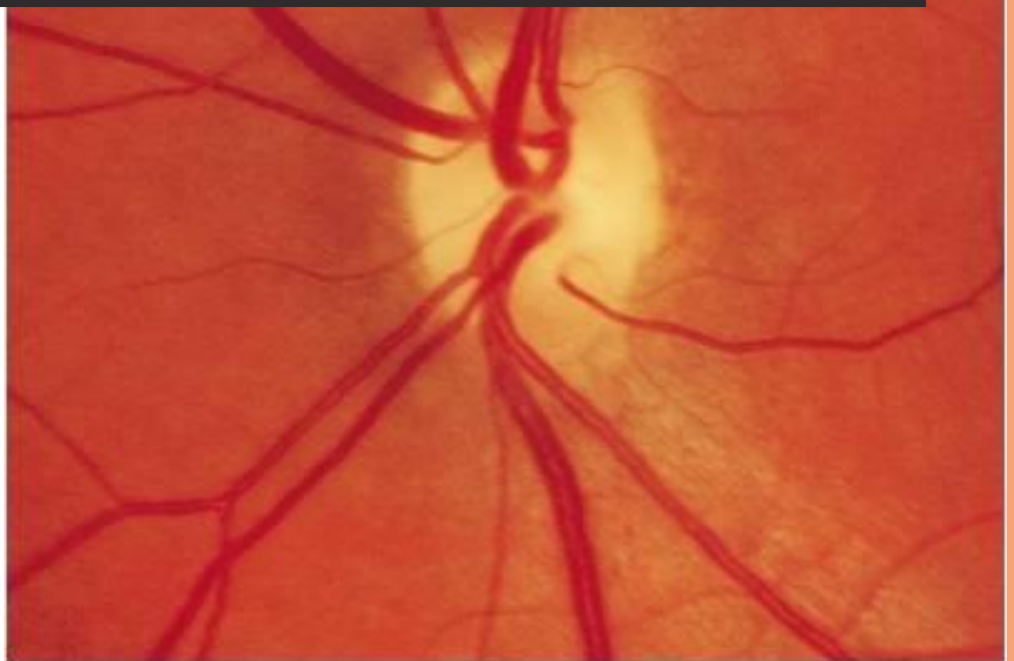


Optic Nerve Atrophy and Homoeopathy



Dr. Rajneesh Kumar Sharma
MD (Homoeopathy)
Dr. Swati Vishnoi BHMS

Optic Nerve Atrophy and Homoeopathy

© Dr. Rajneesh Kumar Sharma M.D. (Homoeopathy)
Dr. Swati Vishnoi B.H.M.S.
Homoeo Cure & Research Institute
NH 74, Moradabad Road, Kashipur (Uttaranchal) INDIA Pin-
244713 Ph. 05947- 260327, 9897618594
E. mail- drrajneeshhom@hotmail.com
www.treatmenthomopathy.com
www.homeopathyworldcommunity.com



Contents

Definition	2
Pathophysiology.....	2
Anatomy of optic nerve.....	2
Physiology of optic nerve	3
Histopathologic changes in optic atrophy.....	3
Types.....	4
Pathologic classification.....	4
Anterograde degeneration.....	4
Retrograde degeneration.....	4
Trans-synaptic degeneration.....	4
Ophthalmoscopic classification.....	4
Primary optic atrophy	4
Secondary optic atrophy	5
Consecutive optic atrophy.....	5
Glaucomatous optic atrophy	5
Temporal pallor optic atrophy	6
Etiologic classification.....	6
Hereditary	6
Consecutive atrophy	6
Circulatory atrophy	6
Metabolic atrophy.....	6
Demyelinating atrophy	7
Pressure or traction atrophy.....	7
Postinflammatory atrophy.....	7

Traumatic optic neuropathy.....	7
Unexplained optic atrophy.....	7
Signs and symptoms.....	7
Diagnosis.....	7
Optic nerve function tests.....	8
Color vision.....	8
Contrast sensitivity test.....	8
Pupillary evaluation.....	8
Edge-light pupil cycle time.....	8
Photostress recovery test.....	8
Pulfrich phenomenon.....	8
Cranial nerve examination.....	9
Extraocular movements.....	9
Optic disc observation.....	9
Peripapillary retinal nerve fiber layer observation.....	9
Retinal vessel observation.....	9
Visual field testing.....	9
Electroretinogram.....	10
Visually evoked response.....	10
Differential Diagnoses.....	10
Treatment.....	11
Repertory of Optic Nerve Atrophy.....	11
Bibliography.....	15

Definition

Optic nerve atrophy (ONA) is a state of the death of the retinal ganglion cell axons that comprise the optic nerve with the result as a pale optic nerve (Psora/ Syphilis).

It is an end stage that arises from countless causes of optic nerve damage anywhere along the path from the retina to the lateral geniculate. Since the optic nerve transmits retinal information to the brain, optic atrophy is associated with vision loss in the form of central vision, peripheral vision and colour vision loss (Psora/ Syphilis).

Pathophysiology

Anatomy of optic nerve

The optic nerve comprises approximately 1.2 million axons originating from the ganglion cell layer of the retina. The axons of the optic nerve are profoundly myelinated by oligodendrocytes, and the axons, once damaged, do not regenerate. Thus, the optic nerve behaves more like a white matter tract rather than a true peripheral nerve.

The optic nerve is divided into four parts-

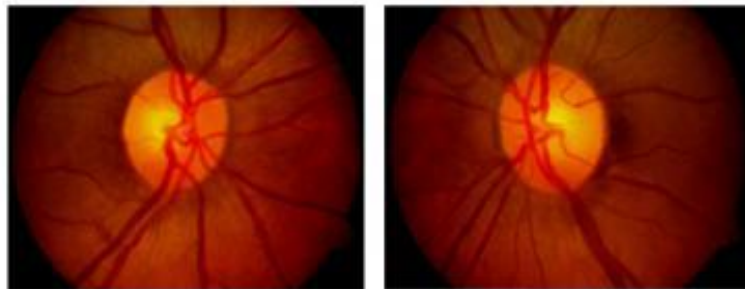
- Intraocular part (1 mm), also known as the optic nerve head
- Intraorbital part (25 mm)
- Intracranial part (5 mm)
- Intracranial part (10 mm)

The optic nerve head is 1 mm deep, 1.5 mm horizontally, 1.8 mm vertically at the retinal level, and a little wider posteriorly. The optic nerve head is a major transition between an area of high pressure to an area of low pressure i.e. intracranial pressure. The optic nerve head comprises four types of cells- ganglion cell axons, astrocytes, capillary-associated cells, and fibroblasts. The optic nerve fibers pass through the lamina cribrosa, a sieve like structure with 200-300 holes that perforate the choroid and the sclera.

Physiology of optic nerve

The optical property of normal axons of the optic disc is similar to fiber optic cable. The incident light originating from the ophthalmoscope undergoes total internal reflection through the axonal fibers and is reflected back by the capillaries on the disc surface, giving rise to the characteristic yellow-pink color of a healthy optic disc. The degenerated axons do not possess this optical property, leading to the atrophic disc's pale appearance.

