CASE REPORT

Bilateral Gluteal Lipodystrophy Following Intramuscular Amikacin Injections

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Abstract

Aim: To describe a 4-year-old male child who presented bilateral gluteal lipodystrophy following intramuscular amikacin injections.

Background: Intramuscular injection of various drugs can lead to localized lipodystrophy. These include insulin, corticosteroids, benzathine penicillin, methotrexate, aminoglycosides, human growth hormone, iron dextran, vasopressin, and DPT vaccine. The localized lipodystrophy following multiple intramuscular amikacin injections was not well described in pediatric population.

Case description: We report a 4-year-old male who received multiple amikacin injections over bilateral gluteal region for 6 months and now presented with localized lipodystrophy over bilateral gluteal regions. Details of history avoided further unnecessary investigation, and parents were counseled about the nature of the lesion and no further active treatment.

Conclusion: Intramuscular injection of amikacin can lead to localized lipodystrophy in children.

Keywords: Amikacin, Intramuscular injection, Lipodystrophy.

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Background

Lipodystrophy or lipoatrophy is characterized by loss of subcutaneous fat tissue, and it may be congenital or acquired, partial, or generalized. The most common form is acquired, and it is further divided into primary (idiopathic) or secondary.[1–3] The causes of localized lipodystrophy are connective tissue diseases (systemic lupus erythematosus, morphea, dermatomyositis, overlap syndrome, and Sjogren syndrome); lichen planus and atrophicus; neoplasm (T-cell lymphoma); intradermal, subcutaneous, or intramuscular drug injections (insulin, corticosteroids, benzathine penicillin, methotrexate, aminoglycosides, human growth hormone, iron dextran, vasopressin, DPT vaccine etc.); or idiopathic.[1–3] Localized lipodystrophy of bilateral gluteal regions following multiple amikacin injections is not well described in pediatric population. Establishing the diagnosis based on history, avoiding further investigations, and counseling of parents regarding benign nature of disease and absence of treatment can alleviate anxiety.

Case Description

A 4-year-old male child presented with history of receiving 5–6 amikacin injections over bilateral gluteal region 6 months before for fever, cough, and cold. After few days, he developed localized depression over both gluteal regions which was progressive for initial 1 month, and then it remained static. In addition, there was change in skin color over the depression on right side. There was no tenderness, redness, swelling, or pus discharge from the affected area, and no history of limping, trauma, fever, rash, or weight loss. Examination revealed irregular area of depigmentation and depression over right gluteal area in upper-outer quadrant measuring 6 × 5 cm and depression in left gluteal region in upper-outer quadrant measuring 3 × 4 cm with no skin color change (Fig. 1). The skin and subcutaneous tissue were atrophic. There was no sign of hyperkeratosis or inflammation over the affected areas. Systemic examination was normal. The diagnosis of localized lipodystrophy following intramuscular injection of amikacin was made, and parents were counseled about the nature of the lesion and no further active treatment.

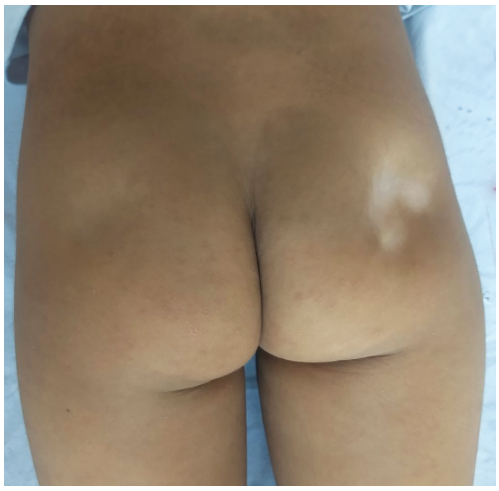

Fig. 1: Right gluteal upper-outer quadrant having irregular area of depigmentation and depression measuring 6 × 5 cm. Left gluteal upper-outer quadrant showing depression measuring 3 × 4 cm with no skin color change. The skin and subcutaneous adipose tissue were atrophic

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Discussion

The index case had received multiple intramuscular amikacin injections and developed lipodystrophy in bilateral gluteal region. Dahl et al.[4] reported 16 cases with localized lipoatrophy. Ten had solitary, 6 had multiple lesions, and 9 had previous history of intramuscular or intra-articular corticosteroid or antibiotic injections in the affected area. Sharawat and Dawman[5] reported a 9-month male child with unilateral localized lipodystrophy following single intramuscular injection of gentamicin. Kumar et al.[3] reported two boys (6-year and 3-year-old) with acquired localized lipoatrophy after multiple intramuscular injections of amikacin, similar to index case.

The possible mechanisms for lipoatrophy after injections are trauma-induced release of cytokines from macrophages leading to increased lipocyte catabolism and inhibition of lipogenesis and increased local production of tumor necrosis factor-α and interleukin-6 leading to dedifferentiation of adipocytes.[3] Histologically, the lesions are characterized by progressive reduction in size and number of adipocytes resulting in decrease in fat lobules, infiltration by macrophages, and relative lack of other inflammatory cells.[3,4]

Lipodystrophy is a clinical diagnosis, and there is no specific medical treatment. It is important to reassure parents and patient about innocuous nature of the condition. Sometimes, for cosmetic reasons and to improve appearance, fat transfer by flaps or grafts or implants and normal saline infiltration are needed.

Although benign condition, the measures are needed to prevent it by avoiding unnecessary intramuscular injections, avoiding intramuscular injections in gluteal region in infants and toddlers, as gluteal muscles are not well developed in them, and adherence among healthcare providers to basic practices and guidelines for administering intramuscular injections.

Conclusion

Since localized lipodystrophy can develop following intramuscular injections of amikacin and other drugs, unnecessary intramuscular injections need to be avoided to prevent complications.

Clinical Significance

Intramuscular amikacin can lead to localized lipodystrophy in children. Healthcare providers should avoid unnecessary intramuscular injections for minor ailments.

References

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