



Complete Summary

GUIDELINE TITLE

Corneal opacification and ectasia.

BIBLIOGRAPHIC SOURCE(S)

American Academy of Ophthalmology (AAO). Corneal opacification and ectasia. San Francisco (CA): American Academy of Ophthalmology (AAO); 2000 Sep. 21 p. [27 references]

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SCOPE

DISEASE/CONDITION(S)

Corneal opacification and ectasia

GUIDELINE CATEGORY

Diagnosis
Evaluation
Management
Treatment

CLINICAL SPECIALTY

Ophthalmology

INTENDED USERS

Health Plans
Physicians

GUIDELINE OBJECTIVE(S)

To improve visual function and thus the quality of life as perceived by the patient by addressing the following goals:

- Determine the patient's perception of visual impairment and its effect on life-style.
- Quantify visual loss.
- Evaluate functional impairment.
- Evaluate the cause and extent of the opacity or ectasia.
- Assess the potential for progression or improvement of visual impairment.
- Evaluate the potential for restoring vision.
- Formulate a therapeutic strategy, including optical, medical and surgical alternatives.
- Educate and counsel the patient about the corneal abnormality, including the therapeutic choices, prognosis, genetic counseling (if appropriate), the possibility of surgical complications and postoperative problems, and patient responsibility in the treatment.
- Institute and carry out all appropriate nonsurgical therapy.
- Perform surgery, including penetrating keratoplasty (PK), when indicated and if desired by the informed patient.
- Maximize visual rehabilitation by providing short- and long-term postoperative care as well as treatment of complications and recurrent disease. Provide optical correction as soon as feasible with spectacles or contact lenses.
- Improve disfigurement.

TARGET POPULATION

Individuals of all ages with corneal opacification or ectasia

INTERVENTIONS AND PRACTICES CONSIDERED

Diagnosis

- Comprehensive eye evaluation
- Detailed history
- Examination (e.g., visual acuity, pupillary function, ocular motility, external examination, slit-lamp biomicroscopy, intraocular pressure, fundus)
- Diagnostic/ancillary tests (keratometry, tear film evaluation, specular microscopy, pachometry, fluorescein angiography, B-scan ultrasonography, gonioscopy)

Treatment

- Optical correction
- Medical therapy
- Surgical treatment, including optical iridectomy; chemical treatment/ethylene diamine tetra-acetic acid (EDTA) chelation; limbal stem cell graft; mechanical superficial, phototherapeutic and lamellar keratectomy; lamellar keratoplasty; keratoprosthesis

- Penetrating keratoplasty or corneal transplantation, including: indications, contraindications, preoperative preparation, complications, and postoperative care
- Surgical procedures to reduce the pain of corneal edema (thermocautery, stromal puncture, conjunctival flap)

Counseling and Patient Education

MAJOR OUTCOMES CONSIDERED

- Restoration of optimal visual acuity and function, and optimization of refractive status of the cornea
- Improvement in functional status of the patient
- Restoration of corneal clarity
- Relief of pain
- Prevention of complications such as secondary infection
- Minimization of systemic and ocular morbidity from medical and surgical treatments

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

In the process of revising the original document, a detailed literature search of MEDLINE for articles in the English language was conducted on the subject of corneal opacification and ectasia for the years 1995 to April 2000.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Ratings of strength of evidence:

I - Level I includes evidence obtained from at least one properly conducted, well-designed randomized controlled trial. It could include meta-analysis of randomized controlled trials.

II - Level II includes evidence obtained from the following:

- Well-designed controlled trials without randomization
- Well-designed cohort or case-control analytic studies, preferably from more than one center
- Multiple-time series with or without the intervention

III - Level III includes evidence obtained from one of the following:

- Descriptive studies
- Case reports
- Reports of expert committees/organization
- Expert opinion (e.g., Preferred Practice Pattern Panel consensus)

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

The results of a literature search on the subject of corneal opacification and ectasia were reviewed by the Cornea/External Disease Panel and used to prepare the recommendations, which they rated in two ways. The panel first rated each recommendation according to its importance to the care process. This "importance to the care process" rating represents care that the panel thought would improve the quality of the patient's care in a meaningful way. The panel also rated each recommendation on the strength of the evidence in the available literature to support the recommendation made.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Ratings of importance to care process

- Level A, most important
- Level B, moderately important
- Level C, relevant, but not critical

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Guideline drafts are sent for review to national medical organizations such as the American Medical Association and the American Academy of Family Practice, to ophthalmic organizations, and to other groups depending on the subject. Comments made by these reviewers are considered by the guideline authors.

These guidelines were reviewed by Council and approved by the Board of Trustees of the American Academy of Ophthalmology (February, 2000). All Preferred Practice Patterns are reviewed by their parent panel annually or earlier if developments warrant.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Ratings of importance (A-C), and ratings of strength of evidence (I-III), are defined at the end of the Major Recommendations field.

Diagnosis

Evaluation of the patient includes features of the comprehensive medical eye evaluation relevant to corneal opacification and ectasia.