Healthy Optic Disc



Pial capillaries arising from the circle of Zinn-Haller supply the optic disc. These capillaries exhibit autoregulation and are not leaky.

The Kestenbaum count is the number of capillaries observed on the optic disc. The normal count is approximately 10. In optic atrophy, the number of these capillaries reduces to less than 6; in a hyperemic disc, the count is more than 12.

Histopathologic changes in optic atrophy

- Shrinkage or loss of both myelin and axis cylinders (Psora)
- Gliosis (Psora/ Sycosis)
- Deepening of the physiologic cup with barring of the lamina cribrosa (Syphilis)
- Widening of the subarachnoid space with redundant dura (Sycosis)
- Widening of the pial septa (Sycosis)
- Severed nerve leads to bulbous axonal swellings (Cajal end bulbs); may be observed at the anterior cut end of the fibers (Psora/ Syphilis)

Types

Optic atrophy is classified as pathologic, ophthalmoscopic, or etiologic.

Pathologic classification

Anterograde degeneration

It is also called Wallerian degeneration. (Causa occasionalis/ Psora/ Syphilis)

- Toxic retinopathy, chronic simple glaucoma etc. may cause anterograde optic nerve atrophy with deterioration beginning in the retina and proceeding toward the lateral geniculate body in brain.
- Axon thickness determines the rate of degeneration. Larger axons disintegrate more rapidly than smaller axons. The essential feature is swelling and degeneration of the axon terminal in the lateral geniculate body (LGB), observed as early as 24 hours. Leukocytes are rarely present in Wallerian degeneration.

Retrograde degeneration

- In optic nerve compression by intracranial tumor, deterioration starts from the proximal portion of the axon and proceeds toward the optic disc i.e. to the eye. (Causa occasionalis/ Psora/ Sycosis)
- Damage to the retrobulbar portion of the optic nerve, the optic chiasma, or the optic tract causes pathologic and visible degeneration of the ganglion cell body simultaneously. (Syphilis)

Trans-synaptic degeneration

- In trans-synaptic degeneration, a neuron on one side of a synapse degenerates as a consequence of the loss of a neuron on the other side. (Syphilis)
- This type of degeneration is observed in patients with occipital damage incurred either in utero or during early infancy. (Psora/ Causa occasionalis)

Ophthalmoscopic classification

Primary optic atrophy

In conditions with primary optic atrophy e.g. pituitary tumor, optic nerve tumor, traumatic optic neuropathy, multiple sclerosis etc., optic nerve fibers degenerate in an orderly manner and are replaced by columns of glial cells without alteration in the architecture of the optic nerve head. The disc is chalky white and sharply demarcated, and the retinal vessels are normal. Lamina cribrosa is well defined. (Psora/ Sycosis)

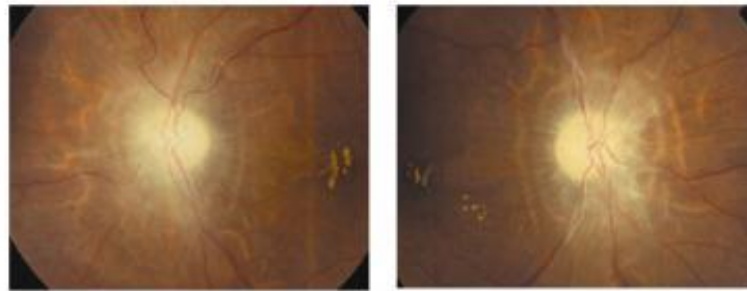
Primary Optic Atrophy



Secondary optic atrophy

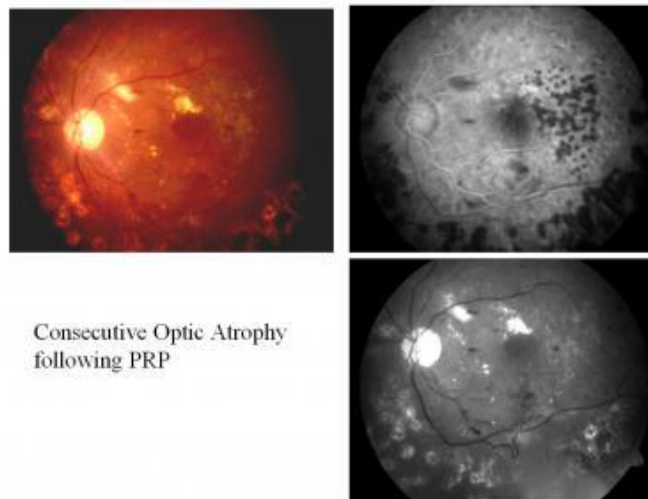
In conditions with secondary optic atrophy e.g. papilledema, papillitis, the atrophy is secondary to papilledema (Sycosis). Optic nerve fibers exhibit marked degeneration, with excessive proliferation of glial tissue (Psora/ Sycosis/ Syphilis). The architecture is lost, resulting in indistinct margins. The disc is grey or dirty grey, the margins are poorly defined, and the lamina cribrosa is obscured due to proliferating fibroglial tissue (Sycosis). Hyaline bodies (corpora amylacea) or drusen may be observed. Peripapillary sheathing of arteries as well as tortuous veins may be observed (Sycosis). Progressive contraction of visual fields may also be seen (Psora/ Syphilis).

Post Papilledemic (Secondary) Optic Atrophy



Consecutive optic atrophy

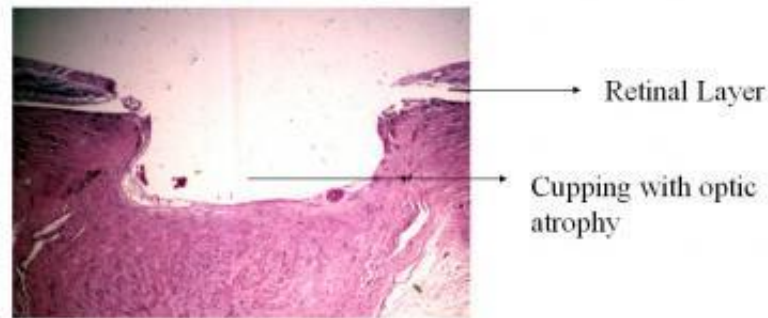
In consecutive optic atrophy e.g. retinitis pigmentosa, myopia, central retinal artery occlusion etc., the disc is waxy pale with a normal disc margin, marked attenuation of arteries, and a normal physiologic cup (Psora/ Syphilis).



Glaucomatous optic atrophy

It is also known as cavernous optic atrophy. Marked cupping of the disc is observed in it (Psora). Characteristics include vertical enlargement of cup, visibility of the lamina pores (laminar dot sign), backward bowing of the lamina cribrosa, bayoneting and nasal shifting of the retinal vessels, and peripapillary halo and atrophy (Psora/ Syphilis). Splinter hemorrhage at the disc margin may be observed (Psora).

