Resurfacing of the Metatarsal Head for Advanced Hallux Rigidus

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Treatment Options

**PRO:**
- Easy to perform
- Moderate relief of arthritis pain
- May weight bear immediately

**CON:**
- Treats proximal phalanx – is this where the disease is?
- Variable success rates
- Studies suggest fusion better than this implant.
  - Abidi, Rankin et al, JBJS
Patient:
35 y/o Male auto mechanic with a traumatic lesion

Follow-up:
20 months Patient returned to full strength and off disability

Patient:
36 y/o Male waiter with Focal Traumatic Osteochondral defect

Follow-up:
10 months Pain free with full active ROM and normal strength
AVN shoulder

Implant - Time 0

2nd Look
One Year

Intact opposing surface
Why this implant?

- Very little bone resection so salvage (fusion) is much easier if fails.
- Does not affect sesamoid complex so push off is normal and no transfer metatarsalgia.
- Allows women to wear their “other shoes” without sacrificing strength or pushoff.
- Very easy to perform, no problems with instability or deformity because of soft tissue balance.
What About the Sesamoids?

Sesamoids Gliding Over Implant
Motion Preserving Metatarsal Head Resurfacing for Advanced Hallux Rigidus

- Prospective case series evaluation
- N=26 patients (30 implants) with advanced stage hallux rigidus (stage 2 or 3)
- Baseline and Follow-up Outcomes Assessment:
  - VAS
  - SF36/AOFAS
  - Range of Motion
  - Radiographs
    - BOFAS 2007/2010
    - Submitted FAI 2011
Results

- Average Follow up: 60 Months
- Average age: 51 (35-74)
- 13 males/17 females
- Mixed demographics: Carpenters, housewives, physicians, executives and manual laborers
- Average time to return to work 7 days (range 3-20)
Results

- Passive dorsiflexion preop = 28 degrees
- Passive dorsiflexion postop = 66 degrees
- Active dorsiflexion preop = 19 degrees
- Active dorsiflexion postop = 48 degrees
Results

- Mean AOFAS Score Preop: 51.5
- Mean AOFAS Score Postop: 94.1
- Mean SF 36 Score Preop: 66.7
- Mean SF 36 Score Postop: 90.6
- Preop Pain (VAS of 1 – 10) = 6.8
- Postop Pain (VAS of 1 – 10) = 1.4
Results

- No device failure to date
- NO postoperative deformities
- NO transfer metatarsalgia
- No radiographic evidence of implant loosening, subsidence, or periprosthetic radiolucency to date
- 4 revisions due to phalangeal issues
  - One conversion to fusion without grafting
  - One conversion to silastic implant
  - Two revisions of phalangeal side
Results

All would still have done the primary operation

EVEN THE FAILURES!!!
5 year results superior to phalangeal implants when comparing literature

<table>
<thead>
<tr>
<th>Study</th>
<th>Patient Age</th>
<th>Number of Patients</th>
<th>Mean Follow-up (yr)</th>
<th>Mean ASES Score</th>
<th>Mean QuickDASH Score</th>
<th>Mean Constant Score</th>
<th>Mean VAS Pain</th>
<th>Complications</th>
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5 Year Experience

- Over 250 implants
- Revised over 20 as referrals from other doctors, most with stiffness due to poor soft tissue releases
- Had patients with plantar pain and stiffness
What We Have Learned…

- You must do complete soft tissue release!!!
  - 90 degrees dorsiflexion with ankle at neutral
- Do not use metal suture anchors in phalanyx
- Early motion is critical (toe off day 1 post op)
- Think of this more like a total knee replacement than a resurfacing.
- You can release the flexor hallucis brevis without causing deformity
Why change the implant?

- Force surgeons to do a dorsal cheilectomy.
- Improve rollback with dorsiflexion
- Really only adds one step
Case Examples
J.P.

49 y/o male who still ski’s, golfs, runs and plays sports on weekends. Stage 2 Hallux Rigidus and now limits ability to enjoy these sports.
D.C.

55 y/o professional female who likes to wear high heels, run and exercise on a daily basis. Now with bilateral stage 2 Hallux Rigidus who had to give up her shoes and activities due to her pain in the first MTP. Offered fusion in the past but did not want to give up her shoes or activities.
Preoperative radiographs
Preoperative radiographs
Preoperative radiographs
Postoperative radiographs
Postoperative radiographs
Postoperative radiographs
6 month post op visit
6 month post op visit
6 month post op visit
6 month post op radiograph
6 month post op radiograph
The Unfusion

58 y/o active female with previous conical reamer 1st MTP fusion without malunion. Pain at 1st PIP with toe off during stylish shoe wear and exercise. Not happy with fusion.
Thank You

"Nurse, get on the internet, go to SURGERY.COM, scroll down and click on the 'Are you totally lost?' icon."