New-Onset Psoriasis Following Liraglutide Initiation

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Introduction

- Glucagon-1 peptide receptor agonists (GLP-1RA) have been found to have anti-inflammatory effects that could aid in dermatologic conditions such as psoriasis.
- However, there is also documentation of an exacerbation of psoriatic lesions after the initiation of liraglutide in a patient with a history of psoriasis.

Case Presentation

- A 39-year-old female with a history of type 2 diabetes mellitus and obesity was referred to dermatology clinic after an emergency department visit for a worsening rash.
- She had a three-year history of GLP-1RA use for diabetes and obesity management.
- Three months prior to the onset of the eruption, she had switched from Wegovy (semaglutide) to Saxenda (liraglutide).
- On month 6 of liraglutide use (Fig. 2), the patient presented to the emergency department with a painful eruption that had spread from her bilateral hands to her upper extremities, lower extremities, and trunk over a three-month period. A review of systems was negative for fever, chills, chest pain, dyspnea, mucosal lesions, and drainage from the lesions.
- Vitals revealed a temperature of 36.7 degrees Celsius, heart rate of 92 bpm, and blood pressure of 171/112.
- With no concern for infection, the patient was discharged home with a dermatology outpatient referral.
- The examination at the dermatology clinic visit revealed ovoid, sharply demarcated, violaceous plaques with silvery scale that covered 60% of her body surface area (Fig. 1A-D).
- A shave biopsy was performed from a representative lesion on the right upper abdomen and surgical pathology confirmed a psoriasis diagnosis (Fig. 3).
- Blood work was completed in anticipation of starting a biologic to treat the psoriasis. Workup consisted of a comprehensive metabolic panel, complete blood count, hepatitis B core antibody/surface antigen/surface antibody, hepatitis C antibody, HIV-1 and HIV-2 antibodies, and quantiferon TB gold that were within normal range.
- Given the patient's biopsy, psoriatic plaque morphology, and timing association with liraglutide initiation, she was clinically diagnosed with drug-induced new-onset psoriasis.
- The patient was given a triamcinolone-acetonide 60 mg injection in clinic and prescribed triamcinolone 0.1% ointment to be applied twice daily for two weeks and then once every other day for two weeks.
- At the one month follow-up appointment, the patient reported that she had discontinued liraglutide and that her rash had improved significantly with only some lesions remaining. The biologic medication was not started due to this improvement.

Clinical Photos

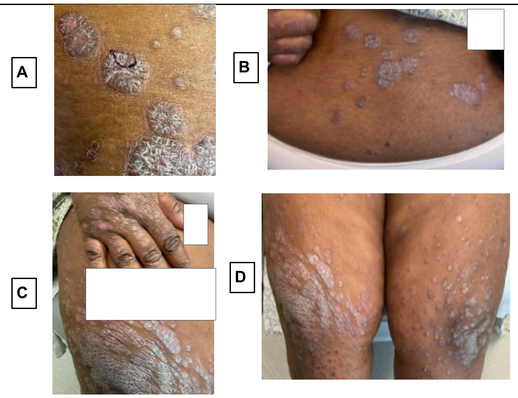

Fig. 1A - right upper abdomen biopsy site of scaly, ovoid plaque

Fig. 1B - upper abdomen

Fig. 1C - right hand and lower extremity

Fig. 1D - bilateral lower extremities

Clinical Timeline

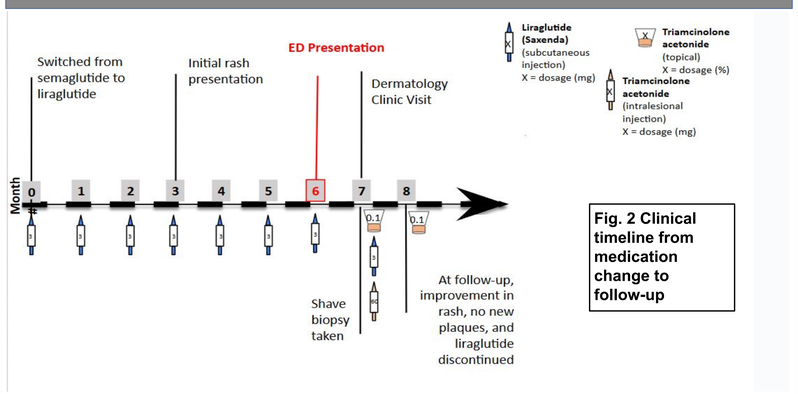

Fig. 2 Clinical timeline from medication change to follow-up

Histopathology

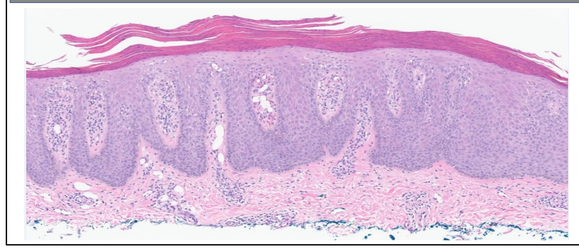

Fig. 3 20x H&E slide of the shave biopsy from a lesion on the right, upper abdomen indicating psoriasis

Discussion

GLP-1RAs have been found to improve psoriasis severity and reduce proinflammatory cytokines in multiple case series and randomized controlled trials. However, a 2023 case documented an exacerbation of psoriatic lesions after the initiation of liraglutide in a patient with a history of psoriasis.

Notably, in this case, a patient with no history of psoriasis developed psoriasis three months after initiating liraglutide. The eruption had the classic presentation of sharply demarcated, violaceous plaques with silvery scale. Additionally, histopathology confirmed the psoriasis diagnosis and displayed classic findings including acanthosis, parakeratosis, and clubbed rete ridges.

Many medications, including beta-blockers, lithium, and TNF-alpha inhibitors, have been linked to the exacerbation or induction of psoriasis. Additionally, latency periods between the start of the medication and onset of psoriasis could vary from days to months depending on the medication. In this case, there was a temporal relationship between the start of liraglutide and the onset of psoriasis with the latency period being around three months. Additionally, after discontinuation of liraglutide and initiation of triamcinolone ointment, the patient noted significant improvement with no development of new plaques.

In this case, a potential variable limiting the association between liraglutide and psoriasis was that the patient had a three-year history of GLP-1RA use with no adverse events or rash development. However, studies have shown that semaglutide has superior efficacy compared to liraglutide in glycemic control and weight loss. Switching from semaglutide to a less efficacious GLP-1RA, liraglutide, could have promoted an inflammatory state that contributed to the psoriasis development. However, more studies need to directly compare the anti-inflammatory properties of liraglutide to semaglutide in order to definitively make this conclusion.

Conclusion

In conclusion, this report serves to increase awareness of the potential of psoriasis development with use of specific GLP-1RAs, such as liraglutide. A comprehensive side effect profile is essential to effective utilization of these medications within dermatology.

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