

> THE PATIENT

37-year-old man

> SIGNS & SYMPTOMS

- Sudden-onset rash on the trunk and limbs
- Morbid obesity
- Family history of diabetes mellitus

> THE CASE

A 37-year-old man presented with a sudden-onset, nonpruritic, nonpainful, papular rash of 1 month's duration on his trunk and both arms and legs. Two weeks prior to the current presentation, he consulted a general practitioner, who treated the rash with a course of unknown oral antibiotics; the patient showed no improvement. He recalled that on a few occasions, he used his fingers to express a creamy discharge from some of the lesions. This temporarily reduced the size of those papules.

His medical history was unremarkable except for morbid obesity. He did not drink alcohol regularly and was not taking any medications prior to the onset of the rash. He had no family history of hyperlipidemia, but his mother had a history of diabetes mellitus.

Physical examination showed numerous discrete erythematous papules with a creamy center on his trunk and his arms and legs. The lesions were more numerous on the extensor surfaces of the arms and legs. Some of the papules coalesced to form small plaques (FIGURE). There was no scaling, and the lesions were firm in texture. The patient's face was spared, and there was no mucosal involvement. The patient was otherwise systemically well.

THE DIAGNOSIS

Based on the morphology, distribution, and abrupt onset of the diffuse nonpruritic papules in this morbidly obese (but otherwise systemically well) middle-aged man, a clinical diagnosis of eruptive xanthoma was suspected. Subsequent blood testing revealed an elevated serum triglyceride level of 47.8 mmol/L (reference range, <1.7 mmol/L), elevated serum total cholesterol of 7.1 mmol/L (reference range, <6.2 mmol/L), and low serum high-density lipoprotein cholesterol of 0.7 mmol/L (reference range, >1 mmol/L in men). He also had an elevated fasting serum glucose level of 12.9 mmol/L (reference range, 3.9–5.6 mmol/L) and an elevated hemoglobin A1c (glycated hemoglobin) level of 10.9%.

Subsequent thyroid, liver, and renal function tests were normal, but the patient had heavy proteinuria, with an elevated urine albumin-to-creatinine ratio of 355.6 mg/mmol (reference range, ≤2.5 mg/mmol). The patient was referred to a dermatologist, who confirmed the clinical diagnosis without the need for a skin biopsy.

DISCUSSION

Xanthomas are lipid deposits in the skin and subcutaneous tissues that arise in the setting of hyperlipidemia and are caused by underlying familial or acquired disorders. Xanthomas associated with dyslipidemias include eruptive xanthoma, tendinous xanthoma, xanthoma palpebrarum, and xanthoma tuberosum (TABLE).¹⁻³ Other non-dyslipidemia-related xanthomas include xanthoma planum, xanthoma disseminatum, linear palmar

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TABLE

Clinical features of xanthoma subtypes associated with dyslipidemia

Subtype	Clinical features	Clinical correlation with underlying hyperlipidemia
Eruptive xanthoma	Crops of yellowish to brownish papules on the trunk and extensor surfaces of the arms and legs that tend to coalesce to form small plaques	Severe hypertriglyceridemia ¹⁻³
Tendinous xanthoma	Slowly enlarging papules or subcutaneous nodules attached to tendons and ligaments; commonly affects the tendons of the dorsal hands and Achilles tendons	Familial hypercholesterolemia with elevated low-density lipoproteins; secondary hypercholesterolemia in prolonged cholestasis ²⁻³
Xanthoma palpebrarum	Yellowish macular or flat papular lesions found on the eyelids	Half of the cases are associated with dyslipidemia, with elevated low-density lipoproteins and triglycerides; associated with autosomal-dominant familial hypercholesterolemia ³
Xanthoma tuberosum	Nodular lesions up to several centimeters in diameter commonly found at pressure areas such as the elbows, knees, and buttocks	Familial hypercholesterolemia with elevated low-density lipoproteins, familial dysbetalipoproteinemia ^{2,3}

xanthomas, and verrucous xanthoma. One retrospective cohort study reported an 8.5% (8/95) prevalence of eruptive xanthomas in patients with severe hypertriglyceridemia (ie, triglyceride levels >1770 mg/dL).⁴ Data on the prevalence of other variants of xanthoma are lacking.

