleromalacia perforans): may appear as violet or blue discoloration of the eye
Corneal abrasion	Foreign body sensation in the eye Eye pain Epiphora Photophobia Blurred vision

	Conjunctival injection
Corneal foreign body	History of sudden onset and persistent discomfort following trauma Signs of ocular inflammation: copious tearing, redness, foreign body sensation, difficulty keeping the eye open, photophobia, and blurred vision
Corneal erosion	sudden-onset symptoms similar to those of corneal abrasion, typically upon waking or without obvious signs of ocular trauma.
Corneal ulcer	Eye pain and/or foreign body sensation Epiphora Conjunctival injection Photophobia Blurry/decreased vision Discharge from eye
Band keratopathy	Decreased visual acuity Foreign body sensation Photophobia
Corneal dystrophy	Because corneal dystrophies are a heterogeneous group of diseases, they can affect the eye in different ways. Symptoms may include: Progressive visual impairment Corneal erosion
Fuchs dystrophy	Reduced visual acuity Blurred vision, glare, and halos, often improving over the course of the day [21] Eye pain or foreign body sensation in the eye
Arcus senilis (corneal arcus)	asymptomatic
Keratoconus	symptoms are often initially unilateral; however, they always become bilateral in the further course of disease [19] Progressive decrease in visual acuity Myopia Astigmatism Photophobia
Bacterial keratitis	Progressive pain Eye redness Foreign body sensation Purulent discharge Photophobia Excessive tearing Blurry vision Conjunctival injection
Herpes simplex	Similar to viral conjunctivitis, but usually unilateral

keratitis	Eye redness ± Eye pain Foreign body sensation Corneal hypoesthesia Photophobia Blurry vision; can lead to vision loss if untreated
Herpes zoster keratitis	Prodrome: headache, malaise, fever Impaired vision Eye irritation (foreign body sensation) Photophobia Eye pain In the innervation area of the ophthalmic nerve (forehead, bridge, and tip of the nose): Vesicular eruption Anesthesia dolorosa
Acanthamoeba keratitis	S
Fungal keratitis	Similar to bacterial keratitis: ocular pain, photophobia, decreased vision, eye discharge Often hypopyon Ocular examination: white stromal infiltrate with a feathery border and satellite lesions
Photokeratitis	Epithelial damage is initially often asymptomatic Severe pain Photophobia Foreign body sensation Blepharospasm Epiphora Decreased visual acuity
Neurotrophic keratopathy	Decreased vision; dry eye Early stage: absent corneal reflex; decreased tear break-up time; dry spots on corneal surface Late stage: central circular/oval nonhealing corneal ulcer Complication: corneal perforation
Sicca syndrome	Ocular symptoms Xerophthalmia: dry eyes due to decreased secretion of tears (daily, persistent) Keratoconjunctivitis sicca Conjunctival injection Eye itching or burning sensation Blurred vision Recurrent sensation of sand or a foreign body in the eyes Oral symptoms Xerostomia: dry mouth due to decreased secretion of saliva (daily,

