

SUBCHONDROPLASTY: AN ALTERNATIVE TREATMENT FOR MIDFOOT ARTHRITIS

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STATEMENT OF PURPOSE

To examine the effects of subchondroplasty (SCP) on a series of consecutive patients suffering with refractory midfoot arthritis.

LITERATURE REVIEW

- Traditionally, midfoot arthritis presents as a debilitating entity in which patients experience a decrease in quality of life as well as the inability to enjoy daily activities.
- Patients seldom respond well with conservative treatment including supportive shoe gear, orthotic therapy, anti-inflammatories and intra-articular injections.
- Surgical addressment of midfoot arthritis with fusion tends to alleviate the arthritic pain; however, this is not without post-operative convalescence and significant time commitment.
- Just as the literature has shown in the knee and talus, often times the bone marrow edema (BME) deep to the joint is the primary source of pain rather than the arthritic joint itself. By treating BME syndrome, the foot and ankle surgeon can avoid the convalescence of surgical fusion and provide the patient with a minimally invasive approach to deliver significant pain relief from midfoot arthritis.
- When damage persistently exceeds repair or bone is unable to heal with periods of rest or unloading, a chronic bone marrow edema lesion (BME/BML) develops.¹
- BML's have been identified as structural changes of the subchondral bone, where these lesions signify a precursor of advancing cartilage destruction, subchondral bone attrition, and acceleration of joint deterioration by joint collapse.²
- The goal of SCP is to improve the structural integrity of damaged subchondral bone and create the potential for subchondral bone remodeling.³
- Although the incidence of patients presenting with midfoot arthritis is increasing at an alarming rate, guidelines for clinical decision making are lacking in the literature.⁴

METHODOLOGY

- Single center, case series of 12 subjects
- Mean follow-up of 12 months
- Mann Whitney U test was used to test for differences in VAS pain pre- and post-operatively.

RESULTS

- 12 patients received SCP for midfoot arthritis
- The mean follow up was was 13.75 months
- All 12 patients improved with the pre- to post-operative VAS scores
- The pre-operative VAS scores ranged from 10 to 4 with an average of 6.75. The post-operative VAS scores ranged from 4 to 0 with an average of 1.66.
- All patients reported statistically and clinically significant pain relief at final follow up (all p values < 0.01 for VAS pain, Mann Whitney U test).

FIGURES

Figure 1)

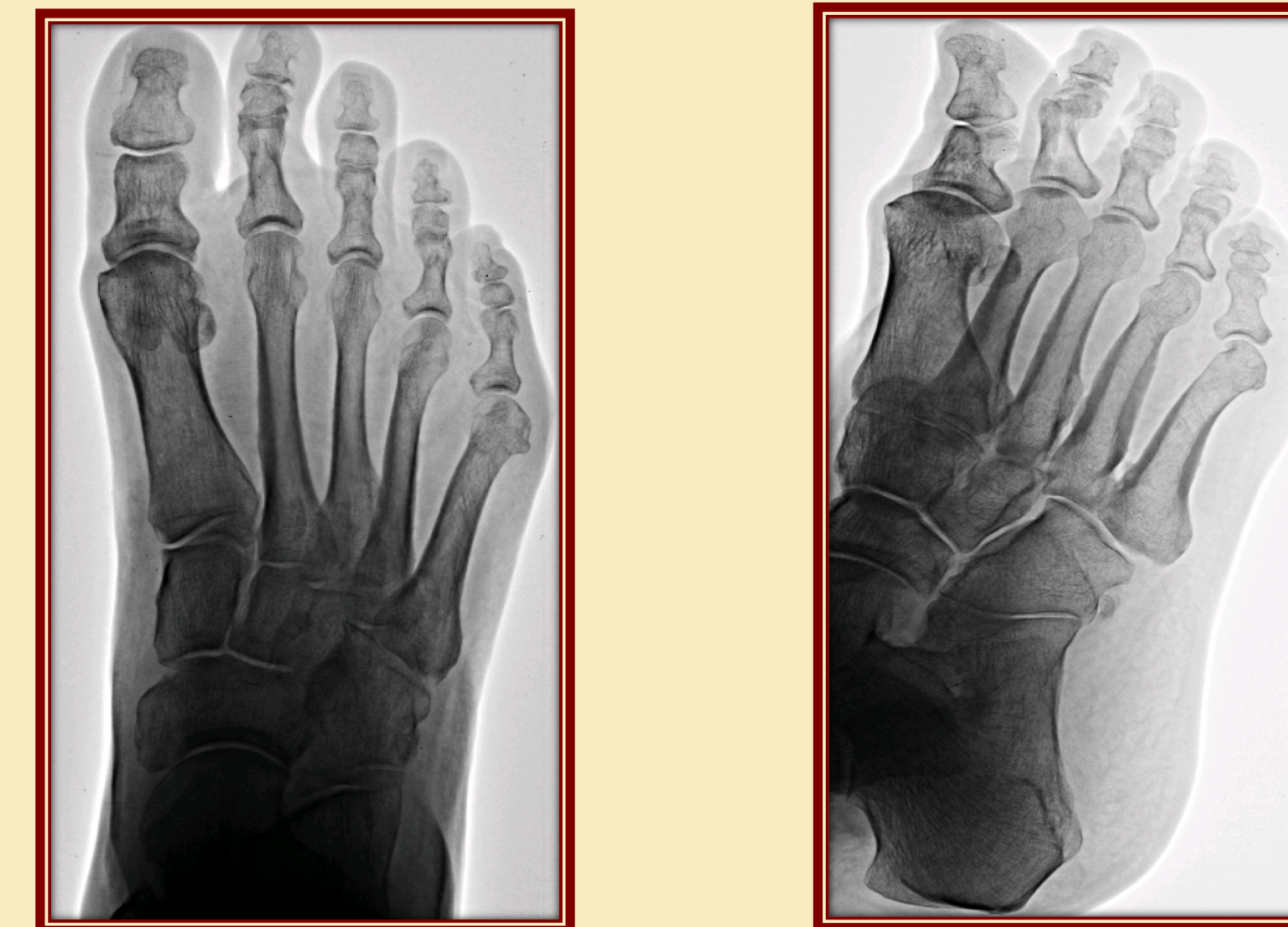


Figure 2)