Glaucomatous optic atrophy Histopathology



Temporal pallor optic atrophy

Temporal pallor may be observed in traumatic or nutritional optic neuropathy, and it is most commonly seen in patients with multiple sclerosis, particularly in those with a history of optic neuritis (Psora/ Syphilis). The disc is pale with a clear, demarcated margin and normal vessels, and the physiologic pallor temporally is more distinctly pale (Psora).

Etiologic classification

Hereditary

This is divided into congenital or infantile optic atrophy (recessive or dominant form), Behr hereditary optic atrophy (autosomal recessive), and Leber optic atrophy. (Syphilis)

In autosomal type, the affected individuals first experience a progressive loss of nerve cells within the retina, called retinal ganglion cells. The loss of these cells is followed by the degeneration of the optic nerve. (Syphilis)

In X-linked optic atrophy type, the patient presents with early-onset childhood vision loss with slow progression of loss. (Syphilis)

In hereditary optic atrophy type 3, there is childhood-onset vision loss with cataract. It can also be associated with type III methylglutaconic aciduria. (Syphilis)

Consecutive atrophy

Consecutive atrophy is an ascending type of atrophy that usually follows diseases of the choroid or the retina e.g. chorioretinitis, pigmentary retinal dystrophy, cerebromacular degeneration etc. (Psora/ Syphilis)

Circulatory atrophy

It is an ischemic optic neuropathy observed when the perfusion pressure of the ciliary body falls below the intraocular pressure. Circulatory atrophy is observed in central retinal artery occlusion, carotid artery occlusion, and cranial arteritis. (Psora/ Syphilis)

Metabolic atrophy

It is observed in disorders such as thyroid ophthalmopathy, juvenile diabetes mellitus, nutritional amblyopia, toxic amblyopia, tobacco, methyl alcohol, and drugs like ethambutol, sulphonamides. (Causa occasionalis/ Psora)

Demyelinating atrophy

Demyelinating atrophy is observed in diseases such as multiple sclerosis and Devic disease. (Psora/ Syphilis)

Pressure or traction atrophy

It is observed in diseases such as glaucoma and papilledema. (Causa occasionalis/ Sycosis)

Postinflammatory atrophy

Postinflammatory atrophy is observed in optic neuritis, perineuritis secondary to inflammation of the meninges, and sinus and orbital cellulites. (Psora/ Sycosis)

Traumatic optic neuropathy

The optic nerve avulsion and transection, optic nerve sheath hematoma, and optic nerve impingement from a penetrating foreign body or bony fragment all reflect traumatic forms of optic nerve dysfunction that can lead to optic atrophy. (Causa occasionalis/ Psora)

Unexplained optic atrophy

Optic atrophy that does not fit into the aforementioned groups requires further investigation.

Signs and symptoms

- Blurred vision
- Abnormal side vision
- Abnormal color vision
- Decreased brightness in one eye relative to the other
- Poor constriction of the pupil in light
- Decreased brightness in one eye relative to the other
- Change in the optic disc

Diagnosis

A typical investigation protocol is as follows-

- Visual fields 30-2 and full field
- MRI of the brain and orbits with contrast
- CT scanning of the brain and orbits with contrast (in addition to space-occupying lesion [SOL], look for sinusitis, hyperpneumatized sinuses, fibrous dysplasia)
- Blood glucose level
- Blood pressure, cardiovascular examination
- Carotid Doppler ultrasound study
- Vitamin B-12 levels
- Venereal Disease Research Laboratory (VDRL)/Treponema pallidum hemagglutination (TPHA) tests
- Antinuclear antibody levels
- Sarcoid examination
- Homocysteine levels
- Antiphospholipid antibodies
- Enzyme-linked immunosorbent assay (ELISA) for toxoplasmosis, rubella, cytomegalovirus, herpes simplex virus (TORCH panel)

Optic nerve function tests

Visual acuity is a measure of overall function of the optics and neural components of the visual system.

The logMar chart is used for this purpose. Stimulus parameters affecting visual acuity include contrast of the chart, refractive error, pupil size, stimulus eccentricity, duration of stimulus presentation, type of optotype used, illumination, and crowding phenomenon.

Color vision

Color vision is more decreased in patients with optic nerve disorders than in those with retinal disorders.

Contrast sensitivity test

This test measures the ability to perceive slight changes in luminance between regions that are not separated by definite borders. This is just as important as the ability to perceive sharp outlines of relatively small objects.

Pupillary evaluation

Pupil size should be noted, as well as the magnitude and the latency of the direct and consensual responses to light and near stimulation. A relative afferent pupillary defect (RAPD) is a hallmark of unilateral afferent sensory abnormality or bilateral asymmetric visual loss.

Clinically, it is graded as follows-

- Immediate dilation of the pupil, instead of normal initial constriction (3-4+)
- No changes in initial pupillary size, followed by dilation of the pupils (1-2+)
- Initial constriction, but greater escape to a larger intermediate size than when the light is swung back to normal eye (trace)

Edge-light pupil cycle time

A thin beam of light is shown horizontally across the inferior aspect of the pupillary margin. The light induces pupillary constriction that moves the light out of the pupil. The pupil then redilates until the beam is once again at the edge of the pupillary margin, whereupon it constricts again, creating another cycle.

The time is calculated in milliseconds per cycle. Alternatively, the number of cycles in 1 minute is measured. The rate is normally 900 milliseconds per cycle.

Photostress recovery test

Principle-visual pigments bleach when exposed to an intense light source, resulting in a transient state of sensitivity loss and reduced central visual acuity. The time needed to return to within one line of best-corrected visual acuity level is measured; this time is the photostress recovery time.

Pulfrich phenomenon

In optic nerve damage, the transmission of impulses to the occipital cortex is delayed. In patients with unilateral or markedly asymmetric optic neuropathy, when an oscillating small target in a frontal plane is viewed binocularly, the target appears to move in an elliptic path rather than in a to-and-fro path.

Cranial nerve examination

All cranial nerves are examined to rule out associated nerve involvement to help determine the site of the lesion.

Extraocular movements

Restriction can be obtained in cases of compressive optic neuropathy due to either the mass effect or the involvement of the nerve supplying the muscle.

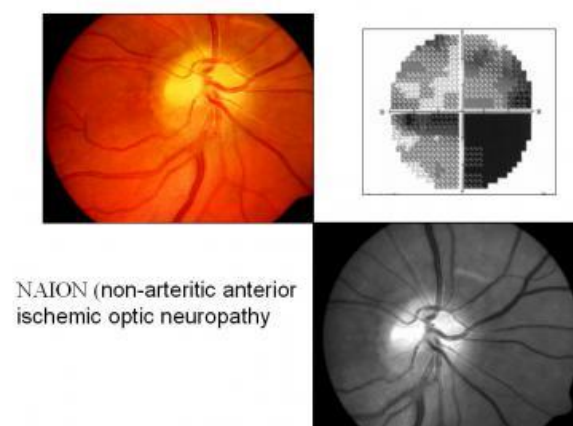
Optic disc observation

Optic disc changes can present with temporal pallor (as seen in toxic neuropathy and nutritional deficiency), focal pallor or bow-tie pallor (as seen in compression of the optic chiasma), and cupping (as seen in glaucomatous optic atrophy).

