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Dear Doctor,
Greetings from Micro Labs Limited. We are happy to bring you 'Ophthal Focus' which contains latest and interesting news in the field of Ophthalmology.

This issue contains

- **Evaluating the association between symptoms and signs in patients with Meibomian gland dysfunction (MGD).**
- **Assessing the manifestations of glaucoma associated with cytomegalovirus (CMV) corneal Endotheliitis**
- **Assessment of age related vascular changes in the optic discs of patients with diabetes with and without signs of glaucoma**
- **Bilateral posterior scleritis followed by sequential bilateral cataract surgery**

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Looking forward to your valuable feedback

Best Regards,
Medical Team, Micro Labs Limited

Evaluating the association between symptoms and signs in patients with Meibomian gland dysfunction (MGD).

INTRODUCTION:

Meibomian gland dysfunction (MGD) is a chronic ocular surface disease that severely affect the quality of life of patients[1], characterized by terminal duct obstruction and changes in the glandular secretion as it leads to stasis of meibum inside the glands, dilation of the ductal system, and loss of glandular tissue and most common cause of dry eye[2]. The prevalence of MGD in general population varies between 30.5 and 54.1% and it is one of the most under recognized, underappreciated, and undertreated disease[3]. Aging, deficiency of sex hormones, notably androgens, other systemic conditions such as Sjogren's syndrome (SS), Stevens–Johnson syndrome (SJS), psoriasis, atopy, polycystic ovarian syndrome (PCOS), and hypertension are the risk factor associated with MGD[2].Symptoms of eye discomfort in MGD patients include dryness, grittiness, soreness, burning sensation, blurred vision, ocular fatigue, and increased secretions[1]. MGD is the main cause of evaporative dry eye, and while symptoms of dry eye and MGD often overlap, studies have reported that approximately 50% of MGD patients were asymptomatic[1] as asymptomatic patients need early recognition, so that they can be managed at an early stage[2]. MGD is nonobvious in some patients as the aim of current study is to explore the relationship between symptoms and signs in MGD patients to provide new insights for better treatment and follow-up.

METHODS:

A multicenter study was conducted at four sites, patients with standard patient evaluation of eye dryness (SPEED)≥6 points, Meibomian gland yielding secretion score (MGYSS)≤12 points, tear break-up time (TBUT)≤10 and corneal fluorescein staining score (CFSS)≥1 were included in the study. Patients with acute eye inflammation, active ocular infection or allergies were excluded. Patient symptoms of MGD were assessed using the SPEED questionnaire and patients were by using TBUT, CFSS, lid margin, and MGYSS. Data analysis was made by using SPSS version 26 software.

RESULTS:

A total of 122 patients were enrolled in this study, including 27 males with an average age of 38.6 years and 95 females with an average age of 43.2 years. more patients in the≥40-year-old group had lid margin thickening, rounding, hyperkeratinisation and telangiectasia than patients in the <40 years of age male and female patients, there was no significant difference in the severity of symptoms and signs between the two groups. It revealed that more postmenopausal women had lid margin hyperemia, thickening, rounding, hyperkeratinisation, and telangiectasia around Meibomian gland orifices than premenopausal women ($p<0.05$). more patients living in the north had lid margin hyperemia, thickening, rounding, hyperkeratinisation, and telangiectasia around Meibomian gland orifices than patients living in the south

Age may be an influencing factor of lid margin thickening, lid margin rounding, hyperkeratinisation of lid margin, and telangiectasia around Meibomian gland orifices, Sex may affect TBUT and lid margin rounding, region may be an influencing factor of lid margin hyperemia and lid margin thickening. Study results showed that the association between symptoms and signs in obvious obstructed MGD patients was poor, which suggests that MGD patients may have severe symptoms, but this does not mean that their signs are also obvious, and vice versa.

