

Corporate Medical Policy

Anterior Eye Segment Optical Imaging

File Name:	anterior_eye_segment_optical_imaging
Origination:	2/2010
Last CAP Review:	6/2011
Next CAP Review:	6/2012
Last Review:	6/2011

Description of Procedure or Service

Optical coherence tomography (OCT) is a high resolution method of imaging the ocular structures. OCT for the anterior eye segment is being evaluated as a rapid and non-invasive diagnostic and screening tool for the detection of angle closure glaucoma. It is also being evaluated to assess corneal thickness, lens thickness, evaluate postsurgical anterior chamber anatomy, and to image phakic intraocular lenses and intracorneal ring segments.

The classification of glaucoma (primary open-angle or angle-closure) relies heavily upon knowledge of the anterior segment anatomy, particularly that of the anterior chamber angle. Angle-closure glaucoma is characterized by obstruction of aqueous fluid drainage through the trabecular meshwork (the primary fluid egress site) from the eye's anterior chamber. The width of the angle is one factor affecting the drainage of aqueous humor. A wide unobstructed iridocorneal angle allows sufficient drainage of aqueous humor, whereas a narrow angle may impede the drainage system and leave the patient susceptible to angle-closure glaucoma. The treatment for this condition is a peripheral iridotomy (laser) or peripheral iridectomy (surgery). Slit lamp biomicroscopy is used to evaluate the anterior chamber; however, the chamber angle can only be examined with specialized lenses, the most common of these being the gonioscopic mirror. In this procedure a gonio lens is applied to the surface of the cornea under topical anesthesia and the image magnified with the slit lamp. Gonioscopy is the standard method for clinically assessing the anterior chamber angle. Other techniques for imaging the anterior eye segment include ultrasonography and OCT.

Ultrasonography uses high frequency mechanical pulses (10 to 20 MHz) to build up a picture of the front of the eye. An ultrasound scan along the optical axis assesses corneal thickness, anterior chamber depth, lens thickness and axial length. Ultrasound scanning across the eye creates a two-dimensional image of the ocular structures. It has a resolution of 100 microns, but only moderately high intra-observer and low inter-observer reproducibility. Ultrasound biomicroscopy (about 50 MHz) has a resolution of 30 to 50 microns. As with gonioscopy, this technique requires placement of a probe under topical anesthesia.

OCT is a non-invasive method that creates an image of light reflected from the ocular structures. In this technique a reflected light beam interacts with a reference light beam. The coherent (positive) interference between the two beams (reflected and reference) is measured by an interferometer, allowing construction of an image of the ocular structures. This method allows cross-sectional imaging at a resolution of 6 to 25 microns. The Stratus OCT™ (Carl Zeiss Meditec), which utilizes a 0.8 micron wavelength light source, was designed for evaluating the optic nerve head, retinal nerve fiber layer and retinal thickness. The Zeiss Visante OCT™ and AC Cornea OCT (Ophthalmic Technologies) use a 1.3 micron wavelength light source designed specifically for imaging the anterior eye segment. Light of this wavelength penetrates the sclera, allowing high-resolution cross-sectional imaging of the anterior chamber angle and ciliary body. The light is, however, typically blocked by pigment, preventing exploration behind the iris. Ultrahigh resolution OCT can achieve a spatial resolution of 1.3 microns, allowing imaging and measurement of corneal layers.

Anterior Eye Segment Optical Imaging

An early application of OCT technology was the evaluation of the cornea before and after refractive surgery. OCT is also commonly used to image the retina. Since this is a non-invasive procedure that can be conducted by a technician, it has been proposed that this device may provide a rapid diagnostic and screening tool for the detection of angle closure in glaucoma. Also being investigated is the possibility that the 0.8 micron wavelength Stratus OCT, which is already available in a number of eye departments, may provide sufficient detail for routine clinical assessment of the anterior chamber angle in glaucoma patients. Add-on lens are also available for imaging the anterior segment with OCT devices designed for posterior segment imaging.

Regulatory Status

The Visante OCT received marketing clearance through the U.S Food and Drug Administration (FDA) 510(k) process in 2005, listing the Stratus OCT and Orbscan™ II as predicate devices. The 510(k) summary describes the Visante OCT as “a non-contact, high resolution tomographic and biomicroscopic device indicated for the in vivo imaging and measurement of ocular structures in the anterior segment, such as corneal and LASIK flap thickness.”