History

The patient's perception of the nature and severity of the visual loss and its impact on quality of life or ability to function is an essential component of the evaluation of a corneal opacity and ectasia. The history includes the following pertinent information:

- Ocular symptoms [A: III]
- Review of prior ocular history [A: III]
- Status of visual function [A: III]
- Review of other medical problems [A: III]
- Current medications [A: III]
- Family history [A: III]

Examination

The physical examination includes the following elements:

- Visual acuity [A: III]
- Pupillary function [A: III]
- Ocular motility [A: III]

External Examination

An external examination should be performed, with particular attention to the following:

- General appearance of the patient [B: III]
- Facial examination [B: III]
- Eyelids [A: III]
- Nasolacrimal apparatus [A: III]
- Corneal sensation [A: III]

Slit-lamp Biomicroscopy

- Tear film [A: III]
- Eyelid margins [A: III]
- Conjunctiva [A: III]
- Sclera [A: III]
- Cornea [A: III]
- Anterior chamber [A: III]
- Iris [A: III]
- Lens [A: III]
- Anterior vitreous [A: III]

Intraocular Pressure [A: III]

Fundus [A: III]

- Optic nerve (pallor, cupping)
- Macular edema, scars, holes/pseudo-holes
- Neovascularization
- Red reflex, retinal breaks or detachments
- Exudates

Treatment

- The ophthalmologist should provide the patient with a comprehensive explanation of the problem based on a review of the history and findings. [A: III]
- Functional and visual needs will vary from individual to individual, and these needs must be considered when discussing treatment alternatives. [A: III]
- Treatment alternatives and preoperative preparation recommendations are described in detail in the original guideline document.

Postoperative Care following Penetrating Keratoplasty

Postoperative care recommendations are described in detail in the original guideline document. Components of the postoperative examination should include:

- Interval history [A: III]
- Measurement of visual acuity [A: III]
- Slit-lamp biomicroscopy [A: III]
- Intraocular pressure measurement [B: III]

Fundus examination should be performed at least once postoperatively and also when posterior segment pathology is suspected. [A:III]

Young children who are at risk of developing amblyopia should have optical correction prescribed as soon as possible to minimize amblyopia. [A:III]

Patients should be instructed to see an ophthalmologist promptly if symptoms of ocular irritation, redness, foreign body sensation, or blurred vision develop, because they could indicate allograft rejection or corneal infection. [A:III] Patients should be instructed to wear safety glasses when participating in rigorous or contact sports. [A:III]

Provider

The interpretation of results and the medical, surgical, and postoperative management of the disease require the high degree of medical training, clinical judgment, and experience of the ophthalmologist. [A:III]

Counseling/Referral

Patients who undergo penetrating keratoplasty should be educated about the symptoms of corneal transplant rejection, the need for eye protection, physical restrictions, medications, anticipated schedule of follow-up visits, and details for access to emergency care. [A:III]

Patients with corneal opacities or ectasia causing significant visual impairment or blindness who do not respond to appropriate medical or surgical therapy are candidates for vision rehabilitation and social services. [A:III]

Ratings of importance:

Level A, defined as most important

Level B, defined as moderately important

Level C, defined as relevant, but not critical

Ratings of strength of evidence:

I - Level I includes evidence obtained from at least one properly conducted, well-designed randomized controlled trial. It could include meta-analysis of randomized controlled trials.

II - Level II includes evidence obtained from the following:

- Well-designed controlled trials without randomization
- Well-designed cohort or case-control analytic studies, preferably from more than one center
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III - Level III includes evidence obtained from one of the following:

- Descriptive studies

- Case reports
- Reports of expert committees/organization
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CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Improve visual function and thus the quality of life as perceived by the patient.

POTENTIAL HARMS

Complications may occur at any time during or following penetrating keratoplasty; the patient should be made aware of this fact and should agree to a lifelong commitment of compliance and follow-up. The patient must accept the risks inherent in corneal surgery and its sequelae.

Intraoperative complications range in severity from those that are remediable by immediate medical or surgical treatment (e.g., eyes with increased pressure, choroidal detachment, inadequate sutures) to those that lead to loss of the eye (e.g., expulsive hemorrhage), and to those rare complications of anesthesia that lead to loss of life (e.g., cardiac arrest).

QUALIFYING STATEMENTS

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Preferred Practice Patterns provide guidance for the pattern of practice, not for the care of a particular individual. While they should generally meet the needs of most patients, they cannot possibly best meet the needs of all patients. Depending on a host of medical and social variables, it is anticipated that it will be necessary to approach some patients needs in different ways. The ultimate judgment regarding the propriety of the care of a particular patient must be made by the physician in light of all the circumstances presented by the patient. Adherence to these Preferred Practice Patterns will certainly not ensure a successful outcome in every situation. These guidelines should not be deemed inclusive of all proper methods of care or exclusive of other methods of care reasonably directed at obtaining the best results.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

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ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2000 Sep

GUIDELINE DEVELOPER(S)

American Academy of Ophthalmology - Medical Specialty Society

SOURCE(S) OF FUNDING

American Academy of Ophthalmology (AAO)

GUIDELINE COMMITTEE

Cornea/External Disease Panel; Preferred Practice Patterns Committee

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

This document is valid for 5 years from the date released unless superseded by a revision. All Preferred Practice Patterns are reviewed by their parent panel annually or earlier if developments warrant.

GUIDELINE AVAILABILITY

Electronic copies: Available from the [American Academy of Ophthalmology \(AAO\) Web site](#).

Print copies: Available from American Academy of Ophthalmology, P.O. Box 7424, San Francisco, CA 94120-7424; telephone, (415) 561-8540.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on June 30, 1998. The information was verified by the guideline developer on December 1, 1998. The summary was updated by ECRI on January 29, 2001. The updated information was verified by the guideline developer on March 12, 2001.

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