Complete Summary

GUIDELINE TITLE

Idiopathic macular hole.

BIBLIOGRAPHIC SOURCE(S)

American Academy of Ophthalmology Retina Panel, Preferred Practice Patterns Committee. Idiopathic macular hole. San Francisco (CA): American Academy of Ophthalmology (AAO); 2003. 17 p. [138 references]

GUIDELINE STATUS

This is the current release of the guideline.

All Preferred Practice Patterns are reviewed by their parent panel annually or earlier if developments warrant.

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SCOPE

DISEASE/CONDITION(S)

Idiopathic macular hole

GUIDELINE CATEGORY

Diagnosis
Evaluation
Treatment

CLINICAL SPECIALTY

Ophthalmology

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

To identify patients who might benefit from macular hole surgery, to inform these patients of the risks and benefits of such surgery, and to perform surgery and follow-up care in appropriate patients to maintain optimal central vision and vision-related quality of life, by addressing the following goals:

- Identify patients at risk for macular hole
- Educate high-risk patients about symptoms of macular hole and about the need for periodic follow-up
- Inform patients of the risks and benefits of macular hole surgery
- Treat appropriate patients who are at risk for visual loss from macular hole

TARGET POPULATION

Individuals who present with symptoms or signs suggestive of idiopathic macular hole

INTERVENTIONS AND PRACTICES CONSIDERED

Diagnosis

1. Comprehensive adult eye examination with complete history
2. Biomicroscopic examination
3. Ancillary tests, including optical coherence tomography

Treatment

1. Vitrectomy techniques, including peeling of the internal limiting membrane (ILM) during surgery
2. Follow-up
3. Counseling and referral, as necessary

MAJOR OUTCOMES CONSIDERED

- Prevention of visual loss and functional impairment
- Improvement of visual function
- Maintenance of quality of life

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

A detailed literature search of articles in the English language was conducted on the subject of macular hole for the years 1968 to 2002.

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-analyses 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 macular hole were reviewed by the Retinal 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

Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

These guidelines were reviewed by Council and approved by the Board of Trustees of the American Academy of Ophthalmology (September 2003). All Preferred Practice Patterns are reviewed by their parent panel annually or earlier if developments warrant and updated accordingly.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The ratings of importance to the care process (A, B, C) and the ratings for strength of evidence (I, II, III) are defined at the end of the "Major Recommendations" field.

Diagnosis

The initial evaluation of a patient with symptoms and signs suggestive of macular hole includes all features of the comprehensive adult medical eye evaluation, with particular attention to those aspects relevant to macular hole.

History

In general, a thorough history includes the following items, although the exact composition varies with the patient's particular problems and needs.

- Duration of symptoms [A:III]

- Ocular history: glaucoma or other prior eye diseases, injuries, surgery, or other treatments [A:III]
- Medications that may be related to macular cysts [A:III]

Examination

- Biomicroscopic examination of the macula and the vitreoretinal interface [A:III]

Treatment

Surgery may be considered for patients with stage 3 and stage 4 holes. [A:I] The evidence for the benefits of surgery for stage 2 holes is inconclusive, but surgery is generally considered in these cases to prevent progression to later stages of disease. [A:III]

The surgeon should inform the patient of the relative risks, benefits, and alternatives to surgery, and in particular of the need for use of expansile intraocular gas or special patient positioning. [A:III] The surgeon has the responsibility for formulating a postoperative care plan and should inform the patient of these arrangements. [A:III]

Follow-up

The patient should be examined postoperatively within 1 or 2 days and again approximately 1 to 2 weeks after surgery. [A:III] The frequency and timing of subsequent postoperative visits varies, depending on the outcome of surgery and the symptoms the patient has. Components of the follow-up examination should include the following:

- Interval history, including new symptoms [A:III]
- Measurement of intraocular pressure [A:III]
- Biomicroscopic examination of the macula [A:III]

Patients who do not have surgery should be examined at the intervals recommended in the American Academy of Ophthalmology's "Comprehensive Adult Medical Eye Evaluation Preferred Practice Pattern." [A:III] They should be advised to contact the ophthalmologist promptly if they develop new symptoms of visual loss. [A:III] For patients with stage 1 holes, follow-up may be conducted more frequently to observe the natural course of these eyes and possibly offer timely surgery if the condition progresses to stage 2. Patients who have had a macular hole in one eye should be informed that they have a 10 to 15% chance over a period of 5 years of macular hole formation in the fellow eye if no posterior vitreous detachment is present and a 2% chance if posterior vitreous detachment is present. [A:III]

Provider

Consultation with or referral to an ophthalmologist who has expertise or experience in managing this condition may be desirable.