In the early stages of the atrophic process, the optic disc loses its reddish hue, and the substance of the disc slowly disappears, leaving a pale, shallow concave meniscus, the exposed lamina cribrosa. In the end stages of the atrophic process, the retinal vessels of the normal caliber still emerge centrally through the otherwise avascular disc.

Focal or diffuse obliteration of the neuroretinal rim with preservation of color of any remaining rim tissue is specific for glaucoma.

Pathologic optic disc cupping also develops in patients with normal intraocular pressures and optic atrophy from various causes, including ischemia, compression, inflammation, hereditary disorders, and trauma.



Peripapillary retinal nerve fiber layer observation

Early focal loss of axons is represented by the development of dark slits or wedges in the peripapillary retinal nerve fiber layer. These slits or bands appear darker or redder than the adjacent healthy tissue.

Retinal vessel observation

In most cases of optic atrophy, the retinal arteries are narrowed or attenuated. In cases of nonarteritic anterior ischemic optic neuropathy, the vessels may be focally narrowed or completely obliterated.

Visual field testing

Field testing methods include kinetic and static. In the kinetic method, the contours of the island are mapped at different levels, resulting in one isopter for each level tested. In the static method, the vertical contours of the island are mapped along a selected meridian.

As per the areas tested, the visual field is divided into the central visual field, which has a 30-degree radius, and anything beyond 30 degrees is called peripheral visual testing.

- The central visual field can be tested using an Amsler grid, confrontation techniques, a tangent screen, and a bowl perimeter.
- Peripheral visual testing includes automated perimetry and manual perimetry. Automated perimetry tests the central 60 degrees of the visual field, whereas manual perimetry tests the entire visual field.

In optic neuropathy, visual field changes can include enlargement of the blind spot and paracentral scotoma e.g. optic neuropathy, altitudinal defects e.g. anterior ischemic optic neuropathy, optic neuritis, and bitemporal defects e.g. compressive lesions, similar to optic chiasma tumors.

Electroretinogram

Abnormal electroretinogram (ERG) may be as-

- Subnormal: Potential less than 0.08 microvolts; seen in toxic neuropathy
- Negative: When a large a-wave is seen; may be due to giant cell arteritis, central retinal artery occlusion, or central retinal vein occlusion
- Extinguished: Response seen in complete optic atrophy

Visually evoked response

In optic neuritis, the visually evoked response (VER) has an increased latency period and a decreased amplitude as compared to the normal eye. Compressive optic lesions tend to reduce the amplitude of the VER, while producing a minimal shift in the latency.

Differential Diagnoses

When examining a patient with a pale disc, determine primarily if the pallor is physiologic. Nonpathologic disc pallor is observed in the following-

- Axial myopia: The optic disc has a segmental whitish appearance due to an oblique angle of insertion of the optic nerve and nasal displacement of the optic nerve contents.
- Myelinated nerve fibers: Feathery margins are due to the superficial location, usually adjacent to the disc.
- Optic nerve pit: Small colobomas are most often located in the inferotemporal portion of the disc.
- Tilted disc can cause confusion.
- Optic nerve hypoplasia has a double ring sign, and the inner ring is actually the optic disc margin.
- Scleral crescent areas are devoid of retinal pigment epithelium.
- Optic disc drusen
- Fundus viewing through an intraocular lens implant
- Brighter-than-normal luminosity: The luminosity of an indirect ophthalmoscope is approximately 2000 lux and that of a direct ophthalmoscope is up to 900 lux. A disc appears pale if the luminosity of the instrument is brighter than normal.

Treatment

OPTIC NERVE DISORDERS IN GENERAL- acetan. **Acon.** **Agar.** **Aloe** alum-p. alum. alumin-p. am-c. am-m. ambr. **AML-NS.** **Anac.** anan. ang. anh. ant-c. **Ant-s-aur.** **Ant-t.** antip. **APIS** Arg-met. Arg-n. arn. ars-s-f. **ARS.** asaf. atox. **Atro.** aur-ar. **AUR-M-N.** Aur-m. Aur-s. **AUR.** bar-c. bar-s. **BELL.** ben-d. ben-n. borx. both. **Bov.** **Bry.** bufo calc-f. **Calc-sil.** **CALC.** camph. **Cann-i.** cann-s. canth. **Caps.** carb-an. **Carb-v.** carbn-o. **Carbn-s.** card-b. **CAUST.** cedr. cench. cham. **Chel.** **Chin.** chinin-s. chlol. chloram. chrysar. cic. cimid. cina clem. **Cocc.** colch. **CON.** conv. croc. crot-h. cupr. **Cycl.** cypr. daph. dig. digox. diph-t-tpt. dros. **Dub.** duboin. dulc. **ELAPS** ery-a. **Euphr.** ferr-ar. ferr-ma. **Ferr.** fil. fl-ac. **GELS.** germ-met. glon. graph. guaj. guare. **Hell.** **Hep.** **Hyos.** ign. iod. iodof. **Iris** kali-ar. kali-c. **KALI-I.** kali-p. **Kali-s.** kali-sil. **Kalm.** kreos. lach. laur. led. lil-t. **LYC.** lycpr. m-ambo. m-arct. macro. mag-c. mag-p. manc. mang. meli. **MENY.** **MERC-C.** **MERC.** mez. mom-b. morb. naphthin. nat-act. nat-ar. nat-c. **NAT-M.** nat-p. nat-s. nat-sil. nit-ac. nux-m. **NUX-V.** **OInd.** onos. **Op.** **Osm.** **Ox-ac.** oxyt. par. perh. **Petr.** **PH-AC.** phos-h. **PHOS.** phys. pic-ac. pilo. pip-m. plat. **PLB-ACT.** plb-xyz. **Plb.** **Psor.** **PULS.** **RHUS-T.** **UTA** sabad. sabin. **Santin.** sarr. sars. **SEC.** seneg. **SEP.** **SIL.** sol-ni. sol-t. **SPIG.** staph. **STRAM.** stront-c. **STRY-N.** stry-p. stry-xyz. stry. sulfa. **SULPH.** syph. **TAB.** thal-xyz. thal. **THUJ.** thyr. toxo-g. tril-c. tril-p. upa. vanad. **Verat-v.** verat. verb. vib. viol-o. **Zinc-p.** **ZINC-PHIC.** **ZINC.**

