ABC of Ophthalmology

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GENERAL MEDICINE AND VISUAL SIDE EFFECTS

Blurring: the major presenting symptom

Many general diseases may affect the eye or present with ocular signs (see list). For example, thyroid disease may present with double vision as the primary complaint, and many of the collagen diseases present primarily with eye signs. Conditions such as Still's disease, spondylitis, and other rheumatoid conditions may be heralded by visual changes caused by uveitis and choroiditis.

Nearly all the ocular conditions mentioned are described by the patient as blurring of vision—if they are mentioned at all. Patients often think that eye disorders are a natural expectation in the course of a general disease. Therefore thorough case-history taking should include a specific reference to vision. Many of these conditions are potentially blinding if unrecognised and untreated.

Disease	Common ocular manifestations
Acne rosacea	Corneal vascularisation and ulceration
Anaemia	Ocular muscle imbalance, intraocular haemorrhages
Ankylosing spondylitis	Intraocular inflammation (uveitis)
Carotid insufficiency	Transient visual loss
Cerebral arteriosclerosis (stroke)	Field loss, visual agnosia
Cervical sympathetic malfunction	Drooping lid, small pupil, retraction of globe (Horner's syndrome)
Cranial arteritis	Sudden permanent loss of vision, cataracts, intraocular haemorrhage, retinal disease
Diabetes	Cataracts, intraocular haemorrhage, retinal disease
Multiple (disseminated) sclerosis	Nystagmus, double vision, visual loss
Facial palsy	Lid closure fails, lacrimation, corneal damage
Gonorrhoea	Conjunctivitis, iritis
Herpes zoster	Pain and swelling of lids and conjunctiva, corneal damage, intraocular inflammation
Hypertension	Variable visual loss—intermittent or permanent
Maternal rubella	Congenital cataract, microphthalmos
Myasthenia gravis	Transient or recurrent double vision
Rheumatic diseases	Sore, dry eyes, iritis, episcleritis, post uveitis
Sarcoidosis	Conjunctival nodules, uveitis
Sinusitis	Orbital pain, protrusion of globe, double vision
Thyroid disease (excess)	Protrusion of globe, double vision, corneal ulceration
Thyroid disease (deficiency)	Mild swelling of lids
Trigeminal neuralgia	Pain in and around eye and orbit
Trigeminal neuralgia (treatment of)	Anaesthetic cornea

Diabetes deserves special mention. Its ocular complications occur earlier if it is inadequately controlled. Nevertheless, even if it is properly controlled the longer a patient has been diabetic the more likely visual symptoms are. Young diabetics are therefore more likely to suffer serious visual disorders eventually and need watching more closely than those with maturity-onset diabetes. Transient visual difficulties often occur during stabilisation.

Iatrogenic disorders

There are two main types of iatrogenic conditions. Firstly, those caused by local treatment and, secondly, those caused by systemic treatment of other diseases.

Apart from allergies to local treatment and the abuse of steroid drops, uncontrolled dabbling with pupil size can be hazardous. If the pupil is dilated with a weak mydriatic for examination it should always be restored to normal by a constrictor immediately after the examination; 2% pilocarpine is suitable. In older people a dilated pupil may cause a dangerous rise in intraocular tension, if it is not neutralised. A constricted pupil is not in itself dangerous, though it may exacerbate some conditions, such as iritis or uveitis. Atropine cannot be simply neutralised, and if it is applied locally to examine the eyes of young children it may cause hallucinations and nightmares.

The side effects of treatment of systemic diseases—for example, the ocular effects of practolol—are true hazards.

The risk of visual impairment by general treatment is exemplified by the use of life-saving oxygen in the newly born. Oxygen in high saturation used to be given without monitoring to premature babies, but it was later found to cause blindness. The lesion (retrolental fibroplasia) still occurs because of the choice at birth of “hyperoxygenation” or death in some cases.

The full list of drugs that may have visual effects is daunting (see Appendix). In general, visual complications of drug treatment tend not to arise in children or young adults, so the problem is one of middle and old age. Nearly all these drugs produce, among other effects, blurring of vision; this is serious only when it is irreversible. In people being treated with any of these drugs, medical ophthalmological advice should be sought if any visual symptoms occur, rather than look for better glasses.

Patients with unsuspected glaucoma most at risk

The patients who most commonly suffer are those with undiagnosed or incipient glaucoma, which may be precipitated or aggravated by drug treatment, especially in those with a family history. The drugs that most commonly precipitate glaucoma are anticholinergic preparations, especially those containing atropine or hyoscine. These drugs are mainly used for alimentary antispasmodics, in Parkinsonism, asthma, and travel sickness. Single-dose use, such as before an operation, is unlikely to provoke more than transient visual symptoms.

The middle-aged and elderly with chronic disease and receiving long-term treatment are those most at risk. They are also least likely to mention new visual symptoms, because they assume it is part of the disease or that something is wrong with their glasses.

Some of the drugs are safe in narrow-angle as opposed to wide-angle glaucoma and others the reverse, so it is best to ignore this distinction and seek an ophthalmological opinion when in doubt.

Any drug that is contraindicated in glaucoma should also be considered to be contraindicated in those who are predisposed to glaucoma. Preoperative injections of atropine may also be unwise in such people.

