

Prolotherapy with Dextrose for Treatment of Tamoxifen Associated de Quervain's Syndrome: A Case Report

Rachel Santiago MD¹, Earl Smith MD, PhD²

1. Department of Rehabilitation and Human Performance, Icahn School of Medicine at Mount Sinai, New York, NY; 2. Department of Rehabilitation, James J. Peters Veterans Affairs Medical Center, Bronx NY

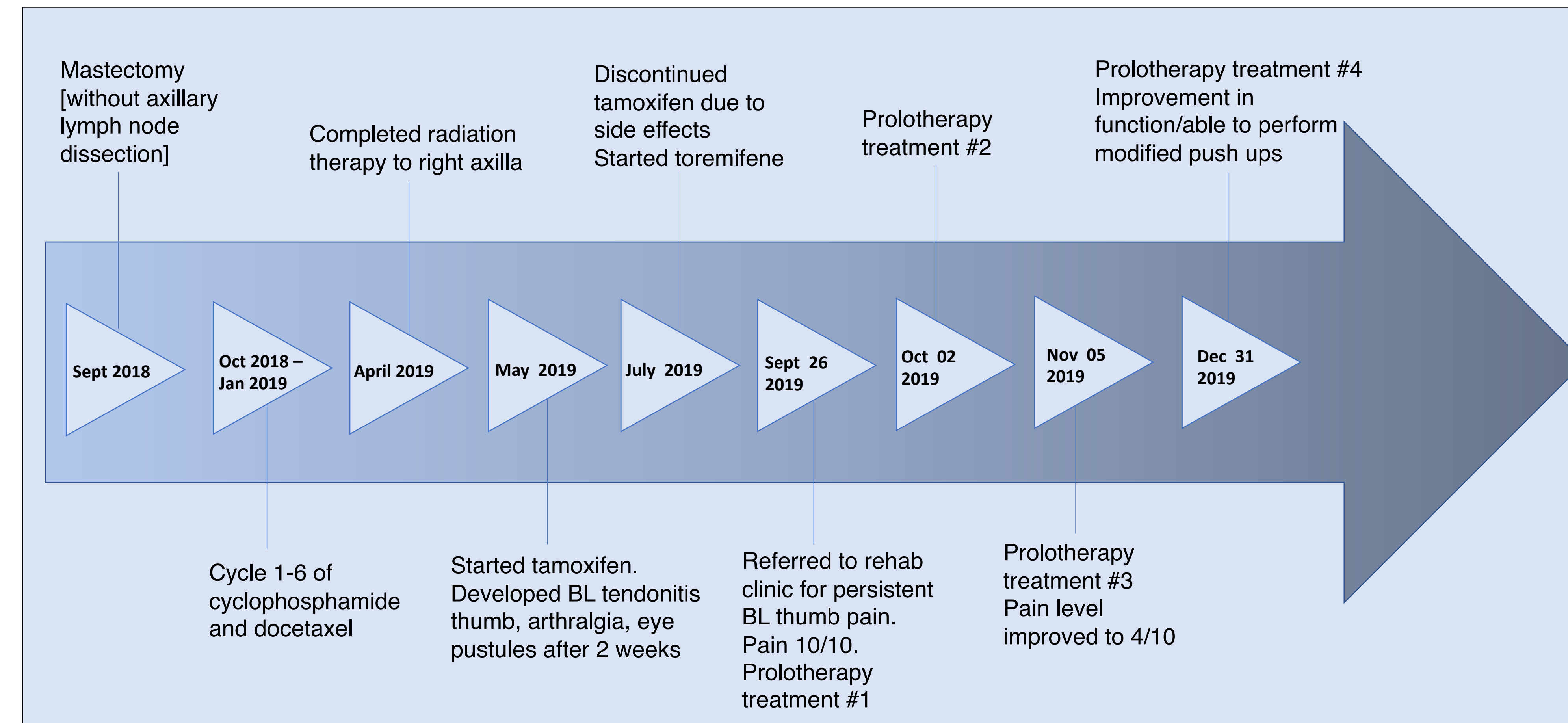
BACKGROUND

- The injection of isotonic dextrose (5% dextrose in water; D5W) adjacent to tendons and ligaments is an emerging modality to reduce pain, improve function and restore connective tissue
- Dextrose prolotherapy is believed to induce expression of fibroblasts causing a release of growth factors and collagen deposition as well as having a rapid neurogenic effect on pain producing c-fibers
- The effects of tamoxifen on estrogen can cause severe musculoskeletal symptoms such as tenosynovitis that result in discontinuation of treatment
- The use of prolotherapy for musculoskeletal syndromes is a potential treatment option in the field of cancer rehabilitation

