

CASE REPORT

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HEPATITIS C VIRUS-ASSOCIATED PORPHYRIA CUTANEA TARDA: A CASE REPORT

Isa A.H.¹ Mary Tapgun M.² Isichei O.C.³

¹Department of Haematology and Blood Transfusion, Bingham University Teaching Hospital (BhUTH) Jos, ²Medical Services Directorate, African Union Commission. Addis Ababa, Ethiopia; ³Department of Chemical Pathology, Jos University Teaching Hospital, Jos

Correspondence: Dr Isa Alkali Hezekiah. FMCPATH(Haematology), Department of Haematology and Blood Transfusion, Bingham University Teaching Hospital Jos, Plateau state, Nigeria. Email: albarkatwo@yahoo.com. GSM No: +2348054399861

ABSTRACT

Porphyria cutanea tarda (PCT) is a rare, inherited or acquired disorder due to decreased activity or deficiency of uroporphyrinogen decarboxylase (UROD), one of the enzymes in the haem synthetic pathway. It is characterized by cutaneous manifestations such as erosions, blisters and bullae in the dorsum of the hand, forearm, elbows and knees; and painful indolent sores that heal with dyspigmented and scarring lesions. A 25 year old sales man presented with a 7 month history of recurrent blistering of the skin of the extremities- hands, elbows, knees and feet which occurred spontaneously or following trivial trauma. There was no family history of similar skin symptoms. Examination showed broken and fresh blisters of varying sizes with some healed lesions on the dorsum of the hands, over the elbow and knee joints, and toes. Serum ferritin was 360µg/L (40-340 µg/L), urine uroporphyrinogen was positive (+++) and Hepatitis C antibodies screening was positive. Some improvement of the cutaneous lesion was noticed following commencement of therapeutic phlebotomy.

Key words: Porphyria, blisters, Hepatitis C virus, uroporphyrinogen.

LE VIRUS HEPATITE C - PORPHYRIE CUTANEE TARDIVE ASSOCIE : LE RAPPORT D'UN CAS.

Isa A.H.¹ Mary Tapgun M.² Isichei O.C.³

¹Département de hématologie et de la transfusion sanguine, l'Université hospital d'enseignement de Bingham (BhUTH) Jos, ²Le Conseil d'administration des Services Médicaux, Commission d'Union Africaine, Addis - Abeba, Éthiopie. ³Département de Pathologie Chimique, l'Université hospital d'enseignement de Jos, Jos.

Correspondance : Dr. Isa Alkali Hezekiah. FMCPATH(Hématologie), Département d'hématologie et de la transfusion sanguine, Université hospital d'enseignement, de Bingham, Jos, Etat de Plateau, Nigeria. Email : albarkatwo@yahoo.com Numéro de portable : +2348054399861

RÉSUMÉ

Porphyrie cutanée tardive (PCT) est rares troubles héritée ou acquis en raison d'activité réduite ou d'insuffisance d'Uroporphyrinogène décarboxylase (UROD), l'une des enzymes dans la voie de synthèse de l'hème. C'est caractérisé par les manifestations cutanées telles que : l'érosion, les ampoules et *bulae* dans le dos de la main, l'avant - bras, les coudes et les genoux ; les plaies douloureuses indolentes qui guérissent avec les lésions dyspigmentées et cicatrisées. Un vendeur de 25 ans présenté d'une histoire de 7 mois de formations d'ampoules de la peau récurrentes des extrémités - les mains, les coudes, les genoux et les pieds qui a eu lieu spontanément ou suite à un traumatisme trivial. Il n'y avait pas d'histoire familiale de symptômes de la peau similaires. L'examen a montré les ampoules diverses et fraîches de taille différentes avec des lésions cicatrisées sur le dos des mains, au-dessus des coudes et les articulations du genou et les doigts de pieds. Ferritine sérique était 360µg/L (40 - 340 µL), Uroporphyrinogène urine était positif (+ + +), et le dépistage de l'hépatite C était positif. Une certaine amélioration de la lésion cutanée a été remarquée au commencement des saignées thérapeutiques.

Mots clés : Porphyrie, les ampoules, virus Hépatite C, Uroporphyrinogène.

INTRODUCTION

Porphyrias are a group of metabolic disorders resulting from inherited or acquired defects in any of the enzymes involved in the synthesis of haem (1).

They are generally rare conditions.^(2,3) However porphyria cutanea tarda (PCT) is the most common type occurring in both sex and all ethnic groups. It is due to decreased activity or deficiency of uroporphyrinogen decarboxylase (UROD) in the

liver.(1,4) Other factors such as hereditary haemochromatosis, alcohol and hepatitis C infections have been associated with PCT(2,5,6). It is characterized by cutaneous manifestations such as erosions, blisters and bulae in the dorsum of the hand, forearm, and other pressure points such as elbows and knuckles of the toes; and painful indolent sores, that heal with dyspigmented and scarring lesions (1,7).

