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RESEARCH ARTICLE

PORPHYRIA CUTANEATARDA: A CASE REPORT

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Abstract

Porphyria cutaneatarda (PCT) is a rare disease of porphyrin metabolism, related to a deficiency of Uroporphyrinogen decarboxylase activity. Clinically, it manifests itself by a skin fragility in photo-exposed areas. The characteristic biochemical profile of PCT, with elevated levels of urinary and plasma porphyrins, establishes the diagnosis. Treatment is based on phlebotomy, hydroxychloroquine (100 to 200 mg twice weekly) and control of susceptibility factors. We report a case of porphyria cutaneatarda in a male coast guard by profession.

Introduction:-

Porphyria cutaneatarda (PCT) is the most common porphyria due to excessive accumulation of porphyrins in the liver and skin. It is related to uroporphyrinogen decarboxylase (UPg-D) enzyme dysfunction, which is most often sporadic and in the presence of susceptibility factors. The diagnosis of porphyria is based on the biochemical study of porphyrins in blood, urine, and stool.

Case Report :

The patient is 26 years old Moroccan who lives in the region of Tetouan, north of Morocco. He isa coast guard with an average of 8 hours exposure to the sun per day. There is no report of alcoholism andno particular pathological history. He was born fromnon-consanguineous marriage with no similar case in the family. He consulted for a bullous eruption of the photo-exposed areas evolving for 1 year, associated with a skin fragility to the slightest trauma and dark urine. The dermatological examination showed tense bullae on the back of the hands and feet, with a clear continuum, resting on healthy skin, with a negative Nicolsky sign, atrophic scars and millium grains (figure 1). In addition, facial hyperpigmentation with marked signs of helioderma and slight malar hypertrichosis (figure 2). The rest of the somatic examination was unremarkable. The overall health condition of the patient was conserved during evolution.

The histological study was in favour of late cutaneous porphyria, showing a subepidermal bulla with an intact roof and preservation of the papillary scalloped relief, without acantholysis or epidermal necrosis; the dermis had a discrete perivascular lympho-histiocytic inflammatory infiltrate and thickening of the vessel walls with negative direct immunofluorescence. The level of urinary porphyrins was very high with uroporphyrins at 7640 nmol/l or coproporphyrin I at 2577 nmol/l or coproporphyrin III at 254nmol/l. Serologies for human immunodeficiency virus (HIV) and hepatitis B and C were negative. Renal function and liver function tests were normal. The haemoglobinlevel was 12.8 g/dl, the ferritin level was 98 ng/ml, and the serum iron level was 104 µg/dl.

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The patient received occupational reclassification (to avoid sun exposure and minimize trauma), photoprotection, and treatment with hydroxychloroquine 200 mg twice weekly, with good clinical improvement of the skin lesions after 6 weeks.

Discussion:-

Porphyria cutaneatarda is the most common type of human porphyria. It affects both sexes equally, except for sporadicPCT where it ispredominantly male. It canbe:
-sporadic or acquired (type I) in 75-80% of PCT cases, which occurs in the absence of UPg-D mutations, but in the presence of susceptibility factors [1,2].
-familial (type II), which represents 20 to 25% of cases, caused by an autosomal dominant mutation of UPg-D, but it becomes symptomatic only in the presence of susceptibility factors [2,3].
-Type III, which is rare and occurs in cases of genetic predisposition leading to a defect in the activity of hepatocyte UPg-D, without mutation of this gene [1].

Many susceptibility factors come into play by decreasing UPg-D activity to a threshold that will lead to clinical manifestations (reduction to about 20% of normal) [1,2]. PTC rarely occurs without susceptibility factors, however in 92% of patients at least 3 susceptibility factors are found [4]. The incriminating factors [1,2]:
- alcohol: was found in 30 - 90% of PCT cases.
- Iron and hemochromatosis: mutations in the hemochromatosis (HFE) gene are present in 21 - 73% of cases and are associated with an increased incidence of PCT. As well, martial overload is reported in 60-70% of patients with PCT.
- Hepatitis C virus (HCV): appeared to be the only factor that varied between patients with sporadic and familial PCT. In patients with HCV, the risk of having sporadic PCT is five times higher than familial PCT.
- HIV infection

Other etiological factors have been associated with the occurrence of PCT: drug and chemical use, estrogen, systemic lupus erythematosus, end-stage renal disease on haemodialysis, diabetes mellitus, smoking, fatty liver, hepatocarcinoma, and hematologic malignancies.

It is clinically manifested by skin fragility at the slightest trauma, serous or haemorrhagic bullae localized on the photo-exposed areas, especially on the backs of the hands, leading to erosions, crusts, areas of skin atrophy and milium grains [1,5]. In addition, it may be accompanied by facial, malar, or periorbitalhypertrichosis, which is more frequent in women, and sometimes by facial or generalized hyperpigmentation [6,7]. Helioderma, scarring alopecia and onycholysis may be observed [7].

Sometimes, it can take on the appearance of a scleroderma-like condition [1,5] in photo-exposed areas, leading to a diagnostic delay of up to 48 months [7].

