

Research Article

Experience with Xiaflex Treatment for Dupuytren's Disease at a Veterans Affairs Medical center

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Abstract

Clostridium collagenase (trade name "Xiaflex", Auxilium Pharmaceuticals, Inc. Malvern, PA, USA) is an enzymatic, non-operative treatment for Dupuytren's disease that was approved by the FDA in February 2010. The purpose of the study is to determine our rate of success and complications with this treatment in the veteran population. An IRB approved (2015-00576) retrospective chart review of patients treated with Xiaflex for Dupuytren's disease between December 2010 and June 2015 was performed. Clinic records were reviewed for collagenase injection and cord rupture. Charts were reviewed for pre procedure joint measurements, cord rupture, post procedure measurements, and complications. There were no major complications. The most common complication other than bruising and edema was skin tears. A Fisher exact test found that skin tears were more likely to be found in patients with preexisting metacarpal phalangeal joint measurements = or > 60 degrees. Xiaflex is a reasonable and safe non operative treatment for the veteran population with digital contractures resulting from Dupuytren cords in the palm.

INTRODUCTION

Clostridium collagenase (Xiaflex) is an enzymatic, non-operative treatment for Dupuytren's disease that was approved by the FDA in February 2010. It has been available for use at our Veterans Affairs Medical Center since December 2010. The treatment is provided over a two day period: injection followed by manual cord rupture. The advantage of this treatment option is that it allows the patient to avoid the operating room and the multiple post operative visits. The disadvantage is that it has a high local complication rate, is expensive, and can require multiple treatments. The plastic surgery service has been offering this treatment in select patients. The purpose of the study is to identify our success with the injection, in terms of cord rupture, and determine a complication rate, if any.

MATERIALS AND METHODS

An IRB approved (2015-00576) retrospective chart review of patients treated with Xiaflex for Dupuytren's disease between December 2010 and June 2015 was performed. Clinic records were reviewed for collagenase injection (CPT code 20527) and

cord rupture (CPT code 23641). Our data was cross-referenced with pharmacy records. Patients whose hands were treated with Xiaflex were included in the study. There were 71 men and one woman; ages ranged from 34 to 86 years. Indications for the procedure were patients with a palmar cord affecting the MCP joint, except for one patient with a digital (not palmar) cord that failed to rupture early in the review period. The MCP extension deficit ranged from 20-90 degrees. Patients with cords extending to the PIP joints were encouraged to have a formal fasciectomy to allow for better control of the joint and skin. The charts were reviewed for pre procedure joint measurements, cord rupture (yes/no), post procedure measurements, and complications within the study period, if any. A Fisher exact test using a p value of < 0.05 was used to determine if preoperative measurements were predictive of complications.

RESULTS

Seventy-three cords in 72 hands were injected with Xiaflex over the study period. Seventy cords were successfully ruptured, 7 without physician intervention. A rupture was determined to be successful when there was a break in the cord as a direct result

of the treatment. We did not use the standard measurement of extension within 0-5 degrees to help minimize trauma to elderly joints and skin. A minor complication was experienced by 93% of patients: bruising or edema (62), skin tear (10), pain (2), or antecubital lymphadenopathy (1). Some patients had more than one minor complication. There were no major complications. All patients with a successful rupture were sent immediately to hand therapy for three months of nighttime splinting. Three cords failed to rupture, giving a 96% success rate. Patients who failed rupture were not sent to hand therapy, but were given the option of a repeat injection in thirty days or a partial fasciectomy. One patient chose partial fasciectomy and two chose no further treatment. Three successful ruptures went to the OR within 4-6 months from the injection due to rapid recurrence or symptomatic remaining cord. No anatomic distortion was noted intra operatively. The most common complication other than bruising was skin tearing (n = 10). This did not require intervention other than local wound care. A Fisher exact test found that skin tears were more likely to be found in patients with preexisting metacarpal phalangeal joint measurements = or > 60 degrees (p = 0.001) (Table 1).

DISCUSSION

Dupuytren's disease is an inherited disease of the palmar fascia, found most often in men of Northern European descent, and has an incidence that increases with advancing age [1]. Palpable cords and nodules can progress to cause digital contractures affecting the metacarpal phalangeal joints, proximal inter phalangeal joints, and the web spaces. Multiple treatment options have been available for decades including dermatofasciectomy, limited fasciectomy, segmental aponeurotomy, needle aponeurotomy, and most recently, collagenase clostridium histolyticum (trade name: Xiaflex) injection [2]. The advantage of the injection is that it is a minimally invasive procedure that allows the patient to avoid the operating room and the multiple post op appointments with the surgeon and hand therapist [3]. Current literature indicates a high rate of patient satisfaction with this option [4,5].

Xiaflex became available to the North Florida/South Georgia Veterans Healthcare System in December 2010. Treatment patterns in the United States show a growth of Dupuytren contracture encounters and a decrease in surgery since the FDA approved Xiaflex that year [6]. The veteran population has unique healthcare needs due to poverty and complex medical conditions [7]. This can make elective surgery, which requires anesthesia, transportation, and multiple follow up appointments, a burdensome challenge. Many of the veterans at our facility are elderly and prefer to avoid the multiple visits required for surgical treatment and hand therapy, but request treatment for palmar cords that cause digital contractures.