Repertory of Optic Nerve Atrophy

Constitutions - OCCUPATIONS, general - foundry, men, diseases of optic nerve and retina **Merc.**
 EYE - ANEMIA of - optic nerve - tea drinkers, in **Spig.**
 EYE - ANEMIA of - optic nerve alumin-p. dig. kali-p. **spig.**
 EYE - ANEMIA of - Optic nerve alum-p. dig. kali-p.
 EYE - ATROPHY - Optic nerve - alcoholic drinks; from **nux-v.**
 EYE - ATROPHY - Optic nerve - tobacco; from **ars.** **nux-v.**
 EYE - ATROPHY - Optic nerve **agar.** alum-p. **Arg-n.** ars. atox. bell. carbn-s. cina hyos. iodof. lach. **Nux-v.** **PHOS.** **PLB.** **santin.** **Stry-n.** stry-p. syph. **Tab.** thal-xyz. verat-v. zinc-p.
 EYE - ATROPHY - optic nerve, of - intoxicants, from habitual use of **nux-v.**
 EYE - ATROPHY - optic nerve, of - tobacco, from **ars.**
 EYE - ATROPHY - optic nerve, of **agar.** alumin-p. arg-n. ars. carbn-o. carbn-s. fil. iodof. nat-ar. **Nux-v.** **PHOS.** **santin.** **Stry-n.** syph. **Tab.**
 EYE - ATROPHY of optic nerve - tobacco, from **ars.**
 EYE - ATROPHY of optic nerve **Nux-v.** **PHOS.** **Tab.**
 EYE - CATARACT, opacity of lens - optical illusions, with am-m.
 EYE - DISCOLORATION - pale - optic disc – right sec.
 EYE - DISCOLORATION - pale - optic disc **acetan.** ben-d. carbn-s. chin. chinin-s. sec. tab.
 EYE - DISCOLORATION - pale - Optic disks **acetan.**
 EYE - HYPEREMIA - Optic disks - accompanied by - Retina; enlarged blood vessels of bell. onos.
 EYE - INFLAMMATION - optic nerve - abuse of tobacco and alcohol, after **Nux-v.**
 EYE - INFLAMMATION - Optic nerve - accompanied by - Optic disk; swelling of bell. **bry.** **dub.** **gels.** **hell.** **nux-v.** **puls.** **verat-v.**
 EYE - INFLAMMATION - optic nerve – choked bell. **bry.** **duboin.** **gels.** **hell.** **nux-v.** **puls.** **verat-v.**
 EYE - INFLAMMATION - optic nerve – descending **ars.** cupr. **merc-c.**
 EYE - INFLAMMATION - optic nerve **Apis** **ars.** **Bell.** **bry.** carbn-o. carbn-s. chloram. cina cupr. duboin. gels. hell. iodof. kali-i. **Merc-c.** **merc.** **nux-v.** **Phos.** pic-ac. plb. **Puls.** rhus-t. **santin.** sulfa. tab. thyr. verat-v.
 EYE - INFLAMMATION - Optic nerve **Apis** **ars.** **Bell.** carbn-s. diph-t-tpt. germ-met. kali-i. **Merc-c.** **merc.** morb. **nux-v.** **Phos.** pic-ac. plb. **Puls.** rhus-t. **santin.** sulfa. tab. thal-xyz. thyr. toxo-g.
 EYE - INFLAMMATION - optic nerve **Bell.** **Phos.** plb. **Puls.** tab.
 EYE - IRRITATION - optic nerve **phos.**
 EYE - IRRITATION - optic nerve **phos.**
 EYE - IRRITATION - Optic nerve **phos-h.** **phos.**
 EYE - OPTIC nerve; complaints of **arg-n.** **aur.** bell. chin. cina dig. fil. lach. lycpr. **nux-v.** onos. plat. plb. tab.
 EYE - PAIN - extending to - Chiasma; optic **anh.**
 EYE - PARALYSIS - Optic nerve - accompanied by - Pupils; contracted **Sep.** **Zinc.**

