Case Report

iMedPub Journals
www.imedpub.com

Medical Case Reports
ISSN 2471-8041

2020
Vol.6 No.2:138

DOI: 10.36648/2471-8041.6.2.138

Pellagra: A Report of Two Cases

Ana Pinto de Oliveira[*,1,2,3] **and Saringo António**[3]

[1]Doctors of the World, Portugal Delegation, Lisbon, Portugal

[2]Public Health and Disaster Medicine Group, Biomedical Sciences and Medicine Department, Algarve University, Faro, Portugal

[3]Doctors of the World, Sanitary Post of Ndeja Resettlement Camp, Nhamatanda, Mozambique

[*]**Corresponding author: Dr.** Ana Pinto de Oliveira, Doctors of the World, Portugal Delegation, Lisbon, Portugal, Tel: 9150671210, E-mail: ana.oliveira@medicosdomundo.pt

Received date: April 23, 2020; **Accepted date:** June 01, 2020; **Published date:** June 08, 2020

Citation: De Oliveira AP, Antonio S (2020) Pellagra: A Report of Two Cases. Med Case Rep Vol.6 No.2: 138.

Abstract

Pellagra usually results from niacin deficiency and presents with the classic triad of dermatitis, diarrhea, and dementia, and eventually death, if it is untreated. It is extremely rare in industrialized societies but is endemic at very low levels amongst the rural poor in Africa, with few cases recorded during “hungry season”. However, when a disaster affects this continent and populations became entirely dependent on food aid, pellagra turns out the most frequent clinical feature of nutritional deficiency. We report two cases of pellagra in a population dependent on food assistance since cyclone Idai, in Ndeja Resettlement Camp, Mozambique.

Keywords: Pellagra; Food aid; Niacin deficiency

Introduction

Pellagra was a major widespread cause of death until the early 20th century, commonly associated with malnutrition and extreme poverty. It has now been practically eradicated in developed countries due to remarkable advancement in public health and nutrition through enrichment of wheat flour with nicotinic acid and thus only isolated cases among alcoholics, drug abusers, food faddists, and homeless people are seen [1,2].

However, outbreaks of the disease continue to occur in some areas of the world, like southern and eastern Africa, where this disease is frequent, and is the most frequent clinical feature of nutritional deficiency of adult.3 Recent major outbreaks have been described in association with humanitarian emergencies in Malawi, Mozambique, Angola, Zimbabwe, and Nepal [3-7]. Since march 2019, Mozambique is facing a humanitarian crisis after the worst tropical cyclone - Cyclone Idai- affecting the African continent. Sofala and Manica were the main provinces affected, with crop lands and animal flooded and the fishing infrastructure heavily damaged. In the immediate aftermath of the cyclone, general staple food doubled the prices, for rice, maize meal and maize grain. Even before the cyclone, Sofala and Manica, faced chronic food insecurity prior to the crisis and after became dependent on international relief assistance for food supplies. Several reports show that the main causes of micronutrient deficiencies outbreaks have been inadequate food rations given to populations dependent on food aid. These deficiency diseases include, in addition to the most common Fe and vitamin A deficiencies, pellagra syndrome.

Pellagra is a nutritional disorder that occurs as a result of niacin deficiency, which leads to systemic disease with clinical manifestations in the skin, gastrointestinal tract, and nervous system. It is classically known as the disease of 4 D's-dermatitis, dementia, diarrhoea and death [8]. The diagnosis of pellagra is usually based on the clinical characteristics of the dermatitis and on the response to treatment [9].

This report unveils the re-emergence of pellagra as a result of worsening food security, after cyclone Idai, in vulnerable population resident in Ndeja Resettlement Camp, Nhamatanda district, Mozambique.

Case Report 1

A 28-year-old woman presented to the Sanitary Post of Ndedja Resettlement Camp, with a 10 days history of well-defined darkening and thickening of the neck **(Figure 1A)**, and the upper trunk region, with symmetrical erythema and scales on her neck and limbs **(Figure 1B)**, with soreness mouth. The lesions progressively increased in size with accompanied itching burning sensations following exposure to the sun. There was no history of diarrhea or any change in her behavior. There was no history of tuberculosis treatment or similar disease in the family. Her dietary history revealed decreased food intake after cyclone Idai, with a persistent consumption of maize which is the basic meal in the household.

Based on the patient's history of nutritional insufficiency, as well as dermatological lesions, pellagra was highly suspected. Although serologic and urinary assays confirming niacin deficiency were unavailable, treatment with vitamin B complex 30 mg orally in a twice daily basis was started. Dietary advice to consume food rich in niacin such as fish, vegetables, peanuts etc. was also elaborated. Within seven days of starting

treatment, the skin lesions improved significantly but did not resolve completely. The patient continued vitamin B complex supplementation for another three weeks.

Figure 1: A. Pellagra lesions in neck (Casal's necklace); B. Scales in limbs.

Case Report 2

A 32-year-old woman presented to the Sanitary Post of Ndedja Resettlement Camp, with dark-pigmented skin lesions over the neck **(Figure 2A)**, forearms and lower part of arms **(Figure 2B)** for two weeks. The skin lesions had a photosensitive distribution and were painful to touch. There was history of burning sensation in the mouth for two weeks. She did not report any alcohol intake, and there was also no history of diarrhea or unusual behavior. History suggestive of pulmonary tuberculosis was noted. There was no history of similar disease in the family. Her meals mainly consisted of rice and beans, since cyclone Idai. The patient was diagnosed clinically as having pellagra and treatment started with niacin 300 mg three times a day, during 14-days, along with appropriate nutritional counselling. Skin lesions disappeared within 1 week after niacin supplementation was initiated.