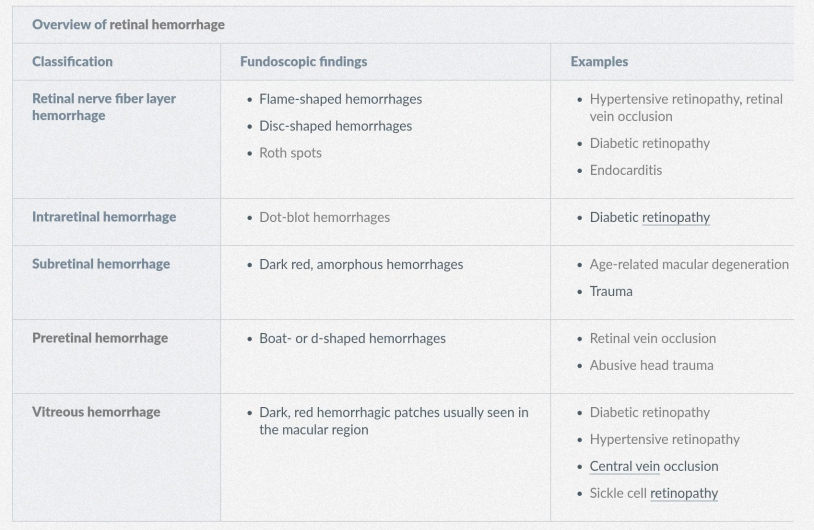
	persistent) which may lead to: Dental caries and oral infections Parotid gland enlargement, often bilateral Tongue fissures Frequent need to drink liquids to aid swallowing and/or speaking Other glandular symptoms Vaginal dryness, leading to dyspareunia and an increased risk of infections Nasal dryness, leading to chronic rhinitis and epistaxis Pharyngeal, tracheal, and bronchial dryness, causing persistent dry cough Xerosis: abnormal skin dryness and pruritus (secondary to hypohidrosis or anhidrosis) Xerostomia and xerophthalmia are the classic symptoms of sicca syndrome and are present in ~ 95% of patients with Sjogren syndrome
Anterior uveitis	Dull, progressive periocular pain Ocular hyperemia (red eye) Photophobia Decreased visual acuity (blurry vision) Increased lacrimation (epiphora) Hypopyon
Posterior uveitis	Painless visual disturbances Floaters/scotomata Decreased visual acuity (blurry vision)
Uveal melanoma	Symptoms vary depending on melanoma location. **Choroid or ciliary body melanoma** Initially asymptomatic Late symptoms Vision loss due to tumor growth into the optical axis Visual field defects, floaters, and/or photopsia due to tumor-related retinal detachment Blurred vision due to tumor growth in the ciliary body **Iris melanoma** Typically discovered earlier than choroidal or ciliary body melanoma because of visible signs Distortion of pupil shape A new brown nodule on the iris that becomes visible, or growth of a previous nodule Blurred vision **Transscleral melanoma with extension into the orbit** Pain Vision loss Cataract Proptosis

Horner syndrome	Triad of Horner syndrome **Miosis (constriction of the pupil)** Occurs because the sympathetically controlled iris dilator muscle fails to contract Leads to anisocoria and a dilation lag on exam **Partial ptosis (drooping of the upper eyelid)** Occurs because the sympathetically controlled superior tarsal muscle fails to keep the upper eyelid raised It is milder than ptosis associated with oculomotor nerve or levator palpebrae muscle lesions. **Anhidrosis (absence of sweating) or reduced sweating on the face and arm, depending on the location of the lesion** Occurs because the sympathetic innervation of the facial sweat glands is impaired Seen in central and preganglionic lesions ● Facial flushing due to vasodilatation (Apparent) enophthalmos ● Associated symptoms depending on the etiology: Atrophy of arm and hand muscles Pain in the neck or face Remember the symptoms of Horner syndrome by the great HORNs of the PAMpas deer: Ptosis, Anhidrosis, and Miosis.
Ectopia lentis	**Subluxation of the lens** Partially displaced lens; still within the hyaloid fossa and attached to the ciliary body Little to no loss of visual acuity: If the displacement is more severe, monocular double-images, significant optical distortions, and visual impairment may occur. Marfan syndrome: superior, temporal subluxation of the lens (upward and outwards) Homocystinuria: inferior, medial subluxation of the lens (downward and inwards) **Luxation of the lens** Completely displaced lens; outside of the hyaloid fossa, in the anterior chamber, on the retina, or free-floating in the vitreous Severe visual impairment due to a change in total refractive power
Aphakia	Poor visual acuity due to reduced refractive power (hypermetropia) Total loss of visual accommodation
Acquired cataracts	Clinical features usually develop gradually (especially in the case of age-related cataracts) and depend on the localization and cause(s) of lens clouding.

	Reduced visual acuity: blurred, clouded, or dim vision, especially at night Impaired vision: painless, often bilateral Glare: in daylight, in low sunlight, and from car headlights; associated with halos around lights Second sight: a temporary improvement in near vision; especially in patients with nuclear cataracts Monocular diplopia: double vision that disappears when the affected eye is covered or shut Change in color perception Age-related cataracts are the most common cause of vision loss in older adults and can significantly affect quality of life.
Congenital cataracts	Congenital cataracts manifest differently than acquired cataracts. Leukocoria Strabismus Nystagmus Delay in motor skill development Deprivation amblyopia
Posterior vitreous detachment	Patients are usually asymptomatic Photopsia: A sudden and brief perception of bright flashes of light that often start in one area of the visual field. It usually is unilateral and occurs in the dark or with closed eyes. Floaters
Vitreous hemorrhage	Sudden onset of symptoms: usually unilateral and painless Floaters and/or visual loss: typically worse after sleep
Preretinal subhyaloid hemorrhage	Sudden onset of black opacities and/or visual loss Hyphema
Floaters	**Perception of opacities of various shapes and sizes (e.g., spots, strings, filamentous structures)** Follow eye movements quickly Drift slowly across the visual field when the eye is still Tend to move away when gazed at directly Appear more intensely against bright lighting and monochromatic areas (e.g., white paper, blue sky) **Symptoms indicating secondary floaters** Sudden increase in/occurrence of floaters, especially if accompanied by photopsia and/or vision loss Showers of floaters: the sudden appearance of innumerable floaters (perceived as multiple black spots)

