

# Liraglutide-Induced Injection Site Reaction

Nada Fouda Neel, Yasser Ghobara, Mohammed Turkmani

Derma Clinic Center, Riyadh, Saudi Arabia

## Abstract

Liraglutide is an antidiabetic drug given subcutaneously for weight reduction. We report a 35-year-old woman who presented with a rash after starting liraglutide. The rash consisted of erythematous well-defined plaques surrounded by ecchymotic patches on extensor aspects of the thighs at the sites of liraglutide injection with gradual onset and progressive course. The exact cause of the reaction is unknown. The eruption resolved after discontinuation of treatment.

**Keywords:** Antidiabetic, liraglutide, rash, side effect, skin reaction

## INTRODUCTION

Liraglutide is a glucagon-like peptide-1 (GLP-1) receptor agonist used in patients with type 2 diabetes to improve glycemic control.<sup>[1]</sup> The Food and Drug Administration (FDA) has approved the diabetes drug liraglutide for the treatment of obesity. The weight reduction effect of liraglutide in patients with type 2 diabetes was observed in a series of multiple phases 3 randomized.<sup>[2]</sup> Patients without type 2 diabetes showed a sustained effect on weight loss using doses of up to 3.0 mg of liraglutide.<sup>[3]</sup>

Some adverse reactions have been reported during postapproval use of liraglutide including allergic reactions (rash and pruritus).<sup>[4]</sup> We report a patient with injection site reaction associated with liraglutide treatment.

## CASE REPORT

A 35-year-old female sought medical advice for a mildly itchy skin rash, which appeared on both the thighs after 2 weeks of using liraglutide 3.0 mg subcutaneous injection for weight reduction. She weighs 86 kg, and her height is 162 cm. On cutaneous examination, there were bilateral erythematous well-defined plaques surrounded by ecchymotic patches on both extensor aspects of the thighs at the sites of liraglutide injection. The lesions had developed gradually and progressively [Figure 1]. The patient was otherwise healthy and not taking any other medications. Laboratory test results were normal including complete blood count,

international normalized ratio, prothrombin time, and partial thromboplastin time.

On follow-up examination 2 weeks after instructing the patient to discontinue the medication, the rash resolved leaving deeply seated, hard, firm nodules at the same site [Figure 2]. No biopsy was obtained.

## DISCUSSION

In 2013, obesity was classified as a disease by the American Medical Association.<sup>[5]</sup> Furthermore, obese patients have a higher risk of developing cardiovascular diseases, diabetes, certain types of cancers, and other chronic conditions, which often affect older adults.<sup>[6]</sup> The problem of obesity extends globally as estimated by the WHO. In 2008, 1.5 billion adults were obese worldwide, where nearly 300 million women and over 200 million men were obese. The rising trend is not confined to the developed world, and it is predicted that by 2030, majority of the adult population of the world would be either obese or overweight.<sup>[7]</sup> As obesity is associated with a wide range of comorbidities, there is an urge for new treatment modalities.<sup>[8]</sup>

In December 2014, liraglutide became the first GLP-1 receptor agonist approved by the FDA for the use of long-term

**Address for correspondence:** Dr. Nada Fouda Neel,  
Medical Intern, Alfaisal University, Riyadh, Saudi Arabia.  
E-mail: [nfouda93@gmail.com](mailto:nfouda93@gmail.com)

### Access this article online

#### Quick Response Code:



Website:  
[www.jddsjournal.org](http://www.jddsjournal.org)

DOI:  
10.4103/jdds.jdds\_5\_19

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

**For reprints contact:** [reprints@medknow.com](mailto:reprints@medknow.com)

**How to cite this article:** Neel NF, Ghobara Y, Turkmani M. Liraglutide-induced injection site reaction. *J Dermatol Dermatol Surg* 2019;23:97-8.