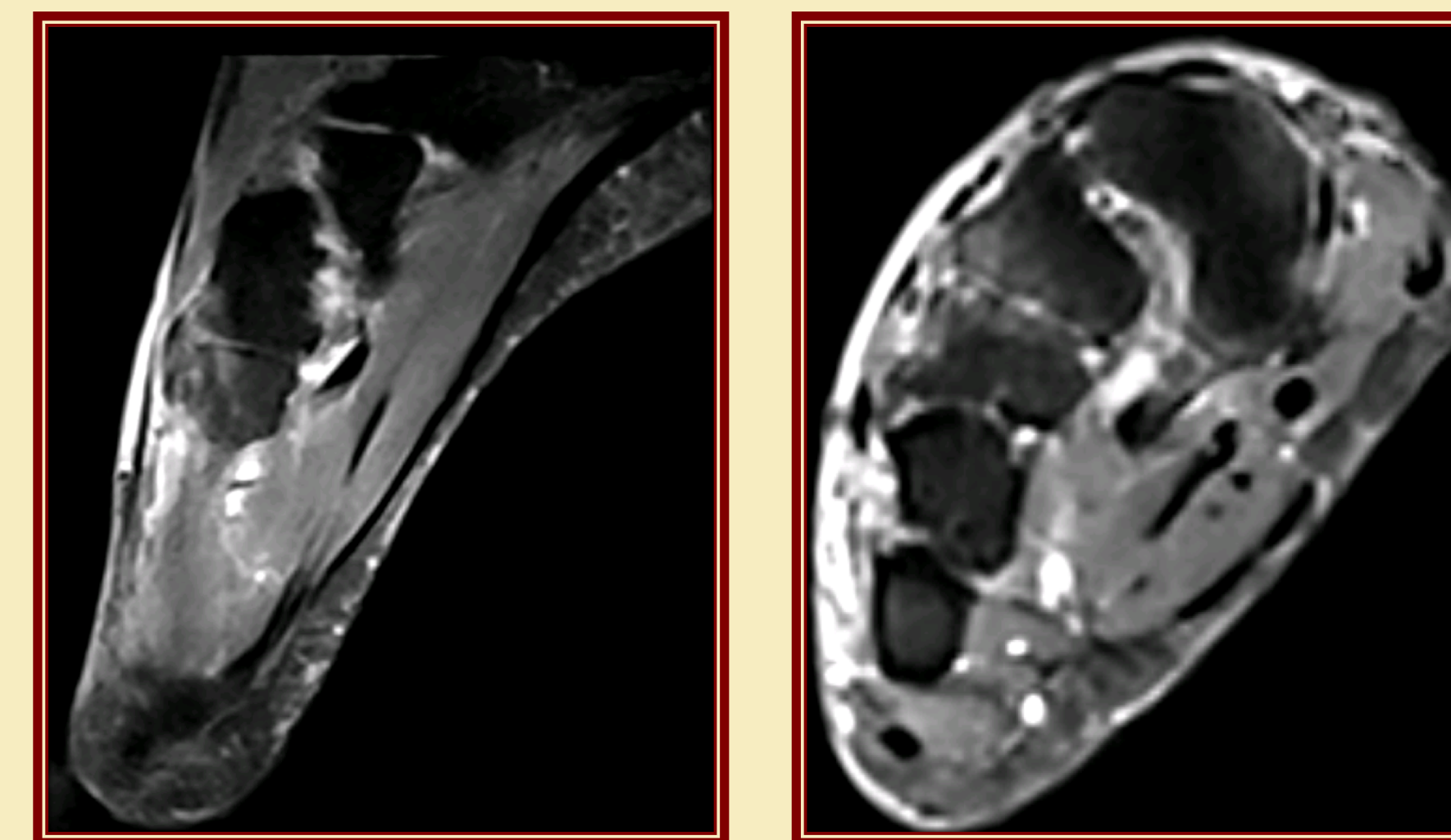


Figure 1) Plain radiographs showing arthritic changes to midfoot

Figure 2) T2 MRI showing BME of the midfoot and associated arthritis

DISCUSSION

- Midfoot arthritis presents as one of the toughest ailments for the foot and ankle surgeon to treat. Often times conservative therapy provides only temporizing relief and the convalescence involved with surgery provides obstacles for patient care.
- Utilizing SCP to treat bone marrow edema often associated with arthritis has shown to provide substantial relief of pain in other regions of the body, especially the knee and talus.
- This form of treatment provides patients with a minimally invasive treatment modality that requires nominal post-operative recovery while at the same time providing substantial pain relief associated with their arthritis.
- Our findings show all patients reported statistically and clinically significant pain relief at final follow up
- The limitations to our study include small sample size and relatively short follow-up.
- Future investigation for SCP and the treatment of midfoot arthritis will require a long-term follow-up as well as prospective comparison to fusion procedures.

CONCLUSION

This study supports the notion that there may be an advantage to treating midfoot arthritis, at least initially, with SCP. This could provide patients with significant time before requiring the convalescence of more invasive surgical intervention.

REFERENCES

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