Table:1 Comparison of symptoms and signs of MGD patients between different subgroups

Variable		SPEED Median (IQR)	TBUT M (IQR)	CFSS M (IQR)	MGYSS M (IQR)
Age	<40 years	14.00	2.71	1.50	4.50
	>40 years	14.00	2.84	1.00	5.00
sex	Male	13.00	3.14	1.00	5.00
	Female	14.00	2.08	1.50	4.50
Menopause	No	14.00	2.72	1.50	4.50
	Yes	13.50	2.62	1.25	4.75
Region	North	15.00	2.77	1.00	4.50
	South	14.00	2.78	1.50	4.50

CONCLUSION:

The study concludes that correlation between symptoms and signs of obvious MGD in patients is poor and age, menopause, and a dry environment may aggravate the disease.

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Assessing the manifestations of glaucoma associated with cytomegalovirus (CMV) corneal Endotheliitis.

INTRODUCTION:

Worldwide, Cytomegalovirus (CMV) corneal endotheliitis has become an established clinical entity, mainly from Asian countries[1] and Cytomegalovirus (CMV) has been known to cause unilateral corneal endotheliitis with keratic precipitates (KPs) and localized corneal edema, iridocyclitis, and secondary glaucoma[2.] Glaucoma is characterized by loss of retinal ganglion cells and visual field constriction which is the second leading cause of blindness. Endotheliitis is termed as inflammation of the corneal endothelium and is thought to be related to viral infection, especially in association with the cytomegalovirus (CMV). The common clinical features include coin-shaped KP and elevated intraocular pressure (IOP). Routine culture, real-time Polymerase chain reaction (qPCR), and enzyme-linked immunosorbent assay (ELISA), qPCR has been regarded as an accurate diagnostic approach to detect viral DNA in the aqueous humour[3]. Various studies suggest that glaucoma secondary to CMV corneal endotheliitis and a decrease in endothelial cell density may lead to irreversible visual impairment[1]. The aim of this study was to highlight manifestations of glaucoma associated with CMV corneal endotheliitis.

METHODS:

A retrospective observational study was conducted in 34 patients who were diagnosed with CMV corneal endotheliitis and patients who met the diagnostic criteria. CMV was detected by using multiplex PCR analysis of aqueous humour samples. The demographics and clinical manifestations of each patient were recorded at the time of the initial visit, distance best-corrected visual acuity (BCVA) measured with Landolt ring, intraocular pressure (IOP) measured using a Goldman applanation tonometer, endothelial cell density (ECD) determined with a specular microscope. At each follow-up visit, IOP, anterior inflammatory reactions, and treatment effects were recorded, Statistical analysis was performed by using SPSS

RESULTS:

Thirty-four eyes of 34 patients were enrolled involved in the current study, mean age was 69.1 ± 13.1 years. Most of the patients had glaucoma and received anti-glaucoma eye drop therapy prescribed by prior ophthalmologists for an average of 10.0 ± 10.1 years. Based on the diagnostic criteria, 16 eyes (47.1%) were classified as typical CMV corneal endotheliitis as shown in figure 1 with coin-shaped lesions as shown in Figure 1, or linear KPs, and the remaining 18 eyes (52.9%) were classified as atypical CMV corneal endotheliitis. At the time of the first visit, the mean BCVA ± SD was Log MAR 0.48 ± 0.60 and mean IOP was 22.4 ± 10.6 mmHg. The 19 eyes had an elevated IOP > 21 mmHg. Twenty-eight eyes were open angle, excluding 6 eyes that had previous glaucoma surgery or penetrating keratoplasty. The mean ECD was 1471 ± 683 cells/mm2 and the ECD was < 2000 cells/mm2 in 28 eyes (82.4%). Patients with CMV corneal endotheliitis were treated immediately with 0.5% topical GCV, a topical corticosteroid and an

anti-glaucoma agent were also applied. Concomitant systemic antivirals were administered or oral valganciclovir

The mean IOP decreased from 22.4 ± 10.6 mmHg at the time of the initial visit to 14.6 ± 7.9 mmHg 1 month after initiation of anti-CMV treatment.

