Unusual Presentation of Injection Site Adverse Effect

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Abstract

Insulin is an integral part of Type 1 diabetes management. Patient education is of utmost importance to ensure proper injection technique for getting appropriate glycaemic control and to avoid injection site adverse effects. Commonest injection site adverse effect is lipodystrophy.¹ We present a case where incorrect injection technique led to an unusual presentation of injection site adverse effect, which is resolving after correction of the injection technique.

Introduction

Diabetes control rests upon the knowledgeable participation of the patient, even more so for Type 1 diabetes. Insulin is the life line for Type 1 diabetes patients and the patient is expected to take the injections himself. Good injection technique is essential for proper effect of insulin as well as to avoid injection site adverse effects. We present a case which demonstrates a peculiar injection site adverse effect which, though resolving after correction of the injection technique, is still visible 1.5 years later.

Case Report

A boy diagnosed to have Type 1 diabetes at the age of 11 years, reported to our clinic 3.5 years later in quest of insulin pump. He was on twice a day pre-mixed human insulin (30% soluble Insulin and 70%Isophane Insulin) and Insulin Glargine at bed time. He looked sick, was nauseated and had vomits which were attributed by his parents to acidity. On examination, he was dehydrated and urine showed positive for ketones. His weight (43kg) was low for his age (25th centile – IAP guidelines).²

He gave history of persistently high blood sugars, with frequent nausea and vomiting. Fasting sugar that day was 425 mg% and postprandial 363 mg%. Hypoglycaemia had never been a problem, except 2 years ago when the blood sugar had dipped to 35 mg%. They reported to be doing home monitoring only intermittently and were unaware of the need to monitor HbA1c.

On inspection, his injection sites showed lipohypertrophy and unusual injection marks. His mother, who gave the insulin injections, explained that she held the syringe “straight” as she had been “told” at the time of diagnosis. When asked to demonstrate, it was evident that she was holding the syringe parallel to the skin, instead of perpendicular to the skin as required for subcutaneous injection. Both arms and thighs had these scar marks of varied grades of pigmentation on the hypertrophied injection sites (Figure 1).

The patient and his parents were explained and demonstrated the proper injection technique, including the

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and vomiting had disappeared. One and the perpetual complaint of nausea improved, with subsequent improvement in physical growth.

Patient’s appearance also improved from 43 kg to 55 kg (25th to nearly 50th centile - IAP guidelines). 2

Discussion

Insulin is the life line for Type 1 Diabetes patients. Inappropriate use of insulin can be hazardous. Since patients are expected to take the injections themselves, patient and family education is imperative for optimal management of diabetes.3

Conventionally, insulin needs to be injected in the subcutaneous fat tissue. Various global and national fora have defined the guidelines for correct injection technique. These guidelines must form an essential component of patient education at the initiation of insulin treatment. Incorrect injection technique can lead to localized cutaneous reactions like lipodystrophy, which in turn compromise the glycaemic control.6

In the case reported here, incorrect injection technique resulted in small scars with abnormal pigmentation at the injection sites, in addition to localized lipohypertrophy and poor glycaemic control. We came across two other reports of similar skin injury. One report attributed the manifestation to post-inflammatory hyperpigmentation after micro trauma caused due to repeated use of the needle.7 The other report attributed it to intradermal injections leading to localized insulin allergy with resolution of the problem after switching to subcutaneous injection.8

The scar marks in our patient have also faded after correcting the injection technique and no new marks have appeared since then. This would implicate faulty injection technique as the cause, though investigations with skin biopsy would throw more light on the etiology.

Lesson to be Learned from this Case

Any psychomotor skill like the injection technique needs to be taught by demonstration and actual practice under supervision. Mere verbal instructions may be misinterpreted, resulting as it did, in our patient, in injurious injections, with poor control of diabetes.

References

7. GU Sawatkar, D Dogra, S Kumar Insulin injection: cutaneous adverse effects. IJEM 2015; 19:533-4