<table>
<tr><td>Endophthalmitis</td><td><table>
<tr><th></th><th>Acute endophthalmitis</th><th>Chronic endophthalmitis</th></tr>
<tr><td>Pathogen</td><td>• Usually bacterial</td><td>• Usually fungal
• Less virulent bacteria</td></tr>
<tr><td>Onset</td><td>• Sudden (acute)</td><td>• Insidious</td></tr>
<tr><td>Symptoms</td><td>• Severe, deep-seated, dull ocular pain
• Acute loss of vision
• Features of sepsis may be present (in endogenous endophthalmitis).</td><td>• Ocular pain is usually absent/appears late.
• Gradually progressive loss of vision
• Floaters (fungal endophthalmitis)</td></tr>
<tr><td>Signs</td><td colspan="2">• Exogenous endophthalmitis
◦ Conjunctival hyperemia and chemosis out of proportion to the surgical/traumatic insult
◦ Hazy cornea (due to edema)
◦ Hazy aqueous chamber or hypopyon
• Endogenous endophthalmitis: The above signs do not develop/develop until late in the course of the disease
• In both types
◦ Relative afferent pupillary defect
◦ Decreased visual acuity</td></tr>
</table></td></tr>
<tr><td>Macular hole</td><td>Metamorphopsia
Central visual field losses
Severe reduction of visual acuity</td></tr>
<tr><td>Retinitis pigmentosa</td><td>In early stages
Normal central vision; narrowing field of vision (ring-shaped area of blindness)
Night blindness (nyctalopia)

In advanced stages
Impaired peripheral vision (tunnel vision)
Defects in the perception of contrast and color
Glare sensitivity</td></tr>
<tr><td>Retinal hemorrhage</td><td>Symptoms vary according to hemorrhage severity.
Asymptomatic during early stages
Blurry vision
Floaters, photopsias
Partial or complete vision loss</td></tr>
</table>

<table>
<tr><td></td><td>


</td></tr>
<tr><td>Ocular Toxoplasmosis</td><td>yellow-white ocular lesions, marked vitreous reaction, concomitant vasculitis, and visual field defects.
For more information on “ocular toxoplasmosis”</td></tr>
<tr><td>Age-related macular degeneration</td><td>Painless central or pericentral visual impairment → reduced visual acuity, difficulty adapting to changes in lighting
Dry AMD: slow progressive visual impairment (usually over decades) and unilateral or bilateral onset
Wet AMD: acute or insidious onset (over weeks to months) and usually manifests in one eye first
Metamorphopsia: type of visual distortion in which straight lines appear wavy, which can be tested for using an Amsler grid
Scotoma (blind spot)</td></tr>
<tr><td></td><td>● Hypertension is usually asymptomatic until:
Complications of end-organ damage arise (see “Complications” below)
Or an acute increase in blood pressure occurs (see “Hypertensive crisis”)
● Secondary hypertension usually manifests with symptoms of the underlying disease.
● Nonspecific symptoms of hypertension
Headaches, esp. early morning or waking headache
Dizziness, tinnitus, blurred vision
Flushed appearance
Epistaxis
Chest discomfort, palpitations
Strong, bounding pulse on palpation
Nervousness
Fatigue, sleep disturbances
Since hypertension is often asymptomatic, regular screening is necessary to prevent end-organ damage.</td></tr>
<tr><td>Toxoplasmosis</td><td>Incubation time: 5 days to 3 weeks [3]</td></tr>
</table>

<table>
<tr><td></td><td>Immunocompetent patients
Mainly asymptomatic (~ 90% of patients)
Symptomatic (< 10% of patients) [6]
Mononucleosis-like symptoms with bilateral cervical adenopathy (but negative heterophile antibody test) [7]
Rarely: ocular toxoplasmosis