During the follow-up period of 4.8 ± 3.0-year, 18 eyes maintained a good IOP without glaucoma surgery whereas 16 eyes required glaucoma surgery, including filtering surgery and trabeculotomy. Final IOP was fair in all surgery cases. Study results show that most of the patients with CMV corneal endotheliitis had secondary glaucoma.

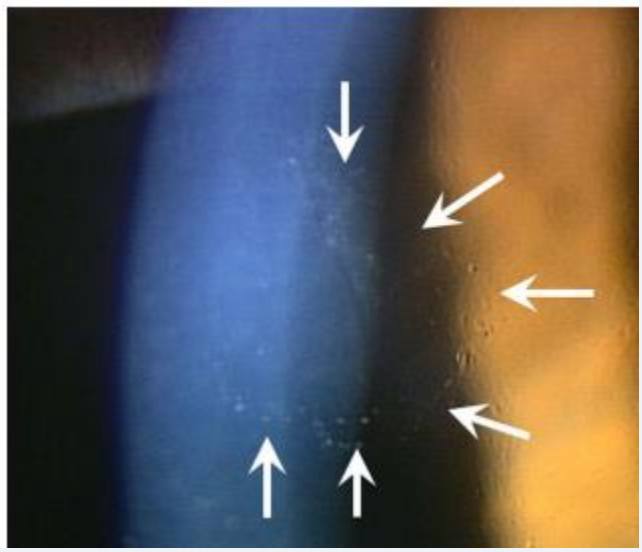

Figure:1 Slit-lamp photograph of typical CMV corneal endotheliitis

CONCLUSION:

Most of the patients with CMV corneal endotheliitis had glaucoma and treatment including 0.5% topical GCV, was effective in reducing the IOP, one-half of the patients required glaucoma surgery**.**

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Assessment of Age-Related Vascular Changes In The Optic Discs Of Patients With Diabetes With And Without Signs Of Glaucoma.

INTRODUCTION:

Vascular and perfusion alterations have been associated with progression of glaucoma in various ways[1]**.** Leading cause of blindness in working-age adults is Diabetic retinopathy (DR) and has been classically considered as a microvascular disorder. The decrease in retinal nerve fibre layer (RNFL) thickness has been noted in patients with diabetes mellitus (DM) without clinical DR[2].

Optic disc neovascularization (NVD), diabetic papillopathy (DP), non-arteritic anterior ischemic optic neuropathy (AION), and optic atrophy (OA), and some undefined non-specific diabetic ONP are the common Optic neuropathies that can occur in 38.4% of DR patients[3]. Research suggest that senescence associates with reduced complexity in a wide range of physiological processes and anatomic structures such as the vasculature and innocuous retinal vessel changes related to physiological ageing, referred to as senescence, coincide[4.] The aim of this study is to assess existence of vascular and perfusion changes in the optic disc of patients with diabetes

METHODS:

A retrospective study was conducted in a total of 2153 eyes of 1797 patients with diabetes without significant retinopathy were monitored with 10 Topcon-NW400 images obtained over 10.27±1.58 years. 571 non-diabetics eyes were selected as controls. To identify optic disc edges, vessels, cup and rim Laguna ONhE uses convolutional neural networks, and provides a glaucoma assessment index—Globin Distribution Function (GDF). Statistical analyses were performed using the Microsoft Excel 2016 program

RESULTS:

The study results show that average age of the patients at the beginning of the study was 57.23±9.39 years and average age of non-diabetic participants at the time of examination was 57.21±12.99 years**.** The number of pixels was reduced from the initial value by -0.55%±0.77% every year in DN and −0.76%±0.86% in DG. In the DN group, 79.68% of the cases presented a negative slope in the number of vascular pixels, while in the DG group 82.96% of the cases presented with this slope (p=0.0015). Patients included in the DN group had an initial vertical cup-to-disc ratio of 0.4073±0.1322, while those in the DG group had a ratio of 0.5670±0.1080.

