

A Pilot Study to Evaluate the Safety of Amniotic Membrane Transplantation in Patients with Arthrofibrosis following Total Knee Arthroplasty

Seth A. Jerabek, MD, Kaitlin M. Carroll, BS, Brian Michaels, PA-C, David J. Mayman, MD

Hospital for Special Surgery, New York, NY

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INTRODUCTION

- Arthrofibrosis after a total knee arthroplasty (TKA) is devastating for the patient and for the surgeon.
- Profound scarring can cause decreased range of motion (ROM).
- Patients who flex less than 90 degrees have difficulty getting up from a seated position and with stairs.
- Multiple modalities have been used to treat arthrofibrosis including manipulation under anesthesia and open arthrolysis; however scarring and stiffness often recur.
- Amniotic membrane has proven anti-scarring effects in other specialties and has the potential to decrease scarring after TKA.
- The purpose of this pilot study was to evaluate the safety of this novel application of amniotic membrane in the setting of open lysis of adhesions to treat arthrofibrosis after TKA.

METHODS

- Patients with limited ROM and appropriately sized and positioned knee components at a minimum of 1 year post-operatively from a TKA were included.
- All patients underwent an open lysis of adhesions.
- Prior to closure, a 6x8cm Cygnus Amnion Patch was placed in the suprapatellar pouch, medial gutter and lateral gutter. (Figure 1)
- Post-operatively patients were enrolled in intense physical therapy 3-4 times a week.
- ROM was assessed pre-operatively, 2 weeks and 6 weeks.

RESULTS

- There were 3 females and 1 male included in this study with a mean age of 57 years (Table 1).
- All patients had increased range of motion at 6 week follow-up (Table 2).
- Average gain in flexion was 35.5 degrees (Range 20° - 42°).
- Two patients lacked full extension pre-operatively, however, at final follow-up both were within 8 degrees of full extension.
- There were no adverse events, complications, infections or allergic reactions to the Cygnus Amnion patch with a minimum 6 week follow-up.
- Overall, all patients were extremely satisfied with their early outcomes.

TABLE 1

Demographics	Average
Gender	3 females, 1 male
Age	57 years (51-63)
BMI	31 (23-37)

TABLE 2

Patient	Pre-Op Extension	Pre-Op Flexion	Final Extension	Final Flexion
1	0	55	0	95
2	8	64	2	84
3	-20	55	12	95
4	0	80	0	122

FIGURE 1

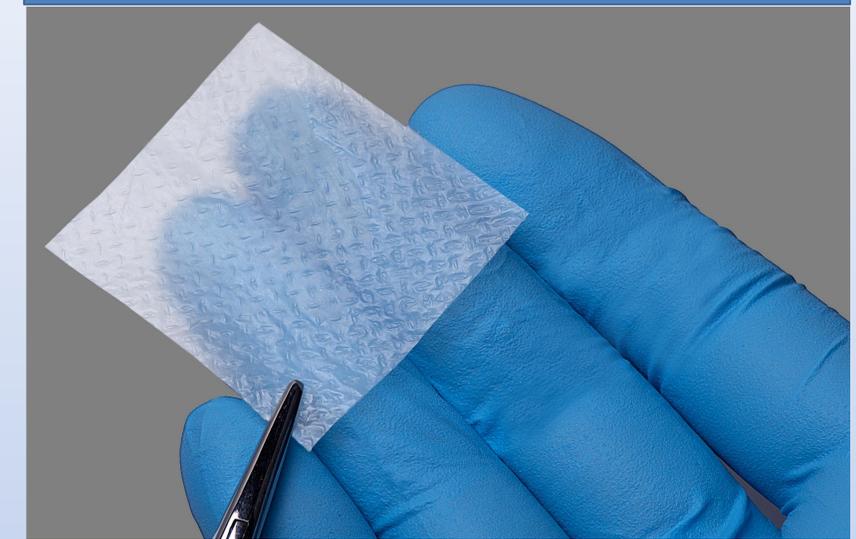


FIGURE 2



CONCLUSIONS

- Based on our early results, an open lysis of adhesions and amniotic membrane patch is found to be safe at 6 weeks.
- So far we have been successful in increasing range of motion in patients, however this pilot study was not powered to assess improvement in range of motion.
- Longer follow-up and larger numbers are required to determine if there is a role for amniotic membrane in the treatment of arthrofibrosis after TKA.