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Case Report

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Uremic frost- A rare skin manifestation of severe kidney disease

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Abstract

Uremic frost is a rare dermatological manifestation of severe azotemia. It is rarely seen today because of early dialytic intervention. It occurs when high concentration of urea and other nitrogenous waste products accumulate in the sweat and then crystallizes as deposit on the skin after evaporation in a process called uridrosis or urinous sweat. Its a sign of impending renal failure and portends bad prognosis. Involvement of urea transporters may have a role in its development. Damage to the cutaneous microvasculature, eccrine sweat and sebaceous glands may be responsible for the high level of urea accumulation on skin. The test to analyze that the crystalline material is urea or nitrogenous waste products, the scrapings of the sample can be dilutad in normal saline and then tested for elevated urea nitrogen level. No specific therapy except correcting the underlying etiology.

Keywords: Uremic frost, Kidney disease, Azotemia.

INTRODUCTION

Uremic frost was first described by Hirschsprung in 1865. This uncommon dermatological manifestation of advanced kidney disease is still reported in developing nations.Its an ominous sign. Patients with uremic frost often have other signs of uremia. Its a cutaneous manifestation of markedly elevated level of Blood Urea Nitrogen (BUN) and can be of great help in settings where laboratory facilities are limited.

CASE REPORT

A 40-year- old Male patient got admitted in Medicine ward with Fever and vomiting for 2 weeks and altered sensorium for 3 days duration. According to the attendant he was a known patient of Chronic Kidney Disease (CKD) on Irregular Haemodialysis.

On examination he was unconscious, with raised temperature, tachycardic (112/min) with signs of meningeal irritation. During the hospital stay patient developed scattered deposits of white friable crystalline material all over the body. [Figure 1 A&B]

The salient laboratory parameters are Haemoglobin level was 9.5g/dl, TLC 12×10^9/L, ESR-42mm/h, Serum Na^+138mmol/L/, Serum K^+6.8 mm0l/L, BUN 73µmol/L, Creatinine 710µmol/L (pt. on Haemodialysis), eGFR 6ml/min/1.73m². Arterial Blood Gas Analysis revealed Metabolic Acidosis. Despite receiving repeated episodes of Haemodialysis pt. developed signs of uremia and died during the hospital stay.

DISCUSSION

The exact incidence of uremic frost is largely unknown.Though it is relatively rare due to easy access to early dialysis on outpatient basis. These skin findings rapidly regressed over 48 hours with the improvement of his severe uremia. It is most frequently seen on areas of skin with eccrine glands and hair such as scalp, neck, face, forearms,and chest and can be easily wiped away. Although a rare finding, Uremic Frost remains an important finding of severe renal failure, particularly in clinical settings with resources. The diffrerential diagnoses are postinflammatory desquamation, eczema and retention keratosis. But whitish friable crystalline deposition on skin along with history of underlying kidney disease makes the diagnosis relatively easy. Rather Other cutaneous manifestations of renal disease that are relatively common are Xerosis, Pruritus, Pallor, Changes in Pigmentation, Half and Half nails.

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Figure 1 A&B: Deposition of white powdery material on the body surface by the process of uridrosis or urinous sweat

CONCLUSION

Dermatological manifestations are generally common in patients with chronic kidney disease. But some of them like Uremic Frost have become rare with the advent of increasingly effective renal replacement therapy. Therefore, it is necessary that healthcare professionals who deal with these patients on a daily basis have knowledge about these events as they negatively affect these patients' quality of life, being a reason of constant worry on the part of healthcare system. In this way, they will be able to establish early diagnosis and proper treatment.

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