At the beginning of the series, the rim occupied 76.55%±11.13% of the disc area in the DN group and 62.05%±11.00% in DG, this figure decreased annually from the initial value by −0.33%±0.86% in the DN group and −0.68%±1.08%. As shown in figure 2 rim reduced over time in the DG group, particularly in the super temporal and infratemporal zones. In the DN group, the reduction was smaller in all sectors; however, progressive thickening of the temporal sector (311°–40°) was observed. The percentage area of the rim was reduced in 63.90% of the DN cases and 69.26% of the DG cases ($p<0.0001$)

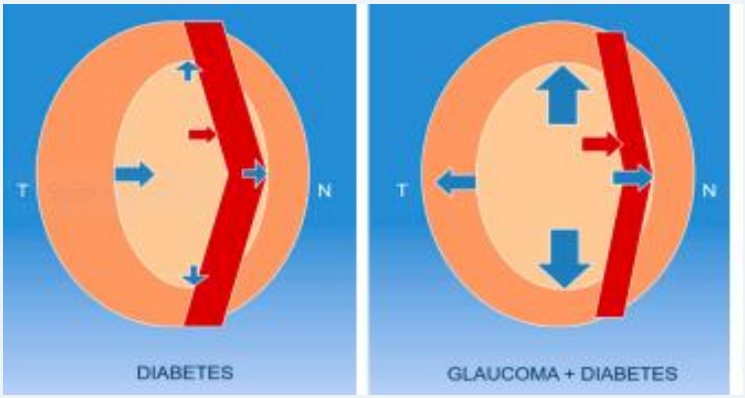

Figure:2- Diagram of vascular and rim changes

This study suggests that Patients with diabetes show a progressive reduction of the vascular calibre at the optic disc throughout their evolution, which is more important in the case of diabetes associated with glaucoma. Reduction of the neuro-retinal rim is also high in the presence of glaucoma.

CONCLUSION:

Study concludes that progressive deterioration of the optic disc vessels, as in other parts of the eye was seen in patients with diabetes. Patients with diabetes show progressive reduction of vessels and neuro-retinal rim at the optic disc, which is more vigorous in association with glaucoma.

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Bilateral posterior scleritis followed by sequential bilateral cataract surgery

INTRODUCTION:

Posterior scleritis is the rarest among scleritis characterised by inflammatory ophthalmic disease, and can cause severe visual impairment if not treated adequately[1]. Frequency of posterior scleritis has been reported to be 2–12% of all scleritis and its clinical features may be confused with those of acute orbital inflammation, intraocular inflammation, and ocular tumours. A wide range of physical signs are present in eyes with posterior scleritis such as retinal striate, choroidal folds, serous retinal detachment, swollen optic disk, retinal pigment epithelial changes, and choroidal detachment[2]. Ando, M Due to its plethora of presentations and rare occurrence, diagnosis of posterior scleritis remains difficult. Many of the times diagnosis of posterior scleritis is not considered or posterior scleritis is misdiagnosed as some other clinical entity. Amitabh Kumar. As Cataract surgery is the most common surgical intervention in the world, and is highly cost-effective intervention with substantial quality of life gains on offer for patients, both for first and second eye surgeries. Buchan. The aim of this study is to discusses a case of bilateral posterior scleritis, after cataract surgery in both the eyes, treated with high-dose steroids.

CASE REPORT:

A 55-year-old male patient presented to the hospital with ocular pain and sudden bilateral vision deterioration and the Phacoemulsifcation with intraocular lens implantation had been performed for cataract, one week before in the left eye and two weeks before in the right eye. Other than bilateral cataracts, and there were no complications during surgery during the ophthalmic examinations. No specific family history or neurological symptoms were reported.

