Efficacy and Safety of Dynavisc® Gel in Preventing Adhesions Recurrence After Flexor Tendon Tenolysis: Multicenter Retrospective Cohort Study

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AIM OF THE STUDY

Evaluate the safety and the clinical impact of Dynavisc® gel in reducing the formation of adhesions after tenolysis for flexor tendon release in zone 2.

INTRODUCTION

Tendon adhesions are the main cause of flexor tendon surgery failure. Multiple strategies (i.e. robust tendon repair, early rehabilitation and lubricant or barrier agents) have been proposed to minimize their formation.

The ideal product prevents fibroblast proliferation associated with extrinsic tendon healing without impairing the intrinsic tendon healing, acting as physical barrier modulating the inflammatory process.

Dynavisc® gel is a compound of two polymers:

- **Carboxymethylcellulose** acts as a physical barrier;
- **Polyethylene Oxide** is a high molecular weight polymer that inhibits fibroblasts recruitment.

Dynavisc® injection after tenolysis

MATERIALS AND METHODS

A multicenter retrospective cohort study was performed in five Italian Hand Surgery Units.

Thirty-one patients suffering from stiff finger after flexor tendon repairs in zone 2 were collected and treated between 2012 and 2016 with standard release **with (18 Dynavisc®-treated patients group)** or **without (13 controls) anti- adhesion gel application** into the flexor tendon sheath and around the site of the tenolysis. The same surgical technique was performed for each patient by surgeons with a similar level of expertise corresponding to 4 and 5 according to Tang and Giddins.

Safety profile and functional outcomes (based on TAM test at 30-60-90-180 days and the Quick- DASH questionnaire at 180 days) were examined from patients' charts and analyzed.

The use of Dynavisc® gel in flexor tendon surgery could help in minimizing adhesion formation and complications in tendon surgery.

Treatment, Surgical Technique

Prognosis/Outcomes

International Guest Society

Hand

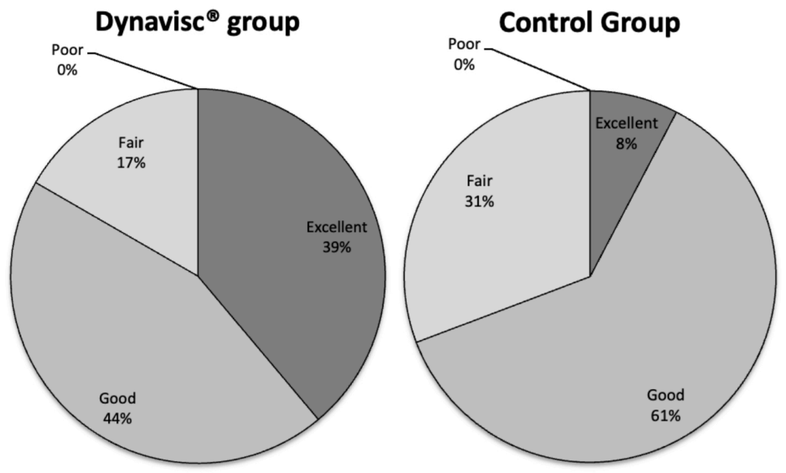
RESULTS

The application of Dynavisc® posed **no safety concerns** and it was not related to any additional complication.

The mean preoperative TAM of symptomatic fingers before tenolysis were comparable in the two groups.

The Dynavisc® group showed a higher progressive improvement of the TAM values with time, compared to control group (delta) with a greater difference between groups at T(90) and T(180). No statistical significance was found with the Kruskal-Wallis test, however a trend towards a higher TAM value in Dynavisc group was confirmed.

Quick-DASH questionnaire scores were similar in the two groups at the preoperative visit and they did not show a significant difference in the study period.



Digit function after 180 days

CONCLUSION

Previous clinical and experimental studies showed the efficacy and safety of barriers comprised of carboxymethylcellulose (CMC) and polyethylene oxide (PEO) in limiting adhesion formation. This is the first clinical study evaluating the effect of Dynavisc® gel in flexor tendon surgery.

The lack of complications, ruptures and stiffness recurrence demonstrated **the safety of the gel in hand surgery**.

In addition, the functional results collected in this multicenter retrospective cohort study showed a potential benefit in the clinical use of Dynavisc® gel in tendon revision surgery. In fact, the **Dynavisc® group showed higher functional improvement over time** (Delta of improvement) compared to the control group, suggesting a possible role in limiting the impact of adhesions in the long-term.

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