Complete Summary

GUIDELINE TITLE

Hallux limitus and hallux rigidus.

BIBLIOGRAPHIC SOURCE(S)

Academy of Ambulatory Foot and Ankle Surgery. Hallux limitus and hallux rigidus. Philadelphia (PA): Academy of Ambulatory Foot and Ankle Surgery; 2003. 6 p. [3 references]

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Academy of Ambulatory Foot and Ankle Surgery. Hallux limitus and hallux rigidus. Philadelphia (PA): Academy of Ambulatory Foot and Ankle Surgery; 2000. 12 p.

The guideline is reviewed and updated twice a year as needed (in May and October).

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Hallux limitus and hallux rigidus

GUIDELINE CATEGORY

Diagnosis
Treatment

CLINICAL SPECIALTY

Podiatry

INTENDED USERS

Podiatrists

GUIDELINE OBJECTIVE(S)

To provide recommendations for the diagnosis and treatment of hallux limitus and hallux rigidus

TARGET POPULATION

Patients with hallux limitus and hallux rigidus

INTERVENTIONS AND PRACTICES CONSIDERED

Diagnosis

1. History, including chief complaint (duration, onset, anything that improves or exacerbates symptoms, any previous treatment) and general medical history(allergic condition, medications taken, surgical history, family history, social history)
2. Physical examination, including vascular, neurology, orthopedic, biomechanical, dermatological exams
3. Diagnostic procedures, including radiographic examinations and laboratory tests

Treatment

1. Nonsurgical treatments, including padding the area, injection of local anesthetic, anti-inflammatory injections, cortisones, oral anti-inflammatories, shoe modification, oral analgesics and/or anti-inflammatory medications, physical therapy, orthotic therapy
2. Surgical treatments, including arthrotomy and synovectomy, cheilectomy, a dorsiflexor wedge at the base of the proximal phalanx of the hallux, dorsiflexor wedge osteotomy at or behind the neck of the first metatarsal, a step-down osteotomy, Keller procedure, Keller procedure with an implant, fusion of the metatarsophalangeal joint (arthrodesis)
3. Postoperative management, including x-rays, and immobilization (casting, splinting, surgical or ridged sole shoes)

MAJOR OUTCOMES CONSIDERED

Not stated

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The guideline development process began with a thorough MEDLINE search as well as a "call for papers" from the membership of the Academy of Ambulatory Foot and Ankle Surgery at large.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Not stated

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not applicable

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

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

Drafts of the guidelines were reviewed in detail by each member of the Board of Trustees.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

I. Diagnosis

Hallux limitus and rigidus diagnosis is made by completion of the history and physical exam, a lower extremity exam, subjective and objective findings, radiological evaluation and other diagnostic procedures.

A. History may include any of the following:
   1. Chief complaint
   2. Duration
   3. Onset
   4. Anything that improves or exacerbates
   5. Any previous treatment
   6. General medical history
   7. Allergic condition
   8. Medications taken
   9. Surgical history
   10. Family history
   11. Social history

The patient may be asymptomatic for an extended period of time. They may have a mild deformity but have severe pain. Their lifestyle may be altered to the point that they may be unable to perform the activities that they would normally perform. Hallux limitus and rigidus may be caused by biomechanical abnormalities most commonly found in the rectus type foot. It may be an inherited condition. Pressure from the shoe may also cause pain or neuritis, and one may find ulceration under the sesamoids.

B. Physical examination may include:
   1. Vascular examination
   2. Neurology exam
   3. Orthopedic exam
   4. Biomechanical exam
   5. Dermatological exam

With hallux limitus and rigidus deformity you normally find pain with some degree of swelling and synovitis about the joint. As the condition progresses there is bony proliferation particularly around the dorsal aspect and lesser degree around the lateral aspect of the metatarsal head and this creates a significant lip of the bone on the dorsal aspect of the base of the proximal phalanx. Rarely is significant bone formed around the medial aspect of the metatarsal head. The overall

alignment of the joint is rarely altered as in hallux valgus or hallux varus. The dorsal impingement occurs around the base of the proximal phalanx and the head of the first metatarsal and limits the dorsiflexion of the hallux because of the bony prominence on the base of the head of the metatarsal. This results in pain initially with walking and sporting activities and is usually observed on the athlete earlier because of the more prominent dorsiflexion during athletic activities and with time one sees bulk about the joint.

C. Concomitant conditions may include:
   1. Metatarsalgia
   2. Sesamoiditis primary
   3. Dorsal exostosis
   4. Arthritic degeneration
   5. Neuritis and/or neuroma
   6. Ulceration under the sesamoid
   7. Synovitis
   8. Tendonitis

D. Diagnostic procedure
   1. Radiographic examination: X-rays should be taken. They may be used to evaluate the deformity: soft tissue, osseous position deformity, structure deformity, or joint destruction. Radiographic findings are classic of degenerative arthritis of the first metatarsal phalangeal joint. The lateral x-ray is most useful since one can observe the dorsal lipping on the metatarsal head and periodically one can see the presence of loose fragments within the joint. Anteroposterior (AP) radiographs demonstrate the extent of the lateral osteophyte as well as the degree of narrowing of the joint space. The sesamoids are rarely involved in the degenerative process until the later stages, and during the later stages the sesamoids are fused and the joint is inflamed. One can see the fusion of the metatarsophalangeal (MP) joint on the x-ray. X-rays may be weight bearing, partial weight bearing, or nonweight bearing.
   2. Laboratory may be used to rule out inflammatory conditions such as rheumatoid arthritis or other degenerative diseases.