The last measured best corrected visual acuity (BCVA) in the outpatient department after cataract surgery was 20/20 in the right eye and 20/25 in the left eye. However, after the decrease in visual acuity in both the eyes, the BCVA was 20/100 in the right eye and 20/125 in the left eye. The intraocular pressure measured bilaterally with a Goldman tonometer was 11mmHg. Conjunctival and episcleral injection was shown in both eyes without ocular movement limitation in either eye. No abnormalities of the cornea and the intraocular lens, or anterior inflammation was noted.

In fluorescein angiography (FA) and indocyanine green angiography (ICGA), there was no particular hyper fluorescein lesion or hot spot in the early phase but during the late phase of FA and ICGA, multiple areas of fluorescein pooling in macular area and fluorescein leakage of optic nerve, retina and choroid were noted. Along with this, identified choroidal staining spots were

seen in late phase of FA and ICGA, which are not shown in early phase and not associated with fluorescein pooling area. Ultrasound confirmed thickening of the sclera and choroid and fat-suppressed T1-weighted magnetic resonance imaging (MRI) revealed bilateral thickening and signal enhancement of the sclera as shown in figure 3.

Based on the diagnosis of bilateral revealed a retinal lift with slight retinal thinning and choroidal thickening with some choroidal large vessel, high-dose systemic steroid treatment was given to patient. posterior scleritis. Methylprednisolone 1 g/day was administered intravenously, amounting to a total of 3 g in 3 days and oral prednisolone was given at a dose of 60 mg/day and reduced by 10 mg/day at 1-week intervals. BCVA improved to 20/25 in both eyes after one week of high-dose steroid treatment. Three months after the start of treatment, the BCVA improved to 20/20 in both eyes. And the patient is being followed up, and there has been no relapse or worsening over a period of one year.

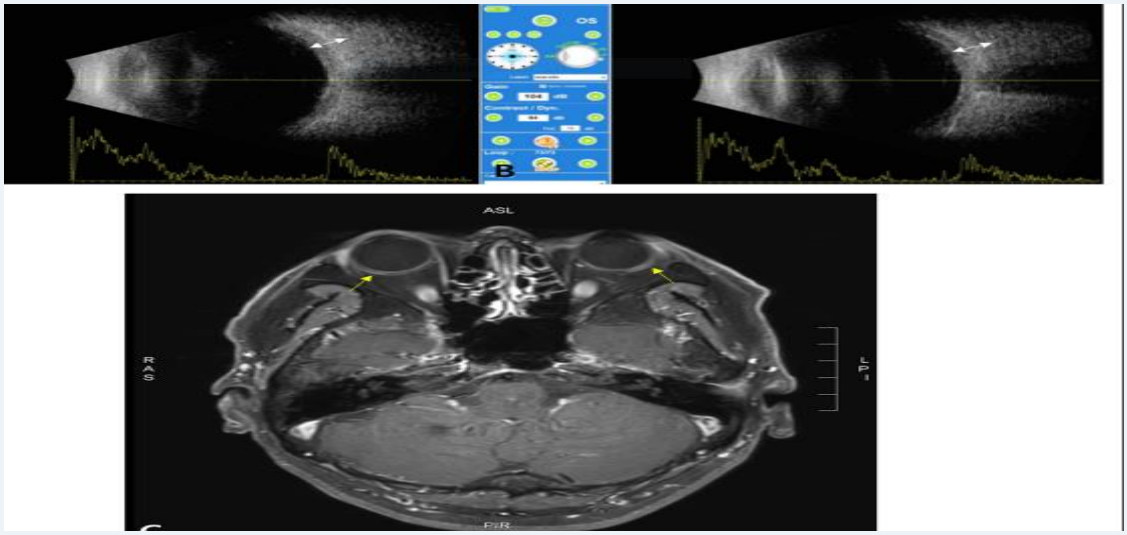

Figure:3 Thickening of choroid and sclera

CONCLUSION:

A case report on bilateral posterior scleritis occurring after sequential bilateral cataract surgery was discussed. Study suggests that rapid treatment with high-dose systemic steroids with tapered per oral steroid medication was successful in controlling inflammation and preventing relapse.

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