

10 Years Follow-Up of Cartiva Implant for Hallux Rigidus

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Abstract

Hallux Rigidus is a common problem that affects more than 2.5% of adults over 50 years of age. The most common treatment for end stage hallux rigidus is arthrodesis of the first metatarsophalangeal (MTP) joint [1]. The primary complaints despite a solid fusion and elimination of pain from the great toe is the limitation of motion.

Keywords: *Cartiva; Implant; Arthritis; Hallux Rigidus; Hallux Disorders; Joint Preservation Surgery*

Introduction and Case Report

Hallux Rigidus is a common problem that affects more than 2.5% of adults over 50 years of age. The most common treatment for end stage hallux rigidus is arthrodesis of the first metatarsophalangeal (MTP) joint [1]. The primary complaints despite a solid fusion and elimination of pain from the great toe is the limitation of motion. Patients frequently are dissatisfied secondary the constraints on shoe wear and athletic activity that require hallux dorsiflexion. Alternatives to fusion have been attempted previously, including total joint arthroplasty, hemi-arthroplasty, interposition arthroplasty, resection arthroplasty all with limited success. The use of a Hydrogel (Cartiva) to re-surface the metatarsal head has been performed with success, however, there has been controversy on the efficacy of the procedure. Although short term outcomes are available, longer-term outcomes are sparse. We present over 10-year follow-up of a female patient that came to the Clinic in 2010, at that time she was 57 years old. She enjoyed yoga, hiking and dancing and she didn't accept the limitation of motion from the first MTP fusion as a treatment option (Figure 1).



Figure 1: Pre op, oblique X ray. 2010.

Our decision at that time was to perform a hemiarthroplasty with Cartiva Implant (Synthetic Cartilage Implant, Wright Medical Group N.V.). Cartiva is made of Hydrogel and has been proved to resist to axial load and shear without fragmentation [2].

The surgery was performed with dorsal approach, medial to the extensor hallucis longus tendon with a 10 mm Cartiva Implant, dorsal wedge resection of the base of the proximal phalange to improve dorsiflexion of the 1st MTP joint and interposition of the 1/3 middle aspect of the capsule (Figure 2).



Figure 2: Cartiva implant.

During the first year of follow-up she had mild symptoms, and some swelling. After the second year she became absolutely pain free, happy with the result and with the decision to have done a joint preservation surgery (Figure 3-5).



Figure 3: AP view 10 years follow up 2021.



Figure 4: Lateral view 10 years follow up.



Figure 5: Oblique view 10 years follow up.

Her last visit was in February 2021 with more than 10 years of follow-up after the surgery.

She is still pain free, her range of motion is 40 degrees of dorsiflexion and 30 degrees of plantarflexion without crepitations, and she is doing sport activities she used to do before (Figure 6).

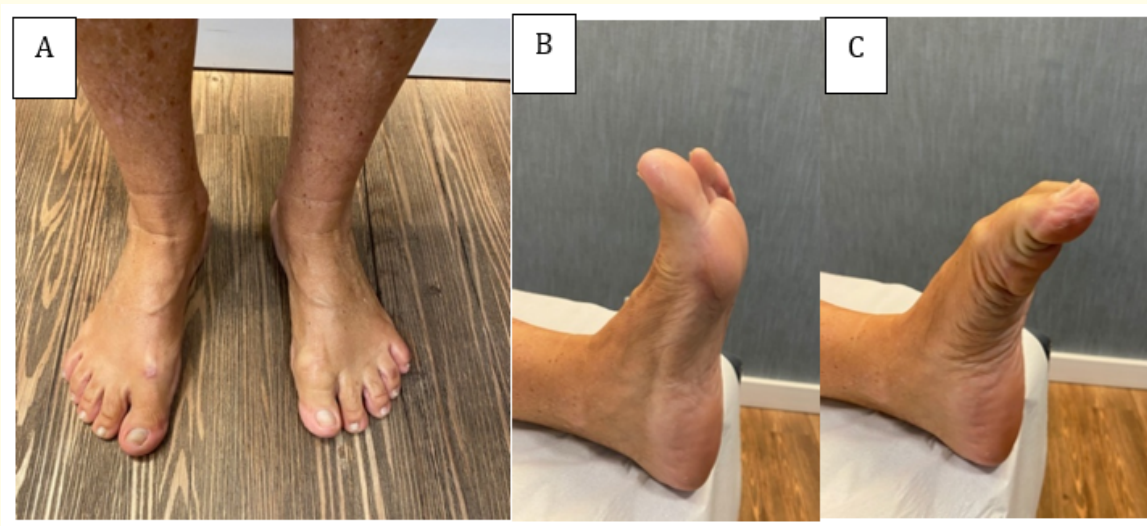


Figure 6: Range of motion after 10 years of Cartiva implant.

In a prospective, randomized and multi-centered study between Cartiva and arthrodesis, Cartiva showed to be equivalent in pain relief and functional outcomes after 2 years of follow-up, with the advantage of preserving the range of motion [3]. The FDA only approved Cartiva in 2016, that makes this case presentation unique in the longevity of both clinical and radiographic outcome of this unique salvage procedure for joint preservation for hallux rigidus. Consistent with their findings, our patient had continued improvement over the first 2 years [4].

Conclusion

The outcome that we have presented in this case report cannot be immediately generalized to all Cartiva patients, however, this case demonstrates that long-term pain free motion and function can be achieved with this unique implant. Further larger prospective studies are needed to further understand if this successful result is possible in the majority of patients.

Authors Contribution

Mauricio: Surgical procedure, follow up, review of literature, preparation of manuscript.

Erico: Review of literature.

Jader: Review of manuscript.

Alexandre: Review of literature and manuscript.

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