- EYE - PARALYSIS - Optic nerve - accompanied by - Retinal hemorrhage both.
- EYE - PARALYSIS - Optic nerve - delivery; during aur-m.
- EYE - PARALYSIS - Optic nerve - headache; with severe iris zinc.
- EYE - PARALYSIS - Optic nerve – incipient Ant-t. aur. Caps. Caust. Chin. dulc. hyos. Merc. Nat-m. PULS. Rhus-t. Ruta sep. Sil. Spig. Sulph.
- EYE - PARALYSIS - Optic nerve – masturbation gels.
- EYE - PARALYSIS - Optic nerve – right Bov.
- EYE - PARALYSIS - Optic nerve - right - stool - amel. apis
- EYE - PARALYSIS - Optic nerve - right - then left Chin.
- EYE - PARALYSIS - Optic nerve Acon. agar. alum. am-c. am-m. ambr. anac. anan. ang. ant-c. ant-s-aur. ant-t. apis Arg-met. arg-n. arn. ars-s-f. Ars. asaf. aur-ar. Aur-m-n. Aur-m. aur-s. aur. bar-c. bar-s. BELL. ben-n. borx. both. Bov. bry. bufo calc-sil. Calc. camph. cann-s. canth. caps. carb-an. carb-v. card-b. Caust. cench. cham. Chel. Chin. chinin-s. cic. cocc. CON. croc. cycl. daph. dig. dros. dulc. Elaps euphr. ferr-ar. ferr-ma. Ferr. fl-ac. GELS. graph. guaj. Hep. Hyos. ign. iod. kali-ar. kali-c. KALI-I. kali-p. Kali-s. kali-sil. kreos. laur. led. Lyc. m-ambo. m-arct. mag-c. manc. mang. Meny. Merc. mez. mom-b. naphtin. nat-ar. nat-c. NAT-M. nat-p. nit-ac. nux-m. Nux-v. olnd. Op. oxyt. par. petr. Ph-ac. PHOS. Plb-act. plb-xyz. Plb. Psor. PULS. Rhus-t. Ruta sabad. sabin. santin. sars. SEC. seneg. Sep. SIL. sol-ni. sol-t. spig. staph. STRAM. stront-c. stry-xyz. stry. SULPH. syph. Tab. thal-xyz. Thuju. upa. vanad. verat-v. verat. verb. vib. zinc-p. zinc.
- EYE - PARALYSIS - optic nerve, amaurosis - right - then left Chin.
- EYE - PARALYSIS - optic nerve, amaurosis – right Bov.
- EYE - PARALYSIS - optic nerve, amaurosis anac. anan. Arg-met. arg-n. Ars. Aur-m-n. Aur-m. aur. bar-c. BELL. both. Bov. bry. bufo Calc. caps. Caust. Chel. Chin. chinin-s. cic. cocc. CON. croc. dig. dros. dulc. Elaps euphr. ferr-ar. Ferr. fl-ac. GELS. guaj. Hyos. kali-ar. kali-c. KALI-I. kali-p. Kali-s. laur. Lyc. Meny. Merc. nat-act. nat-c. NAT-M. nat-p. nit-ac. Nux-v. olnd. Op. petr. Ph-ac. PHOS. Plb. Psor. PULS. Rhus-t. Ruta SEC. Sep. SIL. spig. staph. STRAM. SULPH. syph. Thuju. verat. vib. Zinc.
- EYE - PARALYSIS of - optic nerve, amaurosis - Brights disease, in Apis Ars. Cann-i. colch. Gels. Hep. Kalm. Merc-c. Ph-ac. Plb.
- EYE - PARALYSIS of - optic nerve, amaurosis – incipient caust.
- EYE - PARALYSIS of - optic nerve, amaurosis - pupils, with contracted sep. zinc.
- EYE - PARALYSIS of - optic nerve, amaurosis - right - left, then Chin.
- EYE - PARALYSIS of - optic nerve, amaurosis – right Bov. chin.
- EYE - PARALYSIS of - optic nerve, amaurosis acon. agar. alum. am-c. am-m. ambr. anac. anan. ang. ant-c. ant-s-aur. ant-t. apis Arg-met. arg-n. arn. ars-s-f. Ars. asaf. aur-ar. Aur-m-n. Aur-m. Aur-s. aur. bar-c. bar-s. BELL. ben-n. borx. both. Bov. bry. bufo Calc-sil. Calc. camph. cann-i. cann-s. canth. caps. carb-an. carb-v. carbn-o. card-b. Caust. cench. cham. Chel. Chin. chinin-s. cic. cocc. colch. CON. croc. cycl. daph. dig. dros. duboin. dulc. Elaps euphr. ferr-ar. ferr-ma. Ferr. fl-ac. GELS. graph. guaj. hep. Hyos. ign. iod. kali-ar. kali-c. KALI-I. kali-p. Kali-s. kali-sil. kalm. kreos. laur. led. Lyc. mag-c. manc. mang. Meny. merc-c. Merc. mez. mom-b. naphtin. nat-ar. nat-c. NAT-M. nat-p. nat-sil. nit-ac. nux-m. Nux-v. olnd. Op. oxyt. par. petr. Ph-ac. PHOS. Plb-act. Plb. Psor. PULS. Rhus-t. Ruta sabad. sabin. santin. sars. SEC. seneg. Sep. SIL. sol-ni. sol-t. spig. staph. STRAM. stront-c. stry-xyz. SULPH. syph. tab. thal. Thuju. upa. vanad. verat-v. verat. verb. vib. Zinc-phic. Zinc.
- EYE - SWELLING - Optic disks arn. ars. nat-s. perh.
- EYES - ANEMIA - nerves, optic - tea drinkers, in SPIG.
- EYES - ANEMIA - nerves, optic alum-p. dig. kali-p. spig.
- Eyes - ANEMIA, conjunctiva - optic nerve - tea drinkers, in Spig.
- Eyes - ANEMIA, conjunctiva - optic nerve alum-p. dig. kali-p. spig.
- EYES - ATROPHY - nerves, optic - intoxicants, from habitual use of nux-v.
- EYES - ATROPHY - nerves, optic - tobacco, from ars.
- EYES - ATROPHY - nerves, optic agar. alum-p. arg-n. ars. carbn-o. carbn-s. fil. iodof. nat-ar. NUX-V. PHOS. santin. STRY-N. syph. TAB.
- EYES - ATROPHY - retina - disc, optic, partial iodof.
- Eyes - ATROPHY, conjunctiva - optic disc, of, partial iodof.
- Eyes - ATROPHY, conjunctiva - optic nerve - intoxicants, from habitual use of nux-v.
- Eyes - ATROPHY, conjunctiva - optic nerve - tobacco, from ars. con. phos.

Eyes - ATROPHY, conjunctiva - optic nerve agar. alum-p. arg-n. ars. carbn-o. carbn-s. Con. fil. iodof. nat-ar. Nux-v. PHOS. santin. Stry-n. syph. Tab.

EYES - CATARACT, opacity of lens - optical illusions, with am-m.

Eyes - CATARACT, opacity of lens - optical, illusions, with am-m.

EYES - DISCHARGES of mucus or pus - general - disc, optic ery-a.

EYES - DISCOLORATION - pale - disc, optic – left sec.

EYES - DISCOLORATION - pale - disc, optic – right sec.

EYES - DISCOLORATION - pale - disc, optic acetan. ben-d. carbn-s. chin. chinin-s. chlol. nux-v. sec. syph. tab.

EYES - DISCOLORATION - redness - nerves, optic carbn-s.

EYES - DISCOLORATION - white - nerves, optic tab.

Eyes - DISCOLORATION, eyes - pale, optic disc – right sec.

Eyes - DISCOLORATION, eyes - pale, optic disc acetan. ben-d. carbn-s. chin. chinin-s. sec. tab.

EYES - DRYNESS - general - disc, optic chinin-s.

EYES - ENLARGED - general - disc, optic tab.

EYES - ENLARGED - general - nerves, optic tab.

EYES - INFLAMMATION - choked, nerves, optic bell. bry. duboin. gels. hell. nux-v. puls. verat-v.

EYES - INFLAMMATION - nerves, optic - alcohol, after abuse of NUX-V.

EYES - INFLAMMATION - nerves, optic - extending downward ars. cupr. merc-c.

EYES - INFLAMMATION - nerves, optic - tobacco, after abuse of NUX-V.

EYES - INFLAMMATION - nerves, optic APIS ars. BELL. bry. carbn-o. carbn-s. chloram. cina cupr. duboin. gels. hell. iodof. kali-i. MERC-C. merc. nux-v. PHOS. pic-ac. plb. PULS. rhus-t. santin. sulfa. tab. thyr. verat-v.

Eyes - INFLAMMATION, eyes - optic nerve - abuse of tobacco and alcohol, after Nux-v.

Eyes - INFLAMMATION, eyes - optic nerve – choked bell. bry. duboin. gels. hell. nux-v. puls. verat-v.

Eyes - INFLAMMATION, eyes - optic nerve – descending ars. cupr. merc-c.

Eyes - INFLAMMATION, eyes - optic nerve Apis ars. Bell. bry. carbn-o. carbn-s. chloram. cina cupr. duboin. gels. hell. iodof. kali-i. Merc-c. merc. nux-v. Phos. pic-ac. plb. Puls. rhus-t. santin. sulfa. tab. thyr. verat-v.

EYES - IRRITATION - nerves, optic phos. tab.

Eyes - IRRITATION, to eyes - optic nerve phos.

EYES - OPACITY - haziness, retina - disc, optic carbn-s. tab.

EYES - Optic disks - Hyperemic, retinal vessels enlarged bell. onos.

EYES - Optic disks - Pallor, visual field contracted, retinal vessels shrunken acetan.

EYES - Optic nerve – Atrophy agar. arg-n. atox. carbn-s. iodof. nux-v. Phos. santin. Stry-n. tab.

EYES - Optic nerve – Inflammation Apis ars. bell. carbn-s. kali-i. Merc-c. nux-v. pic-ac. plb. puls. rhus-t. santin. tab. thyr.

EYES - Optic nerve - Neuritis – choked bell. bry. dub. gels. hell. nux-v. puls. verat-v.

