INTRODUCTION
Homocystinuria (HC) is an autosomal recessive disorder with abnormal metabolism of amino acids. Most commonly, CBS (cystathionine beta-synthase) gene is affected related to metabolism of methionine leading to increased levels of homocysteine in blood and urine. NF-1 is an autosomal dominant disorder that results from mutation or deletion of a tumor suppressor gene (NF-1) located on long arm of chromosome 17. These two diseases are genetically and clinically distinct entities with entirely different ocular and systemic manifestations. The aim to report this case is to acquaint ophthalmologists and health professionals about co-existence of these two rare diseases in one patient.

CASE REPORT
A 9-year boy was brought by his parents with diminished vision for the last couple of years. He was a diagnosed case of HC along with his two younger brothers and was referred for ophthalmic review by paediatrician. On general physical examination, there were multiple café au lait spots on his body (Figure 1a), a 5 x 8 cm neurofibroma over anterior chest (Figure 1b), pectus carinatum, valgus deformity (Figure 1c), and axillary as well as inguinal freckling. On ocular examination, he could follow and fixate but the exact visual acuity could not be assessed as he was mentally handicapped. Slit lamp examination revealed Lisch nodules, ectropion uveae, iridodonesis and bilaterally ectopia lentis with inferiorly subluxated lens (Figure 1d). The intraocular pressure and fundus examination was normal.

Incisional biopsy of the neurofibroma was sent for histopathology and the diagnosis of plexiform neurofibroma was confirmed. MRI of brain was carried out which revealed cerebral atrophy and calcifications. Urinary homocysteine levels were advised and they resulted to be 65 umol/L, suggesting high risk levels. Other investigations like complete blood count, coagulation profile, echocardiography, carotid Doppler, urea, electrolytes were within normal range. Parents were counselled about the nature, prognosis and the likely complications of disease.
Homocystinuria (HC) and neurofibromatosis type-1 (NF-1)

The patient underwent bilateral lensectomy with scleral fixation of intraocular lens four weeks apart. He was advised tablet vitamin B6, 200 mg per day for four weeks. Urinary homocysteine levels were carried out after 4 weeks; and the result were within normal range.

DISCUSSION

HC and NF-1 are two genetically different diseases with entirely different clinical manifestations; however, both of them manifest with ocular problems.

HC is a neurometabolic disorder that manifest as marfanoid habitus, neurodevelopmental delay, thromboembolism and ectopia lentis.2 NF-1, on the other hand, results from mutation of a tumour suppressor NF-1 gene which encodes for a protein named neurofibromin. Lack of this tumor supressor protein predisposes to formation of tumors such as neurofibromas, optic nerve glioma and meningiomas.3 NF-1 has an incidence of approximately 1 in 3000 individuals4 and clinically manifests as café au lait spots, cutaneous neurofibromas, axillary/inguinal freckling, skeletal deformities, while ocular manifestations include plexiform neurofibroma of lid, glaucoma, Lisch nodules, optic nerve glioma and sphenoid-ethmoidal encephalocel.5 National Institute of Health has laid down 7 criteria for NF1. Two out of these 7 points must be fulfilled for the diagnosis of NF1.6

Vascular anomalies and thromboembolic complications can occur in both of these disorders and have been reported in literature. Yoo et al. reported an increase risk of stenosis in both intra and extra cranial vessels with raised serum homocysteine level.7 The co-existence of NF-1 and HC has also been reported by Yilmaz et al. in their case report, where they presented a 31-year individual with stroke.8 In this case, there was no vascular complications so far but it has been claimed that many patients present with full blown disease in adulthood with a risk of a cerebrovascular accident of 2 - 5% in NF1 alone.9 So a regular follow-up of the patient was advised as essential. Isolated case reports about vascular complications in NF-1 and HC have been documented; however, their co-existence is rare. Vascular thromboembolic problems can occur in both diseases, so patients should be advised a close and regular follow-up with ophthalmologist, paediatrician, and neurophysician in order to avoid life-threatening complications.

REFERENCES