Table 1: Skin tears after Xiaflex injection.

Xiaflexa: 73 injections	Tears (+)	No Tears (-)
MCP contracture = or > 60	9	21
MCP contracture < 60	1	42
Total	10	63
P = 0.001		

The complication rate from surgery ranges from 14-67% [8] and includes delayed healing, nerve injury, complex regional pain syndrome, wound infection, hematoma, and recurrence [2,8]. The most common complications with Xiaflex are: localized swelling, pain, bruising, pruritus, and temporary lymphadenopathy and tenderness [9]. Our overall rate of minor complications (93%) was consistent with another VA study out of New Jersey's healthcare system [10]. Tendon and pulley rupture are rare, but has happened when the small digit was injected too deep to the skin and too distal from the proximal finger crease [11], or multiple simultaneous injections were placed [12].

The treatment costs are something to be considered. The VA receives a discounted rate of \$2263.83 per vial (one injection). The standard rate is \$3300. Using the 2015 VISTA (Veterans Health Information Systems and Technology Architecture) Charge Master rate, the office "charges" \$1285.14 for the injection (\$943.79 facility fee + \$341.35 professional fee using CPT code 20527) and \$1777.39 (\$ 1390.27 facility fee + \$387.12 professional fee using CPT 26341) for the manipulation. This is followed by one hand therapy visit for evaluation, exercise instruction, and splinting (facility fee \$307.21: \$167.79 for initial evaluation using CPT 97003, \$64.07 therapeutic exercises using CPT 97110, and \$75.35 for orthotic management and training using CPT 97760). Staged treatment for multiple digits, repeat injections for failed initial rupture, and repeat injections for recurrent disease can make this a costly endeavor. Recurrence rates have ranged from 10-47%, with a follow up time up to 5 years [8,13]. Long term follow up was less impressive with 4/6 MCP and 2/2 PIP contracture recurrences over 8 years [14].

In comparison, the surgical package for a single digit and palmar partial fasciectomy (CPT 26123) charges \$17,388.82 (\$13,080.82 facility fee + \$4308 professional fee). This is followed by 4-6 hand therapy appointments that can total \$574.77 to \$702.91 assuming visits 3-6 are for therapeutic exercises only. Mean follow up of 1.5-7.3 years found a recurrence rate of 12-39% over 1.5-7.3 years [8].

Percutaneous fasciotomy is another treatment option. The recurrence rate has been found up to 84.5% at five years [15]. The procedure is not routinely offered at our facility, but it has been found to have a low complication rate, mostly skin tears (2-3%) and a faster recover than surgery; however, one tendon laceration in 723 cases was noted [16].

Partial fasciectomy is still the standard that any other treatment is measured against. Fasciectomy patients maintain their gains longer [17], which is more cost effective in the long-term. The four patients in this study who had eventual surgical treatment after failing Xiaflex treatment did not have distorted anatomy beyond what is typically found in Dupuytren's patients, which is consistent with recent literature [18].

The plastic surgery service chose to be conservative with the Xiaflex injections and placed them only in the palmar cords. There were no serious complications found with the use of Xiaflex at our facility. We found Xiaflex to be a safe and reasonable non operative treatment when used conservatively for the veteran population with digital contractures resulting from Dupuytren cords in the palm. Bruising and edema were most common

(Figure 1,2), which is consistent with the current literature [9,10,13]. We found patients who had MCP contractures \geq 60 degrees were more likely to develop skin tears, which were treated with local wound care. Skin tears typically heal rapidly with no intervention [1]. We now forewarn patients who have MCP contractures \geq 60 degrees that they are more likely to experience skin tears (Figure 3). This may be a problem for patients whose occupations will not tolerate open wounds (for example: scrub technicians, cleaning/maintenance workers). We are also treating those cases more cautiously with a higher tolerance for incomplete extension on the day of cord rupture.

A limitation of the study is the retrospective nature of the review. We did not pursue long term follow up due to the physical and geographic challenges this patient population experiences. We felt confident that no serious complication was missed due to the ease in communication that the electronic medical record affords providers throughout the VISN (Veterans Integrated Service Network). This makes it likely that the patient would have been referred back to our clinic in the event of a post procedure complication. We did not measure success as achieving extension up to within 5 degrees of full extension as other published studies have done (9,13,17) and chose to measure success as a break within the cord (usually audible) that was a direct result of the injection.

CONCLUSION

Xiaflex is a safe and reasonable alternative to surgical intervention for symptomatic Dupuytren's cords causing



Figure 1 Xiaflex pre injection.



Figure 2 Xiaflex post injection showing palmar bruising.



Figure 3 Skin tear after manipulation.

metacarpophalangeal joint contractures in the veteran population. Patients with an MCP contracture greater than or equal to 60 degrees are at a higher risk of skin tears. Most patients can anticipate bruising or edema at the injection site.

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DISCLAIMER

The opinions expressed herein are those of the authors and do not necessarily reflect those of the US Government or any of its agencies.

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