A Beekeeper with Recurrent Eruptive Xanthomas After Repeated Exposure to Honeybees Stings: Case Report

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ABSTRACT

Background: Eruptive xanthomas are the most common form of xanthomas and are associated with hypertriglyceridemia (type I, III, IV, V). Crops of yellow papules with erythematous halos occur primarily on the extensor surfaces of the extremities and the buttocks, and they spontaneously involute with a fall in serum triglycerides.

Objectives: We report a patient with recurrent attacks of eruptive xanthomas which have different distribution sites and unrelated to serum triglycerides.

Case report: A 38-year-old man presented with a 6-months history of recurrent multiple asymptomatic yellow-brown papules distributed mainly on the trunk, scalp, face, flexural sites of upper extremities and thighs. The patient didn't have any systemic illness, and his lipid profile was normal. The patient mentioned a history of frequent exposure to multiple honeybees stings since he acts as a beekeeper and he has several beehives with thousands of bees using it as a source of honey and apitherapy. One–year follow-up of the patient from the time of the first visit, we noticed four attacks of xanthomas developed as he worked bees and the lesions improved when we advised him to wear protective clothes.

Conclusion: This is to be registered as the fact that frequent exposure to multiple honeybees stings especially in beekeepers who are not wearing a suit protective clothes can result in eruptive xanthomas all over their body with priority to flexural sites.

Keywords: Xanthoma, Honeybees, Stings

1. INTRODUCTION

Eruptive xanthomas are multiple, small, skin–colored to yellow-brown papules that occur in crops, most commonly on the buttocks, thighs, or elbows. These distinctive papules are cutaneous signs of very high triglycerides levels. Often eruptive xanthomas are precipitated by the new onset of diabetes. Xanthomas develop through several mechanisms. A- Through scavenger receptors for enhanced low-density lipoprotein (LDL) uptake, macrophage incorporates lipid that has been transported through capillary wall, though become foam cells. B- Foam cells can also develop as a result of in situ lipid synthesis by the macrophages. C- Local factors such as heat, movement, and friction may increase LDL capillary leakage and hence result in the development of xanthoma.

We here describe a beekeeper with recurrent attacks of eruptive xanthomas developed after repeated exposure to multiple honeybees stings. Our patient didn't have any systemic illness nor abnormality regarding his investigations, and he was normolipidemic, so we considered his condition as a complication of unusual exposure to honeybees stings.
2. CASE REPORT

A 38-year-old man presented with a 6-months history of recurrent multiple asymptomatic yellow-brown papules distributed mainly on the trunk, scalp, face, flexural sites of upper extremities and thighs. He had noted that some of the lesions improved but without complete resolution while a new one erupts after it. His personal and family medical histories were negative. The patient mentioned a history of frequent exposure to multiple honeybees stings since he acts as a beekeeper and he has several beehives with thousands of bees using it as a source of honey and apitherapy.

Physical examination revealed a non-tender yellow-brownish papules their size range between 3-5 mm diameter, the majority of flat surface and the other have a dome shape, all the lesions were smooth. The papules disseminated nearly all over his body with priority to the flexural sites (Figure 1, A, B & C).

*Fig.1: Papules over different parts of the body*

The patient’s lipid profile showed serum cholesterol 196 mg/dl, triglycerides 161 mg/dl, LDL 125 mg/dl, HDL 46 mg/dl. Fasting blood sugar, thyroid function tests, liver and renal function tests, were within normal values. Complete blood film showed no abnormality. A biopsy from the upper trunk showed diffuse infiltrate of foamy histiocytes in the superficial and mid dermis with extracellular lipids (Figure 2 & 3).

*Fig.2: Haemotoxylin and eosin, x40. Showing Lipid-laden foams cells with large areas of cholesterol cleft in between.*
3. DISCUSSION

Eruptive xanthomas typically occur in the setting of hypertriglyceridemia which can be the result of lipoprotein lipase deficiency, familial hyperlipoproteinaemia, or secondary cause such as diabetes mellitus, alcohol ingestion, or exogenous estrogen. The most common setting for eruptive xanthomas is uncontrolled diabetes mellitus. Xanthomas is uncontrolled diabetes mellitus and other secondary causes of eruptive xanthomas were excluded clinically and by investigations, and the important point in the history is that the patient was frequently stung by hundred number of bees because he acts as a beekeeper and spend most of the time worked bees while he was not wearing a suit protective clothes thinking that a honeybee stings considered to be a treatment rather than poisonous. Novice beekeepers usually wear gloves and a hooded suit or hat and veil. Experienced beekeepers sometimes elect not to use gloves because they inhibit delicate manipulations. The face and neck are the most important areas to protect, so most beekeepers wear at least a veil. The venom of honeybees or apitoxin contains several components like phospholipase A2, hyaluronidase, mellitin and others. (a)Phospholipase A2 is an enzyme which degrades the phospholipids of the cell membrane. (b)Hyaluronidase of apitoxin dilate the capillaries causing the spread of inflammation. (c) Mellitin acts as a strong anti-inflammatory agent and induces the production of cortisol in the body.

A honey bee can inject 0.1 – 0.3 mg of venom via its stinger. Bee venom is used by some as a treatment for rheumatism and joint disease due to its anti-inflammatory and anticoagulant effects. The bee venom is safe for human treatments, the median lethal dose (LD50) for an adult human is 2.8 mg of venom per kg of body weight, i.e. a person weighing 60 kg has a 50% chance of surviving injections totaling 168 mg of bee venom. Assuming each bee injects all its venom and no stings are quickly removed at a maximum of 0.3 mg venom per sting, 560 stings could well be lethal for such a person. Bee stings can produce different reactions, a severe allergic reaction (anaphylaxis) to bee stings is potentially life-threatening and requires emergency treatment. While a person who received a bee venom less than the median lethal dose mentioned above can present with other types of reactions.

4. CONCLUSION

An intermediate dose of honeybee venom considered to be a local factor enhancing the leakage of LDL from capillaries resulting in an eruptive type of xanthoma because of the degradation effect of apitoxin to the lipid of the cell membrane and the capillary dilatation via its phospholipase A2 and hyaluronidase respectively. In this case, we noticed some improvement of the lesions when we asked the patient to avoid his activity for one month, the lesion resolved without treatment, while new lesions erupted when he exposed to the risk again. The predominant sites for xanthomas in our patient are the face, neck, flexural sites of upper extremities and even the scalp, i.e., sites exposed to stinging. This is to be registered as the fact that frequent exposure to multiple honeybees stings especially in beekeepers who are not wearing a suit protective clothes can result in eruptive xanthomas all over their body with priority to the more exposed sites.

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