Steroids

Locally steroids are extremely valuable, but they carry the risk of delaying healing, particularly of corneal lesions of viral origin. It is therefore unfortunate that so many local preparations should combine steroids with antibiotics. The use of steroids locally or systemically may increase intraocular pressure, so they should not be used in people who already have raised tension without collaboration with an ophthalmologist.

The clinical evidence that long-term treatment with systemic steroids causes cataracts is tenuous, and need not be the decisive factor in deciding whether to continue treatment. Nevertheless, once lens opacities have formed, yearly (or more frequent) ophthalmological surveillance is needed.

Chronic disease: long-term treatment

Chloroquine retinopathy

Chloroquine and similar drugs for malaria and liver abscesses are seldom used long enough for visual problems to arise. When their use is contemplated for longer periods, however, as in rheumatoid arthritis, irreversible damage may occur to the retina. Ophthalmological advice is essential in the event of visual symptoms and sensible before starting treatment.

Ethambutol is another drug which used long term is very likely to produce visual disturbance and possibly permanent visual loss due to a toxic effect on the retina. One difficulty that arises in chronic conditions where treatment is prolonged is that of assessing cause and effect. Most people on long-term treatment for conditions such as rheumatoid arthritis are of an age when degenerative eye changes occur naturally. It may therefore be hard to determine whether changes are caused by the treatment or not. But nothing is lost by looking out for visual changes whether degenerative or drug-induced.

The medicolegal consequences of drug induced visual loss may well be indefensible, and it is therefore sensible to obtain an ophthalmological opinion when symptoms present themselves in patients suffering from chronic systemic diseases.

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The photographs of thyroid exophthalmos, diabetic retinopathy, and chloroquine retinopathy were reproduced by permission of the Institute of Ophthalmology; that of practolol-induced eye damage by kind permission of Mr Peter Wright.

The 13 articles in this series are being collected together into a book, which will be published at the end of March 1979.

Appendix

Drugs that may have visual effects

Drug	Predisposes to:					Drug	Predisposes to:				
	Blurring	Glaucoma	Retinal disease	Cataracts	Corneal and conjunctival damage		Blurring	Glaucoma	Retinal disease	Cataracts	Corneal and conjunctival damage
amitriptyline hydrochloride ..	S	+				nalidixic acid ..	T				
Anovlar (norethisterone, ethinyloestradiol) ..	T					Neutradonna (aluminium sodium silicate, belladonna alkaloids) ..	S	+			
Bellergal (belladonna, ergotamine, phenobarbitone)	S	+				Norinyl (norethisterone, mestranol) ..	T				
benzhexol hydrochloride ..	S	+				nortriptyline hydrochloride ..	S	+			
betamethasone ..	S	+		+		Orgaine (ergotamine tartrate, caffeine, hyoscyamine, atropine, phenacetin) ..	S	+			
biperiden lactate ..	S	+				orphenadrine citrate ..	S	+			
clomipramine hydrochloride ..	S	+				orphenadrine hydrochloride ..	S	+			
chloramphenicol ..	S		+			oxprenolol hydrochloride ..	S	+			
chloroquine phosphate ..	S		+			pentaerythritol tetranitrate ..	T				
chloroquine sulphate ..	S		+			pentolinium tartrate ..	T				
chlorpromazine hydrochloride ..	S			+	+	perphenazine ..	T				
desipramine hydrochloride ..	S	+				phenelzine sulphate ..	T				
dicyclamine hydrochloride ..	S	+				phenylpropanolamine hydrochloride ..	S	+			
digitalis ..			+			phenytoin sodium ..	T				
digoxin ..			+			pipenzolate bromide ..	S	+			
diphenhydramine hydrochloride	T					poldine methylsulphate ..	S	+			
Donnatal (hyoscyamine, atropine, hyoscine, phenobarbitone) ..	S	+				prednisolone sodium phosphate ..	S			+	+
dothiepin hydrochloride ..	S	+				prochlorperazine mesylate ..	S	+			
emepromium bromide ..	S	+				procyclidine hydrochloride ..	S	+			
ethambutol ..	T		+			promazine hydrochloride ..	S	+			
ethopropazine hydrochloride ..	T					propanteline bromide ..	S	+			
ethotoin ..	T					propranolol ..	S				
flavoxate hydrochloride ..	S		+			protriptyline hydrochloride ..	S	+			
glyceryl trinitrate ..	S		+			quinidine sulphate ..	T		+		
glycopyrronium bromide ..	S		+			quinine ..	T				
imipramine ..	T		+			sodium fusidate ..	S	+			
indomethacin ..	T				+	sorbide nitrate ..	S	+			
isocarboxazid ..	T					thiethylperazine ..	S			+	+
isopropamide iodide ..	T	+				thiopropazate hydrochloride ..	S		+		
lanatoside C ..	S	+				thioridazine hydrochloride ..	S				
levodopa ..	S	+				tranylcypromine sulphate ..	S				
Libraxin (clidinium, chlordiazepoxide) ..	S	+				trifluoperazine hydrochloride ..	S	+		+	
meprobamate ..	T					trimipramine maleate ..	S	+			
mepyramine maleate ..	T					troloxone ..	S	+			
metoprolol tartrate ..	T										
methixene hydrochloride ..	S	+									

S = Significant blurring. T = Transient blurring.