Immunosuppressed patients (e.g., patients with AIDS): primary infection or reactivation in previously infected individuals [4]
Symptoms of encephalitis in cerebral toxoplasmosis
Visual impairments and pain in ocular toxoplasmosis</td></tr>
<tr><td>CMV retinitis</td><td>Clinical features: floaters, photopsia, visual field defects
Fundoscopy: pizza-pie appearance (retinal hemorrhages, fluffy/granular white opacities around retinal vessels resembling cotton-wool spots, retinal detachment)
Differential diagnoses: HIV retinopathy, herpes simplex retinitis, varicella zoster retinitis, toxoplasmosis</td></tr>
<tr><td>Retinal detachment</td><td>Symptoms may be unilateral or bilateral depending on the underlying etiology.

Prodromal symptoms: caused by posterior vitreous detachment
Sudden increase in floaters (shower of floaters)
Flashes of light (photopsia)

Sudden, painless loss of vision: caused by retinal detachment
Typically described as a curtain or shadow either descending or ascending across the field of vision
May be partial (scotoma) or complete depending on the extent of retinal detachment and macular involvement

Most retinal detachments are preceded by a posterior vitreous detachment or a retinal tear, which manifest with photopsia and floaters. Photopsia is typically absent in individuals with exudative retinal detachment.

Fundoscopic findings in retinal detachment [2]
<table><tr><th></th><th>Rhegmatogenous retinal detachment</th><th>Tractional retinal detachment</th><th>Exudative retinal detachment</th></tr><tr><td>Characteristics of the detached retina</td><td>• Convex with a wrinkled surface that billows with eye movements</td><td>• Tented or concave, immobile</td><td>• Convex with a smooth surface</td></tr><tr><td>Subretinal fluid</td><td>• Present</td><td>• Minimal or absent</td><td>• Present
• Moves when the patient changes position (gravity-dependent)</td></tr><tr><td>Additional features</td><td>• Retinal tears (e.g., horseshoe, linear, or round retinal tears)</td><td>• Usually no retinal tears</td><td>• No retinal tears
• Features of the underlying etiology (e.g., choroid tumor) may be present.</td></tr></table></td></tr>
</table>

<table>
<tr><td></td><td></td></tr>
<tr><td>Retinal artery occlusion</td><td>
<table>
<tr><th colspan="3">Clinical features of central vs. branch retinal artery occlusion</th></tr>
<tr><th></th><th>CRAO</th><th>BRAO</th></tr>
<tr><td>Clinical features</td><td>• Sudden, painless loss of vision in one eye (often described as a “descending curtain”)
• A past history of amaurosis fugax may be present.</td><td>• Sudden onset of visual field defects (scotomas) in the affected eye
• A past history of amaurosis fugax may be present.</td></tr>
<tr><td>Relative afferent pupillary defect</td><td>• Present</td><td>• Absent</td></tr>
<tr><td>Ophthalmoscopic findings</td><td>• Grayish-white (cloudy) discoloration of the entire retina
• Cherry-red spot at the fovea centralis
• Retinal plaques/emboli
◦ Hollenhorst plaque: cholesterol embolus that presents as a refractive, iridescent lesion (~ 20% of cases)
◦ Whitish-gray platelet thrombi
◦ White calcific plaques
• Box-carring of all retinal vessels in the acute phase
• Narrowing of all retinal vessels</td><td>• Grayish-white discoloration of the retinal quadrant supplied by the affected vessel
• Box-carring of retinal vessels during the acute phase in the affected retinal quadrant
• Narrow retinal vessels in the affected retinal quadrant
• Retinal emboli/plaques (~ 60–70% of cases)</td></tr>
<tr><td>General physical examination</td><td colspan="2">• A bruit over the carotid artery is a sign of carotid atherosclerosis.
• An irregular pulse may indicate atrial fibrillation.
• Scalp tenderness and/or jaw claudication is a sign of temporal arteritis.</td></tr>
</table>
</td></tr>
<tr><td>Retinal vein occlusion</td><td>
<table>
<tr><th colspan="4">Clinical features of central vs. branch retinal vein occlusion [1]</th></tr>
<tr><th></th><th colspan="2">CRVO</th><th>BRVO</th></tr>
<tr><th></th><th>Non-ischemic CRVO</th><th>Ischemic CRVO</th><th></th></tr>
<tr><td>Clinical features</td><td>• Subacute, mild to moderate loss of vision in the affected eye</td><td>• Sudden, severe loss of vision in the affected eye</td><td>• Usually asymptomatic</td></tr>
<tr><td>Relative afferent pupillary defect</td><td>• Absent</td><td>• Present</td><td>• Absent</td></tr>
<tr><td>Ophthalmoscopic findings</td><td>• A few dot-and-blot and/or flame-shaped hemorrhages in all four retinal quadrants
• Mild/no macular edema
• Mild/no papilledema</td><td>• Many dot-and-blot and/or flame-shaped hemorrhages in all four retinal quadrants and venous thickening (blood and thunder appearance)
• Cotton wool spots
◦ Characterized by yellow-white deposits on the retina
◦ Caused by swelling of retinal nerve fibers due to ischemia
• Severe macular edema
• Severe papilledema</td><td>• Dot-and blot and/or flame-shaped hemorrhages in the retinal quadrant drained by the affected vein</td></tr>
</table>
</td></tr>
<tr><td>Amaurosis fugax</td><td>sudden, painless loss of vision that lasts for seconds to minutes and is followed by spontaneous recovery (mostly unilateral)</td></tr>
<tr><td>Retinoblastoma</td><td>Leukocoria (“cat's eye pupil”)
Strabismus
A painful, red eye
Loss of vision
Retinal detachment (later stages) [2]
Rarely: orbital cellulitis, nystagmus, proptosis</td></tr>
</table>

