



Title	Optical Coherence Tomography of the Posterior Segment of the Eye
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Aim

To assess the clinical utility of optical coherence tomography (OCT) in diagnosing diseases of the retinal macula and optical papilla.

Conclusions and results

HAS considered the following indications for OCT (a non-invasive, contact-free imaging technique that uses refraction of laser beams):

1. *Age-related macular degeneration (ARMD)*: OCT was found to be highly sensitive (78.6% to 87%) but moderately specific (66% to 89%) in diagnosing choroidal neovessels in patients with ARMD. It is an adjunct to the standard procedure (angiography) in diagnosing retinal or choroidal neovessels. It can be used as an alternative or adjunct to angiography when monitoring ARMD, particularly when assessing treatment effects.
2. *Macular edema and diabetic retinopathy (DR)*: OCT was found to be highly sensitive (72.2% to 98.4%) and highly specific (81% to 95%) in diagnosing macular edema (in diabetic and non-diabetic patients). It is a first-line procedure for diagnosing macular edemas and for pre- and post-treatment monitoring of the condition. Color stereophotographic retinography of the fundus oculi can be performed as an alternative or adjunct to OCT during diagnosis.

OCT can also be used to monitor DR, particularly as an adjunct to the standard procedure (angiography) when diagnosing retinal or choroidal neovessels and as an alternative or adjunct to angiography when monitoring neovessels. OCT is also a first-line procedure when diagnosing and monitoring diabetic macular edemas.
3. *Diseases of the vitreoretinal interface*: OCT is performed as a first-line procedure in diagnosing diseases of the vitreoretinal surface, particularly macular holes, pseudo-holes, lamellar holes and epiretinal membranes, and for pre- and post-treatment monitoring of these conditions.

4. *Severe myopia with choroidal neovessels*: OCT was found to be highly sensitive (78.6% to 87%), but moderately specific (66% to 89%). It is an adjunct to the standard procedure (angiography) during diagnosis and monitoring.
5. *Open-angle glaucoma*: When used to diagnose open-angle glaucoma, OCT was:
 - effective in establishing a diagnosis in patients with suspected glaucoma;
 - very effective in discriminating between eyes with and without glaucoma. Efficacy increased as disease severity increased;
 - effective in discriminating between early, moderate, and severe glaucoma.

OCT can be used as an adjunct to perimetry, tonometry, and gonioscopy in diagnosing and monitoring open-angle glaucoma. It cannot be used alone to screen for open-angle glaucoma.

HAS concluded that the clinical utility of this procedure is sufficient.

Methods

The assessment was based on a critical appraisal of the literature (main medical bibliographical databases; 1996–2007) and the opinion of 4 experts (ophthalmologists).

Further research/reviews required

The experts considered that additional studies comparing OCT with the use of antiangiogenic molecules to treat ARMD were needed and that economic studies on OCT would be of value. HAS did not assess the expected benefit of OCT for the anterior segment of the eye. However, an assessment will probably soon be necessary given the many publications already available.