Neuropathic Pain Following Poly-L-Lactic Acid (Sculptra) Injection

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Abstract: **Injectable fillers have become a prevalent means of facial rejuvenation and volume expansion. While typically well tolerated, serious complications have been reported. The authors present a case in which an otherwise healthy female with a history of multiple filler injections including poly-L-lactic acid, developed 3 weeks of neuropathic pain in the left temporal fossa following injection. To the best of the authors knowledge, neuropathic pain has not been reported as a complication following poly-L-lactic acid injection. The patient was treated with an injection of steroid and long-acting anesthetic with resolution of symptoms.**

Injectable fillers, such as poly-L-lactic acid (PLA; Sculptra, Dermik Laboratories, Bridgewater, NJ), are an increasingly common means of minimally invasive facial rejuvenation. In the hands of a well-trained and experienced practitioner, these compounds are typically well tolerated, effective, and have a relatively strong safety profile. There have however been reports of serious complications including severe vision loss,[1] orbital infarction,[1] persistent inflammatory nodules,[2] and infection.[3–5] Herein, the authors report a case of persistent neuropathic pain following PLA injection and its subsequent treatment with resolution of symptoms. This case report was prepared in accordance with Helsinki and Health Insurance Portability and Accountability Act regulations.

CASE

An otherwise healthy 65-year-old woman presented with a 3-week history of pain and paresthesias in her left temporal fossa. The patient had a history of multiple filler injections including most recently an injection of PLA to the bilateral temporal fossae 3 weeks prior. The filler had been reconstituted 72 hours prior to injection in standard fashion with 7 ml of sterile water and 2 ml of 2% lidocaine without epinephrine. 2.5 ml of reconstituted filler was then delivered with a 25 gauge sterile needle with injection in a fan-like tunneling distribution to the temporal fossae bilaterally without immediate complication. Care was taken to avoid the usual location of the zygomaticotemporal and auriculotemporal nerves. Her previous filler injections included PLA delivered to other areas of the face and had been accomplished without immediate or remote complication. In 2 weeks following injection the patient had, without the authors knowledge, visited a local emergency department on 2 occasions and seen a neurologist complaining of temporal pain. The substantial workup by these outside providers including imaging was nondiagnostic. The possibility that her pain was related to the filler injection was not apparent to the patient or any other treating physicians. At the time of presentation, visual acuity was unchanged from baseline, and there were no cutaneous signs of inflammation or infection. There were no other neurologic signs or symptoms and no lesion or palpable mass in the area of concern. There was no point tenderness to palpation; rather a general complaint of dull ache and paresthesias in the inferior aspect of the temporalis fossa.

The authors elected to treat the patient off-label with 3 ml total of a mixture consisting of 20% triamcinolone acetonide suspension (Kenalog 10, Bristol-Myers Squibb Company, New York, NY), 50% lidocaine (2% Lidocaine hydrochloride, Hospira Inc, Lake Forest, IL), and 30% bupivacaine hydrochloride (0.5% Marcaine, Hospira Inc, Lake Forest, IL) injected in the region of the zygomatico-temporal branch of the second division of the trigmenal nerve. The patient experienced rapid improvement of her symptoms within 24 hours. She has most recently returned for follow up at 3 months following initial filler injection and is free of any recurrence of pain or sensory deficits in the area in question.

DISCUSSION

Initially approved in Europe and marketed as New-Fill, the United States Food and Drug Administration approved PLA, marketed as Sculptra, in 2004 for use in human immunodeficiency virus-associated lipodystrophy. Since that time, PLA has been used extensively for aesthetic indications to engender volumetric expansion and facial rejuvenation. The mechanism of action appears to be foreign body giant cell reaction with secondary fibroblast recruitment and subsequent collagen deposition to the target tissues over a period of weeks to months.[6,7] While relatively well tolerated, serious immediate and delayed complications have been reported.[1–5] The most common adverse reactions include edema at the injection site, palpable nodules, immediate pain, and bruising.[8–10] To the best of the authors knowledge, persistent neuropathic pain following PLA injection has not been previously described. The patient appeared to have neuropathic pain in the territory of the zygomatico-temporal nerve. While the authors do not believe her symptoms to be due to needle-induced trauma to the zygomatio-temporal nerve, the authors cannot categorically exclude this possibility. The authors postulate that focal postinjection inflammation from PLA incited zygomatico-temporal nerve inflammation. The treatment was designed to test the peripheral nerve involvement with long-acting anesthetic block, and also to treat the postulated inflammation with depot corticosteroids. This treatment effectively accomplished complete resolution of symptoms within 24 hours with no known recurrence. This case report demonstrates not only this uncommon complication but also the limited knowledge of noncosmetic practitioners in assessing symptoms of filler injection complications. The authors advocate that patients may be informed of such possible symptoms so that they may be effectively triaged and managed.

REFERENCES

1. Roberts SA, Arthurs BP. Severe visual loss and orbital infarction following periorbital aesthetic poly-(L)-lactic acid (PLLA) injection. *Ophthal Plast Reconstr Surg* 2012;28:e68–70.
2. Stewart DB, Morganroth GS, Mooney MA, et al. Management of visible granulomas following periorbital injection of poly-L-lactic Acid. *Ophthal Plast Reconstr Surg* 2007;23:298–301.
3. Ledon JA, Savas JA, Yang S, et al. Inflammatory nodules following soft tissue filler use: a review of causative agents, pathology and treatment options. *Am J Clin Dermatol* 2013;14:401–11.

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4. Fiore R, 2nd, Miller R, Coffman SM. Mycobacterium mucogenicum infection following a cosmetic procedure with poly-L-lactic acid. *J Drugs Dermatol* 2013;12:353–7.
5. Daines SM, Williams EF. Complications associated with injectable soft-tissue fillers: a 5-year retrospective review. *JAMA Facial Plast Surg* 2013;15:226–31.
6. Lam SM, Azizzadeh B, Graivier M. Injectable poly-L-lactic acid (Sculptra): technical considerations in soft-tissue contouring. *Plast Reconstr Surg* 2006;118(3 Suppl):55S–63S.
7. Sherman RN. Sculptra: the new three-dimensional filler. *Clin Plast Surg* 2006;33:539–50.
8. Valantin MA, Aubron-Olivier C, Ghosn J, et al. Polylactic acid implants (New-fill) to correct facial lipoatrophy in HIV-infected patients: results of the open-label study VEGA. *AIDS* 2003;17:2471–7.
9. Moyle GJ, Lysakova L, Brown S, et al. A randomized open-label study of immediate versus delayed polylactic acid injections for the cosmetic management of facial lipoatrophy in persons with HIV infection. *HIV Med* 2004;5:82–7.
10. Lafaurie M, Dolivo M, Porcher R, et al. Treatment of facial lipoatrophy with intradermal injections of polylactic acid in HIV-infected patients. *J Acquir Immune Defic Syndr* 2005;38:393–8.