EYES - Optic nerve - Neuritis – descending ars. cupr. merc-c.

EYES - Optic nerve – Paralysis nux-v. oxyt. ph-ac.

EYES - Optic nerve arg-n. aur. bell. chin. cina dig. fil. lach. nux-v. onos. plat. plb. tab.

EYES - Optical, hyperaesthesia chrysar.

EYES - PAIN - nerves, optic cedr. clem. pip-m. sarr.

EYES - PAIN - pressing - nerves, optic clem.

EYES - PAIN - sore, bruised - nerves, optic sarr.

EYES - PARALYSIS - nerves - optic nerve, amaurosis - brights disease, in APIS ARS. CANN-I. colch. GELS. HEP. KALM. MERC-C. PH-AC. PLB.

EYES - PARALYSIS - nerves - optic nerve, amaurosis - incipient, optic nerve aur. caust. DULC. MERC. NAT-M. SEP. SIL. SULPH.

EYES - PARALYSIS - nerves - optic nerve, amaurosis - pupils, with contracted sep. zinc.

EYES - PARALYSIS - nerves - optic nerve, amaurosis - right - left, then CHIN.

EYES - PARALYSIS - nerves - optic nerve, amaurosis – right BOV. chin.

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - anemia, from Verat-v.

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - appeared and ceased with the appearance and cessation of albuminuria plb.

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - beginning, in - could not distinguish large objects, with paresis of legs [Rhus-t.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - beginning, in [Ant-s-aur.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - brights disease, in [Apis Ars.](#) [Cann-i.](#) [colch.](#) [Gels.](#) [Hep.](#) [Kalm.](#) [Merc-c.](#) [Ph-ac.](#) [Plb.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - cold, from a [Bell.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis – congestive [Gels.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - diplopia, with or without, from suppressed eruption [Sulph.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - eruption, after a sudden disappearance of an, on head [sulph.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - eruption, after a sudden disappearance of an, on head - with scabby, on occiput and ears [Psor.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - fever, from nervous [Bell.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - gutta serena - early stage [Hell.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - gutta serena [aur-m-n.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - headache, during [Zinc.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - headache, during - violent, after [Sep.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - hemorrhage, especially from, debility and exhaustion [crot-h.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - incipient - especially of left eye [Phos.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis – incipient [caust. phos.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis – left [Arg-met. phos. thuj.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - losses, by debilitating [Ph-ac.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - masturbation, from [GELS.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - nerve, from congestion or irritation of optic [Verat-v.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - pupils, with contracted [Sep. Zinc.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - pupils, with contracted - dilatation of [Gels. Phos.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - quinine, from [Bell. Gels.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - rheumatic, from, troubles [Chel.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - right - right then left [Chin.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis – right [Bov. chin.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - ringworm, after suppression of [Chel.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - scarlatina, after suppression of rash in [Bell.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - sexual, excesses, associated with fatty liver [PHOS.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - spinal irritation, first right, then left eye, with [Chin.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - stroke, after [Gels.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - threatened - confinement, during [Caust.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - threatened - scrofulous children, in [dulc.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis – threatened [Caust.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - tobacco, from [Nux-v.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - transient, complicating motor palsy [plb.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - typhoid fever, after [Lyc.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis - years, of seven, duration [PHOS.](#)

Eyes - PARALYSIS, eyes - optic nerve, amaurosis [acon.](#) [agar.](#) [alum.](#) [am-c.](#) [am-m.](#) [ambr.](#) [anac.](#) [anan.](#) [ang.](#) [ant-c.](#) [ant-s-aur.](#) [ant-t.](#) [apis](#) [Arg-met.](#) [arg-n.](#) [arn.](#) [ars-s-f.](#) [Ars.](#) [asaf.](#) [aur-ar.](#) [Aur-m-n.](#) [Aur-m.](#) [Aur-s.](#) [aur.](#) [bar-c.](#) [bar-s.](#) [BELL.](#) [ben-n.](#) [borx.](#) [both.](#) [Bov.](#) [bry.](#) [bufo](#) [Calc-sil.](#) [Calc.](#) [camph.](#) [cann-i.](#) [cann-s.](#) [canth.](#) [caps.](#) [carb-an.](#) [carb-v.](#) [carbn-o.](#) [card-b.](#) [Caust.](#) [cench.](#) [cham.](#) [Chel.](#) [Chin.](#) [chinin-s.](#) [cic.](#) [cocc.](#) [colch.](#) [CON.](#) [croc.](#) [cycl.](#) [daph.](#) [dig.](#) [dros.](#) [duboin.](#) [dulc.](#) [Elaps](#) [euphr.](#) [ferr-ar.](#) [ferr-ma.](#) [Ferr.](#) [fl-ac.](#) [GELS.](#) [graph.](#) [guaj.](#) [hep.](#) [Hyos.](#) [ign.](#) [iod.](#) [kali-ar.](#) [kali-c.](#) [KALI-I.](#) [kali-p.](#) [Kali-s.](#) [kali-sil.](#) [kalm.](#) [kreos.](#) [laur.](#) [led.](#) [Lyc.](#) [mag-c.](#) [manc.](#) [mang.](#) [Meny.](#) [merc-c.](#) [Merc.](#) [mez.](#) [mom-b.](#) [naphtin.](#) [nat-ar.](#) [nat-c.](#) [NAT-M.](#) [nat-p.](#) [nat-sil.](#) [nit-ac.](#) [nux-m.](#) [Nux-v.](#) [olnd.](#) [Op.](#) [oxyt.](#) [par.](#) [petr.](#) [Ph-ac.](#) [PHOS.](#) [Plb-act.](#) [Plb.](#) [Psor.](#) [PULS.](#) [Rhus-t.](#) [Ruta](#) [sabad.](#) [sabin.](#) [santin.](#) [sars.](#) [SEC.](#) [seneg.](#) [Sep.](#) [SIL.](#) [sol-ni.](#) [sol-t.](#) [spig.](#) [staph.](#) [STRAM.](#) [stront-c.](#) [stry.](#) [SULPH.](#) [syph.](#) [tab.](#) [thal.](#) [Thuj.](#) [upa.](#) [vanad.](#) [verat-v.](#) [verat.](#) [verb.](#) [vib.](#) [Zinc-p.](#) [Zinc.](#)

EYES - PROMINENT veins - optic disk **AML-NS. BELL.**

EYES - Retina - Hyperaesthesia; optical **Bell. cimic. con. lil-t. macro. Nux-v. Ox-ac. phos. stry.**

EYES - SMALL veins, optic disk **aml-ns.**

EYES - Vision - Optical illusions - Black before eyes **agar. Atro. bell. Carb-v. Carbn-s. chin. cycl. dig. lach. lyc. mag-c. mag-p. merc. nat-m. phos. phys. sep. stront-c. Tab. zinc.**

EYES - Vision - Optical illusions - Blue before eyes **crot-h. tril-c. tril-p.**

EYES - Vision - Optical illusions - Confusion of colors **Bell. calc. croc. merc. Puls. ruta staph. stram.**