Optic atrophy	Vision impairment: blurry vision, color blindness, visual field defects (e.g., central scotoma)
Anterior ischemic optic neuropathy (AION)	Sudden unilateral loss of vision Wedge-shaped and altitudinal visual field defects AAION: other symptoms of giant cell arteritis
Traumatic optic neuropathy (TON)	Findings consistent with Recent head trauma (e.g., headache, nausea) Sudden unilateral vision impairment (e.g., blurry vision, sudden vision loss, color blindness, central scotoma) Physical examination: signs of orbital trauma and/or fracture (e.g., ecchymosis, hematoma, and/or edema of soft tissues)
Toxic-metabolic optic neuropathy	Reduced visual acuity, dyschromatopsia, and visual field defects (commonly central scotoma) Typically bilateral, progressive, and painless
Papilledema	**Acute** The most common symptom is headache. [15] Visual impairment is typically minimal; transient blurry vision or loss of vision may occur. Other signs of elevated ICP may be present (e.g., nausea and vomiting) **Chronic** (rare): impaired vision, visual field defects, and blindness
Damage in the region of the optic chiasm	Visual field defects/impaired vision: most commonly bitemporal heteronymous hemianopsia Sometimes chiasmal syndrome: triad of bitemporal visual field defects, unilateral or bilateral reduction in visual acuity, and optic atrophy.
Retrochiasmal visual pathway damage	Visual field defects/impaired vision: most commonly homonymous hemianopsia and homonymous quadrantanopsia Optic atrophy in cases with a CN III lesion
Diabetic retinopathy	Early stages: usually asymptomatic [3] Patients may experience symptoms of associated complications, e.g., macular edema, vitreous hemorrhage, and retinal detachment. [6] Blurred vision Floaters Photopsia Scotoma Sudden, painless vision loss Later stages: significant visual impairment progressing to blindness
Open-angle glaucoma	Initially often asymptomatic Over time, nonspecific symptoms such as mild headaches, impaired adaptation to darkness Generally bilateral, progressive visual field loss (from peripheral to central)

	Arcuate scotoma: arch-shaped scotoma that starts from the blind spot
Angle-closure glaucoma	Acute angle-closure glaucoma Sudden onset of symptoms Unilaterally inflamed, reddened, and severely painful eye (hard on palpation) Frontal headaches, vomiting, nausea Blurred vision and halos seen around light Cloudy cornea (opacification) Mid-dilated, irregular, unresponsive pupil Complications: rapid permanent vision loss due to ischemia and atrophy of the optic nerve Chronic angle-closure glaucoma Asymptomatic in early stages Progressive vision loss beginning with peripheral fields of vision (due to gradually increasing optic nerve compression) Acute angle-closure glaucoma is a medical emergency, as it can cause permanent vision loss if left untreated!