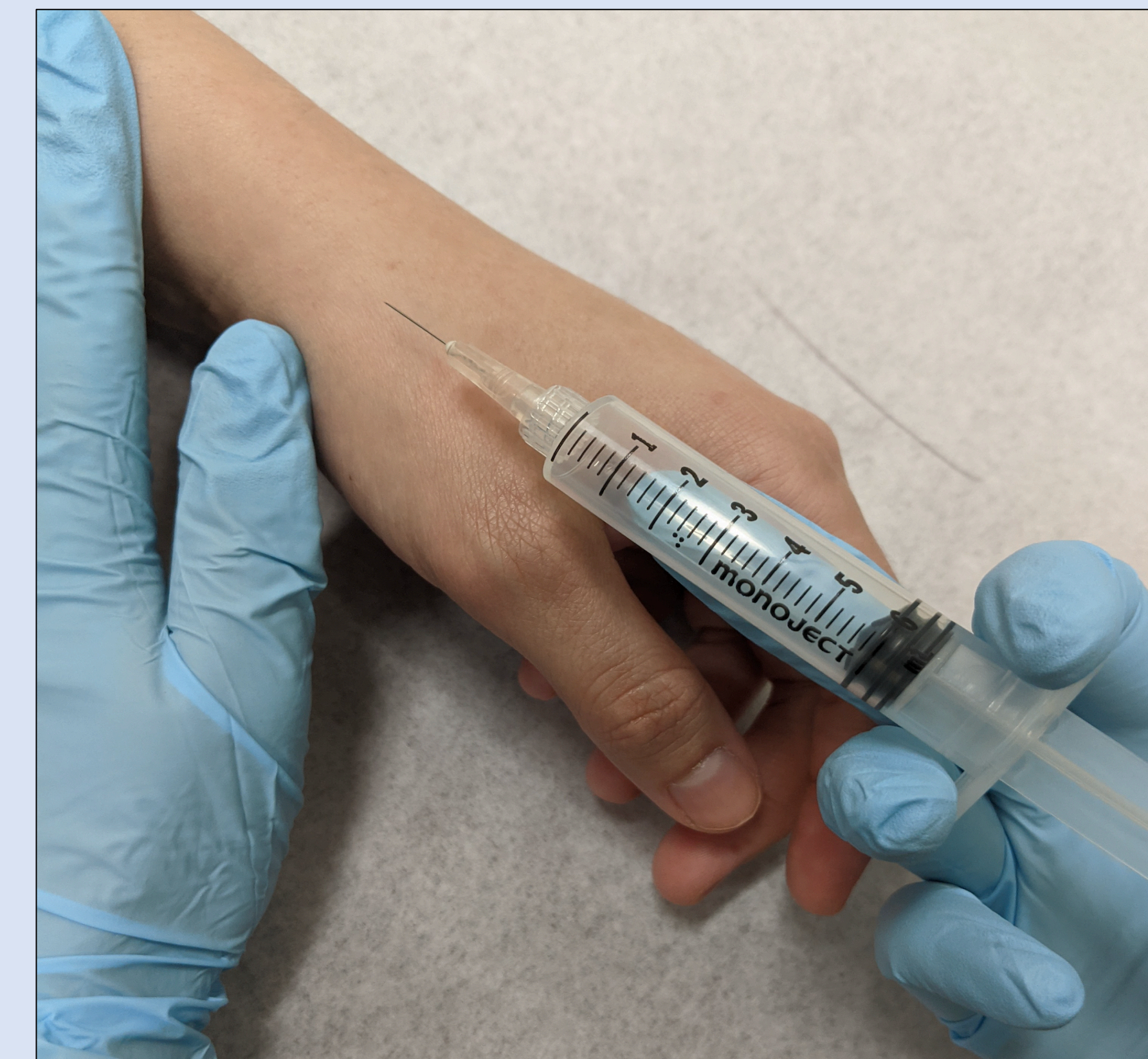
CASE DESCRIPTION

A 42-year-old female with invasive ductal breast cancer was treated with cyclophosphamide, docetaxel and radiotherapy. Tamoxifen was started after completion of chemotherapy and radiation. Two week after initiation of tamoxifen the patient experienced severe pain in tendons of both thumbs along with eye pustules and arthralgias. Tamoxifen was discontinued and transitioned to toremifene after 2 months with resolution of eye pustule and improvement in joint pain but with persistent pain in the extensor tendons of both hands. Hand pain interfered with self-grooming, bathroom hygiene, fine motor hand coordination, cooking, cleaning and dressing. Inflammatory signs were noted with palpable nodules at the base of the thumbs. On examination she was positive for severe pain with palpation of the radial aspect of bilateral wrists and positive for Finkelstein's test. Inflammatory signs were noted with palpable nodules at the base of the thumbs. Electromyogram and nerve conduction studies ruled out peripheral entrapment.

TREATMENT TIMELINE



INTERVENTION



The patient was treated with 3mL of isotonic 5% dextrose in water at the intersection of the first and second dorsal compartments of the wrist. Pain was completely relieved and sustained after a series of 4 prolotherapy injection sessions.

Mechanism of prolotherapy treatment

Inflammatory
Increased blood flow, immune cells remove damaged unhealthy tissue from area

Fibroblastic
Fibroblasts form new collagen

Maturation
Collagen density and tissue strength increased

DISCUSSION

Tenosynovial changes and arthralgias are known adverse effects of tamoxifen use that may result in discontinuation of therapy. The use of prolotherapy for tenosynovitis has been demonstrated in isolated case reports. We present a unique case of tamoxifen induced bilateral tenosynovitis improved with isotonic dextrose prolotherapy. Dextrose prolotherapy