

Dyssebacia: An early cutaneous marker of niacin deficiencyAsifa N¹, Kiran Shashi AR², Rajashekhar N³

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ABSTRACT

"Dyssebacia" is the name coined to describe numerous plugs of inspissated sebum projecting from dilated orifices of sebaceous glands. This is a case series report of 12 patients who presented to our department with complaints of asymptomatic skin lesions which started first in lower part of nose followed by involvement of entire nose, cheeks and forehead. On examination there were multiple yellow plugs of sebum projecting out from follicular orifices resembling those of shark skin. Dermoscopic examination and Urinary levels of Niacinamide levels in urine were estimated in few cases. Based on history, clinical examination and laboratory, Diagnosis of dyssebacia was made and patients were started on niacinamide following which there was improvement in lesions in 8 of the 12 patients within two to four weeks. Diagnosis of pellagra is based on clinical criteria. Dyssebacia can be the early cutaneous marker of niacin deficiency. Thus in this context detection of dyssebacia acts as a primeval marker in diagnosis of pellagra, which still exists in epidemic proportions in many countries.

Key Words: Dyssebacia, pellagra, sebum

Introduction

Dyssebacia also known as Seborrhoea spinulosa or shark skin is used to describe seborrhea like skin lesions on the face especially in the centre and consists of follicular papules from which project spikes of inspissated yellow or dark oxidized sebum. Fred HL described "Dyssebacia" as 5th D of Pellagra. [1] Pellagra is caused by deficiency of Vitamin Niacin. Vitamin deficiency diseases are common in developing countries particularly India where there is limited access to a healthy diet, particularly fruits and vegetables, Compared to developed and industrialized countries where nutritional deficiencies are rarely seen, but can occur in alcoholics, hospitalized elderly, those with restricted dietary intake, psychiatric conditions, food allergies, or other gastrointestinal disorders. [2] We report 12 cases of Dyssebacia, with complaints of asymptomatic lesions on the face with varying duration.

Case Report

Demographic data of the patients such as Name, Age, Sex, Occupation, Education and Socio economic status, Address for communication was recorded. Series constituted of 8 males and 4

females, in the age group of 13-60 years, patients presented to us with history of asymptomatic skin lesions over the face, the duration of the lesions varied from 15 days to 6 months, 6 patients gave history of consumption of maize and 2 patients of jowar as major constituent of diet, 2 patients gave history of alcoholism, 4 patients had history of acne vulgaris and seborrhea. 2 patients had history of topical application of steroids, 1 patient had other features of pellagra such as diarrhea and dermatitis over exposed areas, there was no history of diarrhoea or dementia in any of the patients. On examination there were multiple yellow plugs of sebum projecting out from follicular orifices, lesions resembled those of shark skin. (Fig.1) Dermoscopic examination was done to differentiate it from spinulate demedicosis, yellow follicular plugging was seen there was no mite in sebaceous glands as seen in latter as shown in figure 1. Urinary levels of Nicotinamide were estimated in 2 patients one patient had level of 2µg in 24 hrs, other patient had normal level, Nicotinamide level of less than 5.8µmol/l represents niacin deficiency. Urinary Niacinamide estimation was done only in 2 patients as the patients were not able to afford

the cost. The characteristics of the patients were presented in Table 1. Based on positive findings diagnosis of dyssebacia was made and patients were started on niacinamide in a dose of 250 mg once daily for 3 weeks, following which there was improvement in lesions in 8 of the 12 patients within two to four weeks. (Fig. 2)

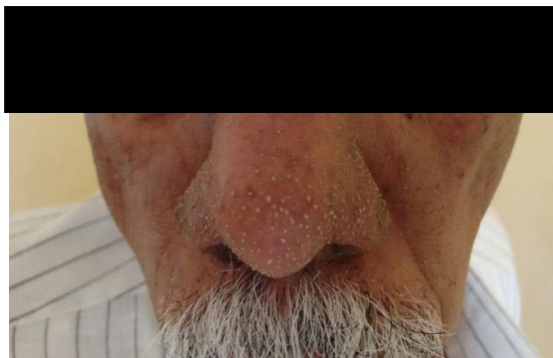


Fig. 1 Multiple yellow plugs of sebum projecting out from follicular orifices, lesions resembled those of shark skin

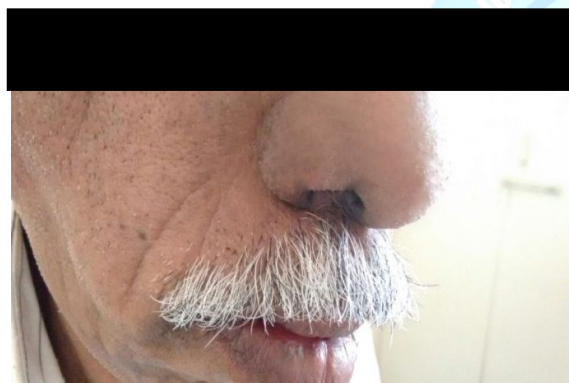


Fig. 2 Same patient after 2 weeks of Niacinamide therapy

Discussion

Pellagra, once known as Austrian leprosy, is a nutritional disorder that occurs as a result of niacin deficiency. It is classically known as the disease of 4 D's-dermatitis, dementia, diarrhoea and death. [3] Recent World Health Organization data from 2004 confirm that pellagra remains a health problem in some parts of the developing world. Recent data from UNICEF includes India and China at the top of the table of clinically malnourished children under the age of 5 years, with 60.8 million and 12.3 million affected, respectively. [4] The recommended dietary allowance for niacin is 14 NEs (Niacin) daily for adult females, 16 NEs for adult males, 17 NEs for pregnant women, and 18 NEs for lactating

