Clinical Monograph

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Treatment Algorithm for
HALLUX RIGIDUS:
From **Motion Preservation** to **Joint Fusion**

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"Management of hallux rigidus is determined based on the degree of joint degeneration and patient lifestyle."

Surgical Management of Hallux Rigidus. Deland JT, Williams BR. Journal of the American Academy of Orthropaedic Surgeons 2012;20:347-358

Summary:

- 2.5% of all people over 50 years are affected by Hallux Rigidus. (1)
- 95% of affected patients have a bilateral presentation. (2)
- Conservative care should be carried out first particularly in the early disease stage. (3)
- Cheilectomy is a proven procedure for managing early to mid-stage hallux rigidus in patients of all activity levels. (3)
- Mid-stage patients with and without failed prior surgical history are ideal candidates for HemiCAP® MTP resurfacing showing significant pain relief, functional improvement, and high patient satisfaction. (4, 5, 6, 7)
- Arthrodesis remains the procedure of choice in patients with end-stage Hallux Rigidus and failed arthroplasty.
- Joint fusion can result in high satisfaction rates of 81-100% allowing return to moderate activities. (3)

Patient Goals:

Disease staging and patient expectation management are critical in determining the individual treatment approach:

Motion and Joint Preservation Procedures
- Eliminate pain
- Achieve hallux purchase for push-off
- Normalize gait
- Improve MTP range of motion
- Allow different sporting activities including running, jumping, and active professions
- Allow normal shoe wear
- Achieve a cosmetically acceptable result
- Acceptance of a future clinical exit into arthrodesis if needed

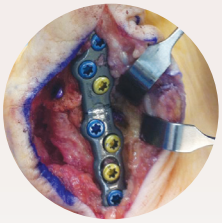
MTP Arthrodesis
- Eliminate pain
- Stabilization of the medial column
- Preference towards stronger predictability in pain relief and less emphasis on high level function.

HemiCAP DF®

HemiCAP DF®
Toe Resurfacing System

CheckMATE®

CheckMATE®
Metatarso-Phalangeal Arthrodesis System



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Staging and Treatment:

* Classification from Coughlin MJ, Shurnas PS. Hallux rigidus: Grading and long-term results of operative treatment. J Bone Joint Surg Am 2003; 85(11):2072-2088.

Clinical-Radiographic System for Grading Hallux Rigidus — Weight-bearing and anteroposterior and lateral radiographs are used.

GRADE	0	1	2	3	4
RANGE OF MOTION % LOSS COMPARED TO NORMAL SIDE*	• 40° - 60° • Up to 20% loss	• 30° - 40° • 20 - 50% loss	• 10° - 30° • 50 - 75% loss	• < 10° • 75% to 100% loss • Loss of < 10° MTP plantar flexion	Same as in Grade 3
RADIOGRAPHIC EVALUATION*	• Normal	• Osteophytes dorsally • Minimal joint space narrowing sclerosis and flattening of MT head	• MT head appears flat • Definite osteophytes • Mild to moderate joint space narrowing • < 1/4 of dorsal joint space involved (lateral)	• Severe narrowing • Possible periarticular cyst • > 1/4 of dorsal joint involved • Sesamoids enlarged –possibly cystic or irregular	• Same as Grade 3 • (Including joint space narrowing at the sesamoid joint surface)
CLINICAL EVALUATION*	• Possible stiffness • No pain	• Mild pain at end range of dorsi- &/or plantar flexion • Occasional stiffness	• Moderate to severe pain before end of range dorsi-or plantarflexion • Moderate to severe stiffness • Possibly constant	• Pain almost constant • Severe stiffness at end of range but none at midrange	• Same as Grade 3 • Pain at midrange of passive motion
LIFESTYLE	← • Primary Focus on Motion Preservation with Pain Relief • Higher Activity Levels for Sporting and Active Professions • Better Cosmesis and Ability to Wear High-Heel Shoes →				• Primary Focus on Pain Relief • Lower Activity Level
TREATMENT	**Conservative**	**Early Surgical Intervention:** • Debridement • Cheilectomy	**Osteotomy:** • Metatarsal Osteotomies • Phalangeal Osteotomies	**Arthroplasty:** • Soft Tissue Interpositional • Phalangeal Hemiarthroplasty • Metatarsal Hemiarthroplasty	**Arthroplasty:** • HemiCAP for Grade IV based on individual assessment and patient preference with exit into arthrodesis if necessary • Total Toe Arthroplasty **Arthrodesis**
REHAB	← **Motion Preserving Rehab** →				**Treatment Specific Rehab**

Conclusion:

Available treatment options for hallux rigidus allow for an individual treatment approach that can achieve high satisfaction rates across the treatment spectrum. Longer-term follow-up is necessary for management of mid-stage disease, in particular as it relates to athletic activities following various surgical methods. Despite the disadvantage of stiffness, arthrodesis remains the standard of care for patients with severe end-stage involvement and failed arthroplasty.

References:

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3) Surgical Management of Hallux Rigidus. Deland JT, Williams BR. J Am Acad Orthop Surg 2012;20:347-358
4) Hasselman C, Shields N. Resurfacing of the First Metatarsal Head in the Treatment of Hallux Rigidus. Tech in Foot & Ankle Surgery 7(1):31–40, 2008
5) Cook E, Cook J, Rosenblum B, Landsman A, Giurini J, Basile P. Meta-analysis of first metatarsophalangeal joint implant arthroplasty. J Foot Ankle Surg. 2009 Mar-Apr;48(2):180-90.
6) Carpenter B, Smith J, Motley T, Garrett A. Surgical Treatment of Hallux Rigidus Using a Metatarsal Head Resurfacing Implant: Mid- term Follow-up. J Foot Ankle Surg. 2010 July - August;49(4):321-325.
7) Aslan H, C İtak M, Baş EG, Duman E, Aydın E, Ateş Y. Early results of HemiCAP® resurfacing implant. Acta Orthop Traumatol Turc. 2012;45(7):17-21.

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