Eruptive xanthoma is characterized by an abrupt onset of crops of multiple yellowish to brownish papules that can coalesce into small plaques. The lesions can be generalized, but tend to be more densely distributed on the extensor surfaces of the arms and legs, buttocks, and thighs.⁵ Eruptive xanthoma often is associated with hypertriglyceridemia, which can be primary—as a result of a genetic defect caused by familial hypertriglyceridemia—or secondary, associated with poorly controlled diabetes mellitus, morbid obesity, excessive alcohol consumption, nephrotic syndrome, hypothyroidism, primary biliary cholangitis, and drugs like estrogen replacement therapies, corticosteroids, and isotretinoin.⁶ Pruritus and tenderness may or may not be present, and the Köbner phenomenon may occur.⁷

■ **The differential diagnosis** for eruptive xanthoma includes xanthoma disseminatum, non-Langerhans cell histiocytoses (eg, generalized eruptive histiocytosis), and cutaneous mastocytosis.¹

■ **Xanthoma disseminatum** is an extremely rare, but benign, disorder of non-Langerhans cell origin. The average age of onset is older than 40 years. The rash consists of multiple red-yellow papules and nodules that most commonly present in flexural areas. Forty percent to 60% of patients have mucosal involvement, and rarely the central nervous system is involved.⁸

■ **Generalized eruptive histiocytosis** is another rare non-Langerhans cell histiocytosis that occurs mainly in adults and is characterized by widespread, symmetric, red-brown papules on the trunk, arms, and legs, and rarely the mucous membranes.⁹

■ **Cutaneous mastocytosis**, especially xanthelasmoid mastocytosis, consists of multiple pruritic, yellowish, papular or nodular lesions that may mimic eruptive xanthoma. It occurs mainly in children and rarely in adults.¹⁰

Confirming the diagnosis, initiating treatment

The diagnosis of eruptive xanthoma can be confirmed by skin biopsy if other differential diagnoses cannot be ruled out or the lesions do not resolve with treatment. Skin biopsy will reveal lipid-laden macrophages (known as foam cells) deposited in the dermis.⁷

FIGURE

Erythematous papules on the trunk and limbs



IMAGES COURTESY OF: KAM SUM CHAN, MScB, FHKAM

Erythematous papules on the extensor surface of the left elbow coalesced to form small plaques (A). Numerous erythematous papules and plaques were noted on the anterior trunk (B).

> Diagnosis of eruptive xanthoma can be confirmed by skin biopsy if other conditions in the differential diagnosis can't be ruled out or if the lesions do not resolve with treatment.

■ **Treatment of eruptive xanthoma** involves management of the underlying causes of the condition. In most cases, dietary control, intensive triglyceride-lowering therapies, and treatment of other secondary causes of hypertriglyceridemia result in complete resolution of the lesions within several weeks.⁵

Our patient's outcome

Our patient's sudden-onset rash alerted us to the presence of type 2 diabetes mellitus, hypertriglyceridemia, and heavy proteinuria,

which he was not aware of previously. We counselled him about stringent low-sugar, low-lipid diet control and exercise, and we started him on metformin and gemfibrozil. He was referred to an internal medicine specialist for further assessment and management of his severe hypertriglyceridemia and heavy proteinuria.

The rash started to wane 1 month after the patient started the metformin and gemfibrozil, and his drug regimen was changed to combination therapy with metformin/glimepiride and fenofibrate/simvastatin

➤ Eruptive xanthoma may be an indicator of severe hypertriglyceridemia, which can be associated with an increased risk for acute pancreatitis.

6 weeks later when he was seen in the medical specialty clinic. Fundus photography performed 1 month after starting oral antidiabetic therapy showed no diabetic retinopathy or lipemia retinalis.

After 3 months of treatment, his serum triglycerides and hemoglobin A1c levels dropped to 3.8 mmol/L and 8.7%, respectively. The rash also resolved considerably, with only residual papules on the abdomen. This rapid clinical response to treatment of the underlying hypertriglyceridemia and diabetes further supported the clinical diagnosis of eruptive xanthoma.

THE TAKEAWAY

Eruptive xanthoma is relatively rare, but it is important for family physicians to recognize this clinical presentation as a potential indicator of severe hypertriglyceridemia. Recognizing hypertriglyceridemia early is important, as it can be associated with an increased risk for acute pancreatitis. Moreover, eruptive xanthoma might be the sole presenting symptom of underlying diabetes mellitus or familial hyperlipidemia, both of which can lead to a significant increase in cardiovascular risk if uncontrolled. **JFP**

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