Counseling/Referral

Patients should be informed to notify their ophthalmologist promptly if they have symptoms such as an increase in floaters, a loss of visual field, or a decrease in visual acuity. [A:II] Patients should be informed that air travel, high altitudes, or general anesthesia with nitrous oxide should be avoided until the gas tamponade is nearly completely gone. [A:III] Patients with glaucoma should be informed of the possibility of a perioperative increase in intraocular pressure. [A:III] Patients with functionally limiting postoperative visual impairment should be referred for vision rehabilitation and social services. [A:III]

Definitions:

Ratings of Importance to Care Process

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

Ratings of Strength of Evidence

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    - Expert opinion (e.g., Preferred Practice Pattern panel consensus)

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

- The current anatomic success rate of vitreous surgery for idiopathic macular holes as reported in nonrandomized studies is approximately 80 to 100%.
- Recovering visual acuity of 20/40 or better ranges from approximately 25 to 40%.
- Measures of patient satisfaction after surgery conform to the visual and anatomic results.
- If the initial surgery fails, 80 to 100% of holes can be closed with good visual results with additional surgery.

POTENTIAL HARMS

- The 3-year incidence of significant cataract after surgery is more than 75%. Because of this high incidence, some surgeons have advocated combining macular hole surgery with phacoemulsification and placement of an intraocular lens. Such a procedure not only eliminates the need for two operations, but it may also allow a more complete gas fill. The potential complications of combining cataract surgery with vitrectomy include hypotony, intraocular lens iris capture, and increased risk of macular edema in selected patients. Corneal abnormalities may develop after the prolonged time in the operating room that may be needed to complete the surgical procedure. Up to 10% of successfully closed macular holes later reopen and a 4% reopening rate after cataract surgery has been reported.
- Intraoperative retinal tears, most common inferiorly, have been reported in 3 to 17% of macular hole operations. Postoperative retinal detachment has been reported in up to 14% of cases, but most series report an incidence of 1 to 5%. The detachment is typically located inferiorly and caused by small flap tears at the posterior vitreous base. Fortunately, most detachments can be repaired without reopening of the hole.
- Up to 20% of patients note temporal visual field loss after macular hole surgery, which may be caused by dehydration or by mechanical injury to the retina from air streaming from the infusion cannula toward the retina during the air-fluid exchange. Visual field loss potentially can be reduced by secure closure of the sclerotomies to minimize air flow through the sclerotomies during the air-fluid exchange, by leaving a large puddle of fluid posteriorly until the final aspiration, by humidifying the air, or by using a low air pressure during air-fluid exchange.
- Endophthalmitis has been reported after macular hole surgery but is rare.
- Patients who have retinal tamponade achieved by an expanding gas bubble will have limited options for air travel immediately following macular hole surgery when a large gas bubble (75%) is still present. Ascending to altitudes over 3,000 to 4,000 feet for prolonged periods may cause visual deterioration.

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. Adherence to these Preferred Practice Patterns will not ensure a successful outcome in every situation. These practice patterns 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. It may be necessary to approach different patients´ needs in different ways. The physician must make the ultimate judgment about the propriety of the care of a particular patient in light of all of the circumstances presented by that patient. The American Academy of Ophthalmology is available to assist members in resolving ethical dilemmas that arise in the course of ophthalmic practice.

- Preferred Practice Patterns are not medical standards to be adhered to in all individual situations. The Academy specifically disclaims any and all liability for injury or other damages of any kind, from negligence or otherwise, for any and all claims that may arise out of the use of any recommendations or other information contained herein.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

IMPLEMENTATION TOOLS

Personal Digital Assistant (PDA) Downloads
Quick Reference Guides/Physician Guides

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

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American Academy of Ophthalmology Retina Panel, Preferred Practice Patterns Committee. Idiopathic macular hole. San Francisco (CA): American Academy of Ophthalmology (AAO); 2003. 17 p. [138 references]

ADAPTATION

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

DATE RELEASED

2003

GUIDELINE DEVELOPER(S)

American Academy of Ophthalmology - Medical Specialty Society

SOURCE(S) OF FUNDING

American Academy of Ophthalmology

GUIDELINE COMMITTEE

Preferred Practice Patterns Committee; Retina Panel

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

No proprietary interests were disclosed by members of the Preferred Practice Patterns Retina Panel for the past 3 years up to and including June 2003 for product, investment, or consulting services regarding the equipment, process, or products presented or competing equipment, process, or products presented.

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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

The following is available:

- Summary benchmarks for preferred practice patterns. San Francisco (CA): American Academy of Ophthalmology; 2006 Nov. 21 p.

Available in Portable Document Format (PDF) 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.

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on April 30, 2004. The information was verified by the guideline developer May 20, 2004.

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