mothers. One NE is equivalent to 1 mg of niacin, which is equal to 60 mg of dietary tryptophan. [5] Pellagra occurs in association with extreme poverty, occurring in communities that subsist on maize. Maize contains niacin but in tightly bound unusable form. Pellagra also occurs in jowar eating populations. Jowar (*Sorghum vulgare*) has adequate levels of usable niacin but also contains leucine which inhibits the conversion of tryptophan to niacin. Patients with pellagra develop brown discoloration of the skin, especially in sun-exposed areas. In advanced stages increased pigmentation usually leads to thin varnish-like eruptive scales. The characteristic skin rash has a typical photosensitive distribution with well defined borders forming the so-called Casal's necklace, the dorsa of the hands and the extensor surface of the forearms. [6] Bilateral symmetrical skin lesions over the bony prominences of the body sites include the knees, ankles, elbows and spinous processes. These lesions are hyperkeratotic and hyperpigmented. In contrast to the exposed-site photosensitivity skin changes, these skin changes are slow in onset. [7] Patients with pellagra may develop sebaceous gland hyperplasia and prominent seborrhoea. Sebaceous gland prominence in pellagra has been described on the alae nasi, forehead, scalp, face and neck. There are fine, yellow scales over the follicular orifices. [1] The eruption resembles seborrhoeic dermatitis except for its location. [4] This dysfunction of the sebaceous glands appears to be confined to the face and seems to be independent of sun exposure. [1] The plugs of abnormal inspissated sebum may project from the dilated orifices of the sebaceous follicles giving the skin surface a rough appearance resembling shark skin on palpation. [4] In addition to skin changes, gastrointestinal involvement may lead to intractable diarrhea, stomatitis and glossitis, while the neurocognitive impairment pellagrous encephalopathy Stupor and death may result if pellagra is left untreated. [6,8]

Fred HL [1] had reported one case of Dyssebacia, in this series we have discussed similar findings in 12 different patients of varying Age and Sex. The diagnosis of Dyssebacia is

mainly clinical as there is scarcity of data in literature regarding Dyssebacia. Specific laboratory test includes fluorometric assays of urinary metabolites, N-methylnicotinamide and pyridone of less than 1.5 mg in 24 hr indicate severe Niacin deficiency.^[3] Classical Pellagra responds to oral administration of niacinamide or niacin 100-300 mg per day in three divided doses. The mental changes disappear within 24-48 hours but the skin changes resolves in 3-4 weeks. Most Pellagrins require the concomitant administration of riboflavin and pyridoxine and a diet rich in proteins and calories to address

malnutrition. In our study Urinary Niacinamide estimation was done only in 2 patients as the patients were not able to afford the cost. The limitation of this study was Biopsy could not be performed on face, as patients did not given consent as face being cosmetic area. There is scarcity of data in literature regarding Dyssebacia. Most Pellagrins require the concomitant administration of riboflavin and pyridoxine and a diet rich in proteins and calories to address malnutrition.^[9]

Table 1: Characteristics of 12 patients

Age/ Gender	Presenting symptoms duration	H/O Alcoholism	H/O of consumption of maize or jowar	Other symptoms of pellagra	H/O Drugs or topical medication	H/O Acne or Seborrhoea	Response to treatment
Case 1: 16, Male	3 months	No	No	No	No	No	2 wks
Case 2: 47, Male	6 months	Yes	Jowar	Yes, Pellagroid rash (+)	No	No	3 wks
Case 3: 19, Male	6 months	No	Maize	No	No	No	2 wks
Case 4: 34 Male	15 days	Yes	Maize	No	H/o intake of lithium	No	3 wks
Case 5: 14, Female	1 month	No	Maize	No	No	Yes	-
Case 6: 60, Male	2 months	No	Jowar	No	No	No	3 wks
Case 7: 17, Male	15 days	No	No	No	Topical	Yes	2 wks
Case 8: 20, Male	20 days	No	Maize	No	No	Yes	3 wks
Case 9: 14, Male	15 days	No	No	No	Topical	Yes	-
Case 10: 31, Female	1 month	No	Maize	No	No	No	-
Case 11: 13, Female	6 months	No	Maize	No	No	No	-
Case 12: 17, Female	1 month	No	No	No	No	No	3 wks

Conclusion

Dyssebacia can serve as cutaneous marker of Niacin deficiency. The diagnosis of Pellagra is based on clinical criteria only. In our case series report 8 out of 12 patients responded to oral

Niacinamide therapy for 2-4 weeks. We have highlighted the importance of Dyssebacia as an early marker in the diagnosis of Niacin deficiency that can lead to Pellagra in later stages which is still prevalent in epidemic proportions in many

countries particularly in orphanages and prisons because of monotonous and restricted diet.

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