The histological study [1] shows subepidermal bullae with preservation of the papillary scalloped relief, thickening of the vascular wall and the dermoepidermal junction related to the presence of hyaline material in and around the vessels of the papillary dermis and on the dermoepidermal junction; direct immunofluorescence (DIF) shows deposits of immunoglobulin G (Ig G), sometimes of IgM and of complement fractions. Chronic lesions may lead to thickening of the dermis, taking on the form of scleroderma.

PCT has a characteristic biochemical profile [2] with high levels of urinary uroporphyrins and its heptacarboxylated derivatives. Plasma porphyrins are also increased. Whereasfecalporphyrins are normal or slightly increased.
- The differential diagnosis [1] arises with cutaneous pseudoporphyria in hemodialysis patients or patients taking phototoxic drugs and epidermolysisbullosaacquisita.

The management of PCT involves two main therapeutic means, bloodletting and 4-Aminoquinolines, which are equally effective [8]. The combination of the two reduces the duration of treatment [1,9].
- 4-Aminoquinolines(4-AQs): low doses of chloroquine (125 to 250 mg twice a week) or hydroxychloroquine (100 to 200 mg twice a week), to avoid aggravating skin manifestations [1, 2] and triggering cytolytic hepatitis [10]. They can be used in case of contraindication to phlebotomy [11].
- Phlebotomy: represents the first-line treatment, it is recommended to remove 450 ml of blood every 2 weeks. The goal is to reduce iron overload until the ferritin level is below 20-25 ng/ml [1,2,11].

Other lines of management include photoprotection measures, awakening of skin trauma, treatment of hepatitis C and any liver disease associated with PCT, and control of aggravating factors (alcohol, smoking, drugs, estrogen, iron overload. . .).

Complete remission of the lesions, with disappearance of hypertrichosis and pigmentation, is obtained after the decrease in UP levels [5]. However, relapses may occur after remission [2,11], especially if susceptibility factors are not adequately managed [2].

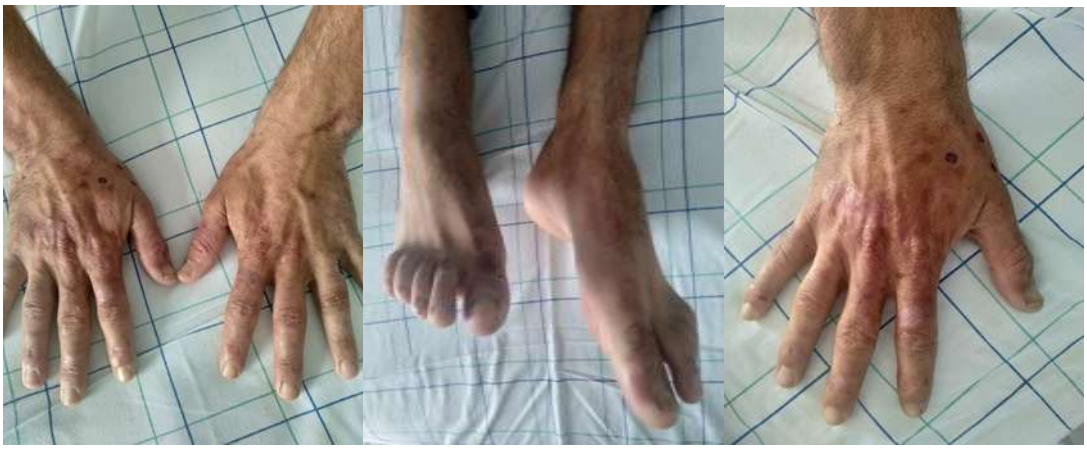

Figure 1:- Post- bubble erosions on the back of the hands and feet, evolving into atrophic scars and millium grains.

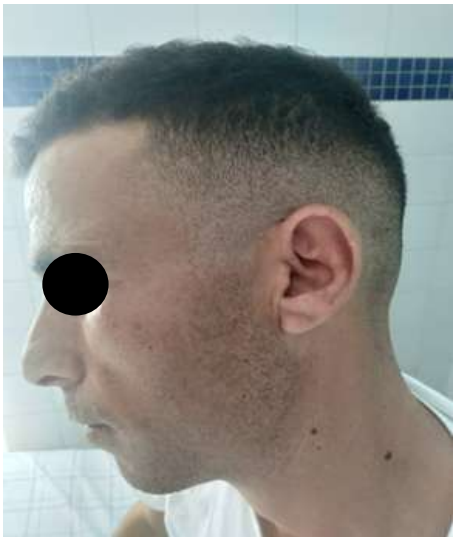

Figure 2:- Facial hyperpigmentation with marked signs of helioderma and mild malar hypertrichosis.

Conclusion:-

PTC is a rare disease of porphyrin metabolism related to a deficiency of UPg-D activity where several susceptibility factors have been described which can be easily treated by phlebotomy or low dose hydroxychloroquine. However, relapses may occur after remission, especially when susceptibility factors are not adequately controlled.

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