is believed to induce expression of fibroblasts causing a release of growth factors and collagen deposition as well as having a rapid neurogenic effect on pain producing c-fibers. In our case the patient endorsed difficulty with activities of daily living including self-grooming, cleaning, cooking, bathroom hygiene and dressing prior to treatment. At the completion of treatment sessions the patient demonstrated improved function marked by pain free return to activities of daily living.

CONCLUSIONS

This is the first known case, to our knowledge, of the use of prolotherapy for treatment of tamoxifen induced tenosynovitis. Musculoskeletal adverse effects are relatively common with the treatment of tamoxifen and aromatase inhibitors that may require discontinuation of therapy. Prolotherapy is a potential treatment for pain and improvement in function in this population and should be a considered pain treatment in the field of cancer rehabilitation. Prolotherapy is a relatively safe treatment with a low side effect profile that has the potential to improve functional outcomes as well as the adherence to cancer treatment regimens.

REFERENCES

1. Reeves KD, Sit RWS, Rabago D. Dextrose prolotherapy: A narrative review of basic science and clinical research, and best treatment recommendations. *Phys Med Rehabil Clin N Am.* 2016;27(4):783-823.
2. Lyftogt J. Pain conundrums: which hypothesis? Central nervous system sensitization versus peripheral nervous system autonomy. *Australasian Musculoskeletal Medicine.* 2008;13(11):72-74.
3. Rabago D, Best TM, Beamsley M, Patterson JJ. A systematic review of prolotherapy for chronic musculoskeletal pain. *Clin J Sport Med.* 2005;15(5):376-380.
4. Howell A., Cuzick J., Baum M., Buzdar A., Dowsett M., Forbes J.F. Results of the ATAC (Arimidex, Tamoxifen, Alone or in Combination) trial after completion of 5 years' adjuvant treatment for breast cancer. *Lancet.* 2005 Jan 1-7;365(9453):60-62.