II. Types of Treatment

A. Nonsurgical treatment
   1. Padding the area
   2. Injection of local anesthetic, anti-inflammatory injections, cortisones, oral anti-inflammatories
   3. Shoe modification (i.e., wider shoes, molded shoes), metatarsal bar, rocker bottom shoe
   4. Oral analgesics and/or anti-inflammatory medications
   5. Physical therapy
   6. Orthotic therapy

B. Primary reasons for surgical treatment:
   1. The patient wants the problem treated, not accommodated.
   2. Nonsurgical treatments have been unsuccessful.
   3. The patient's foot has progressed to a point where there are other problems as a result of the hallux limitus or rigidus, such as pain in the sesamoids or under the metatarsal head or ulceration.

4. The patient is unable to wear shoes or perform their normal activities. The patient must be informed of the potential risks and benefits, alternatives and complications.
5. The patient wishes to prevent further deformity or degeneration.

C. Types of surgical treatment
1. Arthrotomy and synovectomy
2. Cheilectomy. This is where you remove the bone on the dorsal aspect of the metatarsal head and possibly one or more osteophytes. This increases the dorsiflexion and decreases the dorsiflexion of the metatarsal phalangeal joint and decreases the bulk of the joint.
3. A dorsiflexor wedge at the base of the proximal phalanx of the hallux
4. Dorsiflexor wedge osteotomy at or behind the neck of the first metatarsal
5. A step-down osteotomy such as a Chevron, Austin, or Wilson
6. Keller procedure
7. Keller procedure with an implant
8. Fusion of the metatarsophalangeal joint (arthrodesis)

III. Fixation

Fixation may be used at the discretion of the surgeon, and may be internal or external or not at all with an osteotomy.

IV. Site of Surgery

The surgical procedure is primarily performed in the doctor's office, but may also be done in the hospital or an ambulatory surgical center.

V. Anesthetic

Local anesthetic is sufficient unless there are extenuating circumstances. Intravenous (IV) sedation may or not may be utilized with this.

VI. Hemostasis

Absence of hemostasis via tourniquet is not required and is not recommended with minimal incision surgery, but may be used with a Keller type procedure or other traditional open surgical procedures.

VII. Surgical Preparation

Antiseptic preparation usually consists of antiseptic scrub pre-op and sterile draping and technique.

VIII. Preoperative Lab

Need based on patient's past medical history and current medical status.

IX. Prophylactic Antibiotics

May be given at the discretion of the surgeon. In some cases, such as mitral valve prolapse, should be given prior to surgery.

X. Bilateral or Multiple Surgery

May be performed at the same surgical session or in different surgical sessions.

XI. Postoperative Management

A. X-rays may be necessary to assess the progress of the osseous healing. They should be taken immediately postoperatively and may be indicated at intervals throughout the postoperative follow-up period, depending on the wishes of the doctor. Non-weight bearing (NWB) x-rays, weight bearing (WB) x-rays taken on the angle and base of gait, or partial weight bearing (PWB) x-rays are acceptable. NWB, PWB, or WB x-rays are taken at the discretion of the surgeon.

B. Postoperative immobilization may consist of casting, a splint, surgical shoe, a ridged sole shoe, or external splinting via gauze, tape, etc.

C. Internal fixation or fixating devices are generally not required when doing hallux limitus or rigidus type procedures, but may be used at the discretion of the surgeon when it is appropriate.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is not specifically stated for each recommendation.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Treatment may reduce the symptoms and deformity, which will allow patients to maintain or return to a relatively normal activity level.

POTENTIAL HARMS

Complications

- The deformity may recur or worsen
- Hallux valgus
- Hallux varus
- Hallux elevatus (toe may raise up too much)
- Sesamoiditis
- Fusion of the joint

- Limited dorsiflexion and/or plantar flexion of toe
- Prolonged healing
- Metatarsalgia
- Non-union/delayed union/malunion
- Vascular failure (gangrene)
- Nerve damage/reflex sympathetic dystrophy
- Shortening of metatarsal and/or toe
- Infection

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

Getting Better
Living with Illness

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

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ADAPTATION

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

DATE RELEASED

2000 (revised 2003 Sep)

GUIDELINE DEVELOPER(S)

Academy of Ambulatory Foot and Ankle Surgery - Medical Specialty Society

SOURCE(S) OF FUNDING

Academy of Ambulatory Foot and Ankle Surgery (AAFAS)

GUIDELINE COMMITTEE

Preferred Practice Guidelines Committee

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

The committee consisted of five (5) members who were board certified, had a minimum of ten (10) years of clinical practice experience, and a minimum of five (5) years of teaching experience.

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

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GUIDELINE AVAILABILITY

Electronic copies: Not available at this time.

Print copies: Available from the Academy of Ambulatory Foot and Ankle Surgery (AAFAS) (formerly the Academy of Ambulatory Foot Surgery), 1601 Walnut Street, Suite 1005, Philadelphia, PA 19102; Web site, www.academy-afs.org.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on October 12, 2000. The information was verified by the guideline developer as of December 8, 2000. This summary was updated by ECRI on December 19, 2003. The information was verified by the guideline developer on December 29, 2003.

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