

Eye – The window of the human body

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"The eye is the window of the body through which it feels its way and enjoys the beauty of the world. Owing to the eye the soul is content to stay in its bodily prison for without it such bodily prison is torture."

- Leonardo da Vinci (1452-1519)

Routine check-up of one's eyesight has now universal acceptance. People visit the eye doctor for an annual eye examination. The eye doctor, besides correcting eyesight, can detect the presence of many diseases in the body, as it is said that there is no systemic disease which does not affect the eye. Thus apart from defects in one's eyesight, eye check up may reveal life-threatening conditions like brain tumours or AIDS. An ophthalmologist can diagnose many such deadly diseases after an eye examination, especially of the retina.

The eye is the only organ where one can examine directly the blood vessels that are a part of the cardiovascular and the neurological system. The retina which has developed as an extension of the forebrain has in it blood vessels, the examination of which will tell one the state of the blood vessels in the brain. Such examination may indicate how eminent a stroke is etc.

Diabetes is becoming a public health problem in Nepal especially in urban population. In one study done in down-town Kathmandu, around 33% of people over 40 years of age were found to have diabetic tendency. Diabetes affects the capillaries and arterioles in the retina and the condition is called Diabetic Retinopathy. Normally it takes around ten years for a diabetic to develop Diabetic Retinopathy. This is a common cause of blindness in the western world. Diabetic Retinopathy is also an important cause of visual impairment in developing countries including Nepal. Diabetic Retinopathy changes in the eye also correlate to damage to other organs, e.g. Nephropathy in kidneys.

Around 40% of people over 40 years of age have been reported to suffer from hypertension in Nepal. Hypertension is responsible for myocardial infarction and cerebrovascular accidents. Like retinopathy in diabetes, hypertension affects the retinal blood

vessels and is responsible for profound loss of vision due to vascular occlusion. Hypertensive retinopathy changes in the retina, like narrowing of blood vessels, can be detected early and the patient can be warned of it. Papilloedema in malignant hypertension has often been initially diagnosed in the eye outpatient department. Similarly, some blood disorders have characteristic retinal haemorrhages. The white centred retinal haemorrhages called Roth Spots are features of anaemia, leukaemia and bacterial endocarditis.

The cytomegalo virus retinitis is the most common opportunistic infection and is a major cause of visual loss in AIDS patient. Its appearance is a grave prognostic sign as most of the patients will die within 6-8 weeks.

Brain tumours produce changes in the eye like papilloedema and optic atrophy. Optic neuritis is the presenting feature in about 25% of multiple sclerosis patients and in 70% cases it occurs in established disease. A rare genetic disorder that causes excessive copper accumulation in the liver or brain called Wilson's disease can be detected by the presence of the Kayser–Fleischer (KF) ring on the cornea. If the diagnosis is delayed, the condition may result in progressive damage of liver and the brain.

Thyroid disease can be detected during a routine ophthalmic check up by the protruded eye ball called proptosis. Dysthyroid is the commonest cause of unilateral or bilateral proptosis. Leukaemic deposits in acute myeloid and lymphoid leukaemia also are known to present with proptosis.

Xanthelasma which is a slightly raised, yellow plaque commonly found at the inner portion of the upper or lower eyelid is the deposition of lipid often seen in hyperlipidemia. Similarly, Arcus Juvenalis, a condition with bilateral lipid degeneration of the

cornea occurring under 40 years of age is usually associated with hyperlipidemia with raised serum cholesterol. As is known, hyperlipidemia is an important risk factor for myocardial infarction. A Bitot's spot, which is a raised, silvery white, foamy, triangular patch of keratinized epithelium, situated on the bulbar conjunctiva in the interpalpebral area is commonly seen in children due to deficiency of vitamin A in the diet. Xerophthalmia, a term used for ocular manifestations in vitamin A deficiency is an important cause of childhood blindness in Nepal.

Bilateral asymmetrical ptosis in a young woman especially of recent onset, progressing towards the end of the day suggests the probability of myasthenia gravis.

Anaemia and jaundice are confirmed by examining the conjunctiva. Parasitic cysts such as subconjunctival cysticercus, hydatid cyst and filarial cyst are seen in developing countries. Cysticercus cysts are not infrequently encountered in the retina and the vitreous cavity or in the anterior chamber. Scleritis (inflammation of sclera) is a serious disease of the eye but fortunately it is uncommon. It is associated with connective tissue disorders in 50% of the cases e.g. Rheumatoid Arthritis , Periarteritis

Nodosa , Systemic Lupus Erythematosus , Wegener's Granulomatosis etc. Blue sclera (due to thinned sclera) is a typical association of a hereditary condition called Osteogenesis Imperfecta characterized by, Fragilitas Ossium (frequent bone fractures) and deafness. Other systemic diseases that may be associated with blue sclera are Marfan's syndrome, Pseudoxanthoma Elasticum and Ehlers-Danlos syndrome.

Inflammation of the eye like uveitis, choroiditis or vasculitis can suggest diseases like Tuberculosis, Leprosy, Syphilis, Sarcoidosis, Toxoplasmosis and ulcerative colitis.

Not only the diagnosis of the disease, but also the toxicity due to the drug intake can be diagnosed with eye examination as in the treatment with Ethambutol for tuberculosis which produces optic neuropathy resulting in sudden impairment of vision and defect in colour vision (especially for red –green). The optic neuropathy is reversible when the drug is discontinued.

Thus making a habit of peeping through "The Eye-the window" all the time will ensure one becoming a good physician.