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**Letter**

**Generalized pruritus in dysmetabolic hyperferritinemia treated by phlebotomy**

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**Abstract**

This paper describes a case of pruritus caused by dysmetabolic hyperferritinemia treated by multiple phlebotomies.

A 63-year-old man was followed for generalized pruritus, which was resistant to the usual treatments. He presented with metabolic syndrome. Physical examination showed only excoriations and lichenification on the skin. The serum ferritin was high at 1043 ng/ml, with transferrin saturation at 67%. The other biological investigations and genetic tests for hemochromatosis were negative.

In spite of the dietary measures, the ferritin level was still high (853ng/ml). Magnetic resonance imaging confirmed hepatic iron overload.

The association of hyperferritinemia, hepatic iron overload, and metabolic syndrome led to the diagnosis of dysmetabolic hyperferritinemia.

Phlebotomies are an unusual treatment, but because the pruritus and hyperferritinemia were still present, phlebotomy was initiated. After 19 months, the patient reported improvement of his pruritus and normalization of ferritin levels.

**Keywords: pruritus; dysmetabolic ; hyperferritinemia ; phlebotomy ; metabolic syndrome ; hepatic iron overload.**

**Letter to the editor:**

**Introduction**

Pruritus can be caused by iron deficiency, but is rarely associated with iron overload disease. We present a case of generalized pruritus revealing dysmetabolic hyperferritinemia improved by phlebotomies.

## Case synopsis

Over a period of 18 months a 63-year-old man presented with generalized pruritus, which was resistant to antihistaminic treatment, emollient, UVB phototherapy, and topical corticosteroids. His previous medical history was notable for hypertension, dyslipidemia, obesity (body mass index 30kg/m<sup>2</sup>), diabetes, and hyperuricemia. His alcohol consumption was approximately 50g per day. Physical examination showed excoriated nodules on the extensor surfaces of the limbs and the trunk secondary scratching. He had no skin or mucosal hyperpigmentation. Hepatosplenomegaly, cirrhotic signs, cardiac symptoms, and peripheral lymphadenopathy were absent. Laboratory tests were normal (hemoglobin, eosinophil count, C-reactive protein, serum protein electrophoresis, kidney and liver function tests, phosphate and calcium level, thyroid stimulating hormone). Hepatitis B, hepatitis C and HIV serologies were negative. The serum ferritin was very high at 1043 ng/ml (normal < 200 ng/ml). Serum iron and transferrin saturation values had increased to 37.4 µM (normal<27 µM) and 67% (normal< 45%). Molecular analysis for the diagnosis of hemochromatosis was negative (C282Y, H63D, S65C and ferroportin mutations). Hepatic ultrasonography showed liver steatosis. Several skin biopsies found signs of non specific inflammation without hemosiderin deposits, compatible with a prurigo, and immunofluorescence was negative. The magnetic resonance imaging (MRI) assessed hepatic iron overload, estimated at 170 µmol/g (normal<40 µmol/g). After 3 months of dietary measures and weaning off alcohol, itching was still present. The ferritin level remained high (853 ng/ml), although the iron and transferrin saturation values were normal. Phlebotomy therapy was then initiated, with a volume of 200 cc per month. After 19 months, the patient reported an improvement of his pruritus and normalization of ferritin values.

## Discussion

The diagnosis of dysmetabolic hyperferritinemia associates at least one criterion of metabolic syndrome (insulin resistance, obesity, dyslipidemia, and hypertension) and hyperferritinemia. Contrary to genetic hemochromatosis, the transferrin saturation value is normal or moderately increased [2]. The hepatic iron overload is typically between 2 and 3 times the upper normal limit [3] and can be reliably assessed by MRI [4]. The usual treatment is based on dietary measures (hypocaloric diet and exercise) [5]. Phlebotomy is effective in hemochromatosis, but it is an unusual treatment in dysmetabolic hyperferritinemia. A review of the literature finds only 3 cases of generalized pruritus related to hyperferritinemia and iron overload. All of them were diagnosed as hemochromatosis and phlebotomies improved the pruritus [6-8]. The pathogenesis of pruritus is unknown. It might be due to release of histamine from tissue mast cells secondary to stimulation by iron deposits in the skin. However, in our case the skin biopsy did not confirm the presence of iron deposits.

## Conclusion

Dysmetabolic hyperferritinemia may be an etiology of generalized pruritus. The diagnosis is based on ferritin level, saturation transferrin value, and MRI liver iron measurement, associated with metabolic syndrome. Phlebotomy is an unusual treatment, but can be useful after failure of the dietary measures.

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