Failure of progression of haem synthesis caused by decreased in UROD activity results in accumulation of porphyrin by-products first in the liver and subsequently disseminate in the plasma into other organs. They are excreted primarily in the kidney but some are excreted in feces. Porphyrins are photoactive molecules and when exposed to light in the skin they mediate oxidative damage to biomolecular targets and increase mechanical fragility causing cutaneous lesions (1,8).

This case is reported in view of the rarity of this disorder and the challenges in it diagnosis and management in our environment.

CASE

E.B is a 25 year old trader who was referred to the Dermatology clinic at Bingham University Teaching Hospital (BHUTH) with a 7 month history of recurrent easy blistering of the skin of the extremities-hands, elbows, knees and feet. The blisters occurred spontaneously or following trivial trauma such as washing of clothes and wearing tightly fitting shoes. There was no associated bleeding, itching, or fever. Patient was on vitamins C, A, E and B complex prescribed at the general outpatient department (GOPD) where he was first seen. He is allergic to

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chloroquine. There was no family history of similar skin symptoms. Patient does not drink alcohol or smoke cigarette.

Examination showed a young man with broken and fresh blisters of varying sizes with some healed lesions on the dorsum of the hands, over the elbow and knee joints, and toes. (see figures 1 and 2) The cardiopulmonary system was stable. The liver and spleen were not palpable.

His haematocrit was 40%. The WBC and platelets counts were $8.4 \times 10^9/L$ and $220 \times 10^9/L$ respectively. Total serum protein, albumin, bilirubin were normal. Serum alanine and aspartate transaminases, as well as serum urea and creatinine were all within the normal limits. Serum ferritin was $360 \mu g/L$ ($40-340 \mu g/L$) Urine uroporphyrinogen was positive (+++). Histology of the skin lesion showed bullous dermatitis as characterized by a keratinizing stratified squamous epithelium with intraepidermal bullae giving a diagnosis of bullous dermatitis. No notable inflammatory reaction. Hepatitis C antibodies screening was positive while HBsAg and HIV screening were negative. Other relevant investigations such as liver iron stores, UROD enzyme assay and genetic studies were not done due to lack of facilities.

Patient was advised to avoid exposing his body to sunlight and activities that will traumatize his skin. He was also placed on vitamins C and E. There was no improvement. Chloroquine was contraindicated as patient was allergic to it. Weekly therapeutic phlebotomy was commenced on the patient. He had only 3 sessions and absconded despite some improvement.



Fig 1: Porphyria cutanea skin lesion on the dorsum of the hands of the patient



Fig 2: Porphyria cutanea skin lesion on the elbow of the patient

DISCUSSION

The diagnosis of PCT in this patient we described was based on the characteristic cutaneous lesions he presented with. This was substantiated by the positive urine uroporphyrinogen (+++), the high serum ferritin levels and most importantly the positive HCV antibodies which has a strong association with PCT (5,9). Diagnosis of PCT is confirmed by assaying the UROD enzyme activity in red blood cells and carrying out mutation analysis of genes encoding UROD especially in the familial forms.⁽⁴⁾ Patients with PCT have abnormally high levels of porphyrins in their urine, serum or plasma specimens and the faecal coproporphyrin fraction is often abnormally high too (7). Other laboratory work up include screening for those factors associated with the condition such as HFE gene mutations and iron profile.⁽⁵⁾ About 80% of all cases of PCT are acquired while the remaining 20% are inherited (8). Although assay of UROD enzyme or studies of UROD and HFE gene abnormalities were not done, our patient is likely to be suffering from acquired or sporadic PCT in view of the age of onset and a negative family history.

The care of patients with PCT is multidisciplinary, involving consultations with hepatologist, haematologist, dermatologist, gynaecologist, oncologist etc. (8). Our patient could have benefited from further evaluation by a hepatologist but we had none in our centre, couple with the patient's financial constraints. Educating the patient about the disease, its precipitating factors and the treatment modalities

available is very important. Patient must avoid exposure to sun light, trauma, alcohol or tobacco use and may have to discontinue oestrogen therapy if on any. The use of topical sun screen creams, consumption of vitamin C rich diets and avoidance of iron-rich dietary supplements may be of help.⁽⁸⁾ Therapeutic phlebotomy is one of the treatment modalities especially in patients with increased iron stores. It involves the removal of one unit of whole blood from twice a week to once in 2-3 weeks with the aim of reducing the iron stores (1,10). Oral Chloroquine phosphate, 125-250mg or hydroxychloroquine sulfate, 100-200mg 2-3 times per week, is given to patients who cannot tolerate therapeutic phlebotomy or whose iron overload is relatively mild (11). Our patient was adequately educated and counseled. However intervention with chloroquine was not an option for him because he is allergic to it and could cause itching which is a form of mild trauma that may exacerbate his condition. Therapeutic phlebotomy was the major viable treatment option left which he reluctantly accepted because he was scared of being bled despite much assurance of the minimal risk and likely improvement he stands to benefit from the option.

In conclusion PCT is a rare condition. We hope that this report will bring increase awareness on the existence of PCT in our environment and hence an increased index of suspicion and prompt referral to avoid misdiagnosis and mismanagement.

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