The AC Cornea OCT from Canada is not cleared for marketing in the U.S

*****Note: This Medical Policy is complex and technical. For questions concerning the technical language and/or specific clinical indications for its use, please consult your physician.**

Policy

BCBSNC will **not** provide coverage for scanning computerized ophthalmic (e.g., OCT) imaging of the anterior eye segment because it is considered investigational. BCBSNC does not cover investigational services.

Benefits Application

This medical policy relates only to the services or supplies described herein. Please refer to the Member's Benefit Booklet for availability of benefits. Member's benefits may vary according to benefit design; therefore member benefit language should be reviewed before applying the terms of this medical policy.

When Anterior Eye Segment Optical Imaging is covered

Not applicable.

When Anterior Eye Segment Optical Imaging is not covered

Scanning computerized ophthalmic (e.g., OCT) imaging of the anterior eye segment is considered **investigational**.

Policy Guidelines

Ideally, a diagnostic test would be evaluated based on its technical performance, diagnostic performance (sensitivity and specificity) and clinical validity. Current literature consists primarily of assessments of qualitative and quantitative imaging and detection capabilities. Technically, the Visante OCT has the ability to create high resolution images of the anterior eye segment. Studies indicate that the Visante OCT detects more eyes with narrow or closed angles than gonioscopy, showing high sensitivity and low specificity in comparison with the reference standard. However, if the reference standard is flawed (e.g., does not detect all cases), the information provided by sensitivity and specificity is limited.

Evaluation of the diagnostic performance of anterior segment OCT depends, therefore, on demonstration of an improvement in clinical outcomes. Although the resolution of the images and the ease of use might

Anterior Eye Segment Optical Imaging

be considered advantageous, evidence is insufficient to determine whether use of OCT can improve detection and management of patients at risk of developing primary angle-closure glaucoma. In addition, OCT imaging appears to be limited in comparison with ultrasound biomicroscopy for other pathologic conditions of the anterior segment. Given the number of questions regarding the impact of this new technology on health outcomes, this procedure is considered investigational.

Billing/Coding/Physician Documentation Information

This policy may apply to the following codes. Inclusion of a code in this section does not guarantee that it will be reimbursed. For further information on reimbursement guidelines, please see Administrative Policies on the Blue Cross Blue Shield of North Carolina web site at www.bcbsnc.com. They are listed in the Category Search on the Medical Policy search page.

Applicable codes: 92132, 92227, 92228

BCBSNC may request medical records for determination of medical necessity. When medical records are requested, letters of support and/or explanation are often useful, but are not sufficient documentation unless all specific information needed to make a medical necessity determination is included.

Scientific Background and Reference Sources

BCBSA Medical Policy Reference Manual [Electronic Version]. 9.03.18, 12/10/09.

Senior Medical Director review - 1/14/2010

BCBSA Medical Policy Reference Manual [Electronic Version]. 9.03.18, 2/10/2011.

Specialty Matched Consultant Advisory Panel review -6/2011.

Policy Implementation/Update Information

- | | |
|----------|---|
| 3/2/2010 | Notification of new policy. Scanning computerized ophthalmic (e.g., OCT) imaging of the anterior eye segment is considered investigational. Notification given 3/2/2010. Effective date 6/8/2010. |
| 1/4/11 | Added new CPT codes 92132, 92227, 92228. Removed deleted CPT code 0187T. (lpr) |
| 7/19/11 | Specialty Matched Consultant Advisory Panel review 6/29/2011. Policy statement unchanged. Reference added. (lpr) |

Medical policy is not an authorization, certification, explanation of benefits or a contract. Benefits and eligibility are determined before medical guidelines and payment guidelines are applied. Benefits are determined by the group contract and subscriber certificate that is in effect at the time services are rendered. This document is solely provided for informational purposes only and is based on research of current medical literature and review of common medical practices in the treatment and diagnosis of disease. Medical practices and knowledge are constantly changing and BCBSNC reserves the right to review and revise its medical policies periodically.