EYES - Vision - Optical illusions - Flashes, flames, flickering **agar. aloe Bell. calc-f. caust. clem. Cycl. glon. hep. ign. Iris lyc. phos. phys. puls. seneg. viol-o.**

EYES - Vision - Optical illusions – Gray **arg-n. conv. guare.**

EYES - Vision - Optical illusions – Green **dig. Osm. Phos.**

EYES - Vision - Optical illusions - Halo around light **bell. chlol. hyos. sulph.**

EYES - Vision - Optical illusions - Objects appear white **chlol.**

EYES - Vision - Optical illusions - Objects, brilliant, fantastic, colored, fiery **Anh. Aur. Bell. chin. Cycl. nat-m. sep.**

EYES - Vision - Optical illusions - Red before the eyes **antip. apis Bell. Dub. elaps hep. Phos. stront-c.**

EYES - Vision - Optical illusions - Sparks, stars **aur. Bell. calc-f. caust. croc. Cycl. glon. lyc. naphtin. sil. stry.**

EYES - Vision - Optical illusions – Spots **Agar. anac. Atro. aur. carb-v. caust. Chin. colch. con. Cycl. cypr. kali-c. meli. Merc. Nit-ac. Nux-v. Phos. phys. sep. sil. sulph. tab.**

EYES - Vision - Optical illusions - Yellow before eyes **Aloe canth. cina digox. Santin.**

EYES - Vision - paralysis of optic nerve **acon. Agar. alum. am-c. am-m. ambr. Anac. ang. ant-c. ant-t. arn. ars. asaf. AUR. Bar-c. BELL. borx. Bry. CALC. camph. canth. Caps. carb-an. carb-v. CAUST. cham. Chel. CHIN. Cic. Cocc. CON. Croc. cycl. DIG. Dros. Dulc. Euphr. Ferr. graph. hep. HYOS. ign. iod. Kali-c. kreos. Laur. led. LYC. mag-c. mang. MERC. mez. Nat-c. NAT-M. Nit-ac. nux-v. Olnd. Op. par. Petr. ph-ac. PHOS. Plb. PULS. RHUS-T. RUTA sabad. sabin. sars. SEC. seneg. Sep. SIL. Spig. Staph. STRAM. stront-c. SULPH. thuj. VERAT. verb. Zinc.**

KIDNEYS - INFLAMMATION - accompanied by - Optic nerve; paralysis of **plb.**

Neuritis – optic **plb.**

VERTIGO - Cause and type - Optical disturbances **con. Gels. pilo.**

Vision - ASTHENOPIA - accommodative - anemia of optic nerve, from excessive tea drinking, with neuralgia or slight retinitis **Spig.**

Vision - BLINDNESS, loss of vision - atrophy, of optic nerve, from **syph.**

Vision - BLINDNESS, loss of vision - atrophy, of optic nerve, from - retina, from **phos. tab.**

Vision - BLINDNESS, loss of vision - right - paralysis of optic nerve, with **Bov.**

Vision - blindness, loss of vision, affections of - optic, nerve, atrophy from **syph.**

Vision - DIM, vision - dull - optic nerve, from weakness of **mag-p.**

Vision - HAZY, vision - bluish, in hyperaemia of optic nerve and retina **Bry.**

VISION - LOSS OF VISION - optic nerve; from atrophy of **syph.**

VISION - LOSS of vision, blindness - atrophy of - optic nerve, from **syph.**

VISION - LOSS of vision, blindness - atrophy of - optic nerve, from **syph.**

Vision - paralysis of optic nerve **Bell. bov. Caust. con. GELS. hyos. kali-i. nat-m. PHOS. Puls. Sec. Sil. Stram. Sulph.**

Vision - WEAK, vision - nerve, from exhausted of optic **kali-p. PHOS.**

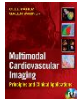
Bibliography



Hypopituitarism > SEPTO-OPTIC DYSPLASIA Harrison's Principles of Internal Medicine ... palate, syndactyly, ear deformities, hypertelorism, optic nerve hypoplasia, micropenis, and anosmia...



Chapter 21. Optics & Refraction Vaughan & Asbury's General Ophthalmology, 18e



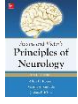
Chapter 10. Optical Mapping of Electrical Activity Multimodal Cardiovascular Imaging: Principles and Clinical Applications



Optic Neuropathy, Ischemic Quick Medical Diagnosis & Treatment 2016



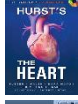
Chapter 15. Ocular Disorders Associated with Systemic Diseases > Optic Disk Infarction (Anterior Ischemic Optic Neuropathy) Vaughan & Asbury's General Ophthalmology, 18e ... Figure 15-2. Ischemic optic neuropathy. Sudden visual loss in a 48-year-old man produced...



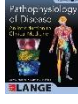
Chapter 36. Multiple Sclerosis and Other Inflammatory Demyelinating Diseases > Optic Neuritis (Retrobulbar Neuritis; Papillitis) (See "Optic Neuritis" in Chap. 13) Adams & Victor's Principles of Neurology, 10e ...), the initial manifestation is an episode of optic neuritis . It will be recalled that the optic nerve...



12. Mental Status and Neurological Examination in Older Adults > Cranial Nerve II: Optic Hazzard's Geriatric Medicine and Gerontology, 6e ... Normal Impaired Impaired Normal Normal Optic nerve Normal Lost Lost Normal...



Chapter 14. The History, Physical Examination, and Cardiac Auscultation > Optic Disk Edema Hurst's The Heart, 13e



Genetic Disease > Leber Hereditary Optic Neuropathy, Mitochondrial Encephalomyopathy With Ragged Red Fibers, & Other Mitochondrial Diseases Pathophysiology of Disease: An Introduction to Clinical Medicine, 7e



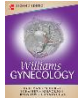
Chapter 17. Special Subjects of Pediatric Interest > Optic Nerve Vaughan & Asbury's General Ophthalmology, 18e ... Congenital anomalies of the optic nerve are relatively common. They are usually benign...



Chapter 21. Optics & Refraction > Geometric Optics Vaughan & Asbury's General Ophthalmology, 18e



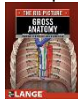
Chapter 21. Optics & Refraction > Calculations Used in Optics Vaughan & Asbury's General Ophthalmology, 18e ... There are two approaches to the application of the principles of geometric optics to single lenses...



Chapter 42. Minimally Invasive Surgery > Optical Access Trocar Entry Williams Gynecology, 2e ... To lower the risk of bowel injury at the time of primary trocar insertion, optical trocars were...



Neurosurgery > Intraparenchymal Fiber-Optic Pressure Transducer Schwartz's Principles of Surgery, 10e ... An intraparenchymal fiber-optic pressure transducer is commonly referred to as a bolt...



Chapter 17. Cranial Nerves > CN II: Optic Nerve The Big Picture: Gross Anatomy



Encyclopedia Homoeopathica



Radar 10