**Figure 1:** Initial presentation of the patient showing bilateral erythematous well-defined plaques surrounded by ecchymotic patches on both extensor aspects of the thighs at the sites of liraglutide injection

weight management through its effect on satiety and gastric emptying. Liraglutide is a GLP-1 receptor agonist. GLP-1 is a physiological regulator of appetite and food intake, and it is used as an adjunct to diet and exercise to improve glycemic control in adults with type 2 diabetes mellitus, as well as to reduce the risk of major adverse cardiovascular events in adults with type 2 diabetes mellitus and established cardiovascular disease.<sup>[9]</sup>

Liraglutide is administered subcutaneously as an isotonic solution. The Subcutaneous (SQ) injection may be given in the abdomen, thigh, or upper arm. The most common adverse events of liraglutide are nausea, diarrhea, and vomiting, but other serious side effects such as thyroid malignancy, pancreatitis, tachycardia, and gallstones might occur.<sup>[10]</sup> Our patient was started on liraglutide for weight reduction. She experienced an injection site reaction, which evolved into deeply seated hard firm painless cutaneous nodules on both extensor surfaces of the thigh. The exact cause is unknown, but we suggest a self-limited hypersensitivity reaction. The patient refused skin biopsy due to the unwanted expected postoperative scar.

## CONCLUSION

Side effects of liraglutide might be on the rise due to increased use. Unusual localized skin reactions may occur after subcutaneous liraglutide.

## Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have



**Figure 2:** Two weeks follow-up after discontinuation of liraglutide showing excellent resolving of the rash with new deeply seated, hard, firm nodules developed at the same site

given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

## Financial support and sponsorship

Nil.

## Conflicts of interest

There are no conflicts of interest.

## REFERENCES

1. Isaacs D, Prasad-Reddy L, Srivastava SB. Role of glucagon-like peptide 1 receptor agonists in management of obesity. *Am J Health Syst Pharm* 2016;73:1493-507.
2. McGill JB. Insights from the liraglutide clinical development program – The liraglutide effect and action in diabetes (LEAD) studies. *Postgrad Med* 2009;121:16-25.
3. Astrup A, Carraro R, Finer N, Harper A, Kunesova M, Lean ME, *et al.* Safety, tolerability and sustained weight loss over 2 years with the once-daily human GLP-1 analog, liraglutide. *Int J Obes (Lond)* 2012;36:843-54.
4. VICTOZA® (Liraglutide) Injection, for Subcutaneous Use Initial U.S. Approval; 2010. Available from: [https://www.accessdata.fda.gov/drugsatfda\\_docs/label/2017/022341s0271bl.pdf](https://www.accessdata.fda.gov/drugsatfda_docs/label/2017/022341s0271bl.pdf) and [usg=AOvVaw1vIECyA2Hal\\_v3kva7WOKt](https://www.accessdata.fda.gov/drugsatfda_docs/label/2017/022341s0271bl.pdf). [Last retrieved on 2017 Aug 25].
5. American Medical Association. AMA Adopts New Policies on Second Day of Voting at Annual Meeting. American Medical Association; 2013. Available from: <http://www.ama-assn.org/ama/pub/news/news/2013/2013-06-18-new-amapolicies-annual-meeting.page>. [Last accessed on 2014 Dec 19].
6. Hurt RT, Edakkanambeth Varayil J, Ebbert JO. New pharmacological treatments for the management of obesity. *Curr Gastroenterol Rep* 2014;16:394.
7. Alqarni M. A review of prevalence of obesity in Saudi Arabia. *J Obes Eat Disord* 2016;2:2.
8. Boutayeb A, Boutayeb S, Boutayeb W. Multi-morbidity of non communicable diseases and equity in WHO Eastern Mediterranean countries. *Int J Equity Health* 2013;12:60.
9. Novo Nordisk AS. Victoza (Liraglutide), Product Information. Princeton, NJ: Novo Nordisk Inc.; 2010.
10. Iepsen EW, Torekov SS, Holst JJ. Liraglutide for type 2 diabetes and obesity: A 2015 update. *Expert Rev Cardiovasc Ther* 2015;13:753-67.