Figure 2: A. Pellagra lesions in neck (Casal's necklace); B. Scales in limbs.

Discussion

In each of these case reports diagnosis of pellagra was based on the clinical presentation, as well as a rapid improvement following oral niacin/vitamin B complex supplementation treatment. Though necessary investigation to confirm the diagnosis of pellagra had not been carried out, however, through meticulous history and physical examination, a diagnosis was made. The skin changes that started occurring were major pointers to this disease and are characteristic of pellagra. The niacin assay has not performed since it is awfully expensive and not a routine investigation in district hospital.

Pellagra is a chronic disease affecting the skin, nervous system, and gastrointestinal tract usually due to a deficiency of nicotinic acid (Niacin-Vit B3) or its precursor tryptophan [10]. These may arise from poor dietary intake as occurs in poverty-stricken areas where only maize (corn) is consumed [11]. It may as well be as a result of deficiency in tryptophan, a substance prevalent in legumes, fish and meats [12]. Other causes may be due to inadequate and/or decreased absorption of the vitamins containing food or ineffective processing of the food containing the vitamin. These include chronic alcoholism, prolonged diarrhea, and biochemical impairment of tryptophan metabolism [13]. Some drugs - such as levodopa, isoniazid, 6-mercaptopurine, 5-fluorouracil, chloramphenicol, phenytoin, and ethionamide - have also been associated with pellagra. Malnutrition and intestinal malabsorption have been proposed as mechanisms for niacin deficiency and pellagra [14]. Our patients were dependents on food aid programs that provide the energy and protein needs, with micronutrients considered only after ensuring the provision of the more basic food needs, often exacerbate micronutrient deficiency disorders in all age groups. Since patients of pellagra are often deficient in other nutrients as well, a high protein diet with B-complex vitamins was offered to our patients. Photoprotection was advice as well dietary and lifestyle modifications like abstinence from alcohol, change of drugs, and avoidance of maize may [15].

Conclusion

In conclusion, pellagra is a historically old but certainly not completely eradicated dis-ease, especially in developing countries with on-going emergency situations that affect population. A combination of different and complementary strategies must be adopted to combat this disease, as include a fortified blended cereal in the ration of all food-aid-dependent populations, promotion of home gardens as well as promotion of local trading aiming at the self-sufficiency of emergency-affected households and improve the ability to recognize some diseases such as pellagra by community health workers in rural settings.

This article is available from: 10.36648/2471-8041.6.2.138

References

1. Usman AB, Emmanuel P, Manchan DB (2019) Pellagra, a re-emerging disease: A case report of a girl from a community ravaged by insurgency. The Pan African Medical Journal p. 33.
2. Galimberti F, Mesinkovska N (2016) Skin findings associated with nutritional deficiencies. Cleve Clin J Med 83: 731-739.
3. Malfait P, Moren A, Dillon JC, Brodel A, Begkoyian G, et al. (1993) An outbreak of pellagra related to changes in dietary niacin among Mozambican refugees in Malawi. Int J Epidemiol 22: 504-511.
4. Seal AJ, Creeke PI, Dibari F, Cheung E, Kyroussis E, et al. (2007) Low and deficient niacin status and pellagra are endemic in postwar Angola. Am J Clin Nutr 85: 218-224.
5. Moren A, Lemoult D, Brodel A (1990) Pellagra in Mozambican refugees. The Lancet 335: 1403-1404.
6. Baquet S, Wuillaume F, Van Egmond K, Ibañez F (2000) Pellagra outbreak in Kuito, Angola. The Lancet 355: 1829-1830.
7. World Health Organization (2000) Pellagra and its prevention and control in major emergencies. Geneva: WHO.
8. Gupta SK, Arora AK, Sood N, Kaur S (2014) Pellgra revisited. Indian Dermatology Online Journal 5: 525.
9. Karthikeyan K, Thappa D (2002) Pellagra and skin. Int J Dermatol 41: 476-481.
10. Wan P, Moat S, Anstey A (2011) Pellagra: a review with emphasis on photosensitivity. British Journal of Dermatology 164: 1188-1200.
11. Doménech MV, Sanz ES, Marco CP, Del Caz MP, Cerdá OB, et al. (2014) Pellagra. A challenging differential diagnosis in burn injuries. Journal of tissue viability 23: 37-41.
12. Meyer-Ficca M, Kirkland JB (2016) Niacin. Adv Nutr 7: 556-558.
13. Shibata K, Fukuwatari T (2012) The metabolites in the tryptophan degradation pathway might be useful to determine the tolerable upper intake level of tryptophan intake in rats. The Journal of Nutrition 142: 2227S-2230S.
14. Hui S, Heng L, Shaodong W, Fangyu W, Zhenkai W (2017) Pellagra affecting a patient with Crohn's disease. Anais brasileiros de dermatologia 92: 879-881.
15. Prinzo ZW, De Benoist B (2002) Meeting the challenges of micronutrient deficiencies in emergency-affected populations. Proceedings of the Nutrition Society 61: 251-257.