

Mysterious Malady of the Follicles: A Rare Case of Ulerythema Ophryogenes

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ABSTRACT

Introduction: Keratosis Pilaris Atrophicans is a group of rare disorders characterised by follicular keratosis, inflammation, secondary atrophic scarring or alopecia. One of these entities is Ulerythema ophryogenes or Keratosis Pilaris atrophicans faciei. It may be seen in association with Noonan syndrome, Cardiofaciocutaneous syndrome, Rubinstein-Taybi syndrome. **Case report:** A 10 year old male presented with complaints of loss of hair over eyebrows and scalp over the course of 4 years. The boy's father gave a history of multiple papules present over the body since 4 years. A history was given of erythematous papules initially over the forehead and eyebrows, which later involved scalp and face followed by loss of hair over eyebrows and scalp. There was also appearance of minute papules over arms and thighs.

Conclusion: As the resultant changes of alopecia and scarring are permanent, it can negatively impact self-esteem. The condition may resolve with age. However, in other cases, the response to therapy is poor. Modest improvement has been noted with oral Isotretinoin. Latest methods of treatment include Pulsed Dye Laser and Intense Pulsed Light.

Keywords: Ulerythema Ophryogenes, Keratosis Pilaris Atrophicans, Keratotic Papules With Hair Loss, Loss of Eyebrows

INTRODUCTION

The loss of hair, along with the appearance of erythematous lesions over the prominently visible areas of the body such as scalp and face can prove to be alarming and distressing. In a society where outward appearance is important, questions arise as to whether the condition is reversible or if there are satisfactory methods of treatment.

Keratosis pilaris atrophicans is a group of rare disorders characterised by follicular keratosis; inflammation; and secondary atrophic scarring, alopecia, or both. The term has classically covered three clinical entities: Ulerythema ophryogenes (also called Keratosis pilaris atrophicans faciei), Atrophoderma vermiculatum and Keratosis follicularis spinulosa decalvans.¹

Keratosis pilaris atrophicans faciei was first described by Erasmus Wilson as folliculitis rubra and the term Ulerythema ophryogenes was coined by Taenzer.² The term Ulerythema ophryogenes literally means scarring of the eyebrows. Most cases have followed autosomal dominant inheritance patterns with incomplete penetrance.³

Ulerythema ophryogenes is described as an uncommon variant characterised by the presence of follicular based, small horny, red papules of the eyebrows and cheeks, which may be complicated and followed by a gradual loss of hair

in affected areas.⁴

CASE REPORT

A ten-year-old male presented to the outpatient department with complaints of loss of hair over eyebrows and scalp over the course of four years. The boy's father gave a history of multiple papules present over the body since 4 years.

A history was given of erythematous papules present initially over the forehead and eyebrows, which later involved the scalp and face. This was followed by loss of hair over eyebrows and scalp. Minute papules appeared over the arms and thighs as well.

On examination, multiple tiny flesh-coloured follicular keratotic papules were noted over the forehead, scalp, face with complete loss of eyebrow hair, eyelashes and loss of hair over scalp. Keratotic papules also noted over shoulders, arms and extensor aspect of forearms and legs.

Skin surrounding the papules was normal, no perifollicular erythema or violaceous hue seen.

There were no visible growth defects, craniofacial or skeletal anomalies or mental retardation. There was no impairment in vision or hearing. Palms and soles were spared of involvement. Systemic examination yielded normal results. Based on history and examination, the following differential diagnoses were considered: Keratosis pilaris and its variants, Lichen spinulosus, Lichen nitidus, Lichen planopilaris, Trichostasis spinulosa, Ichthyosis follicularis, Alopecia and Photophobia syndrome, Alopecia mucinosa.

Various investigations were done. Complete blood picture showed Hemoglobin- 12 gram percent, White blood cells and Platelets counts were within normal limits, Eosinophil count was normal with a normochromic/normocytic picture. Liver function tests showed a normal result, Complete urine examination was normal. Lipid profile was within normal limits.

A chest X-ray was done and showed normal study. Electrocardiogram displayed normal sinus rhythm.

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Figure-1: Keratotic papules over scalp, forehead and face



Figure-2: Loss of hair over eyebrows



Figure-3: Keratotic papules over scalp associated with hair loss

A 3 mm punch biopsy was done from the scalp and histopathological examination showed the following features: Epidermis is lined by stratified squamous epithelium with basket-weave orthokeratosis, irregular elongated and anastomosing rete pegs with follicular plugging. A few of the follicular infundibula show dilatation with keratinisation. There is perifollicular and interstitial moderate infiltrates of plasma cells, lymphocytes and occasional eosinophils with perifollicular fibrosis. Sebaceous glands are not evident. These features are suggestive of Keratosis Pilaris Atrophicans.



Figure-4: Keratotic papules over proximal arms

DISCUSSION

The primary pathologic event is an orthokeratotic plug of the follicular ostium and hypergranulosis leading to spiral deformities of the hair follicle.³ Baden and Byers postulated that an as yet uncharacterized genetic defect in the keratinocyte mediates release of cytokines and an inflammatory response to this plug. The secondary perifollicular inflammation leads to fibrosis, atrophy, shrinkage of the hair bulb, and alopecia.⁵ Although Ulerythema ophryogenes may be seen as an isolated finding in otherwise healthy individuals, it is often strongly associated with various syndromes.¹ The characteristics of Keratosis Pilaris Atrophicans may co-exist with Hereditary woolly hair. Multiple congenital anomalies, Atopy, ectodermal defects are some other conditions which may be present.⁶

This condition is considered to be a cutaneous marker of Noonan syndrome, characterized by congenital heart disease, short stature, a broad and webbed neck, sternal deformity, variable degree of developmental delay, cryptorchidism, increased bleeding tendency, and characteristic facial features.^{2,7}

An association has also been found with Cardiofaciocutaneous syndrome, common findings of which include dysmorphic craniofacial features, congenital heart disease, failure to thrive, gastrointestinal dysfunction, neurocognitive delay, and seizures.⁸

Rubinstein-Taybi syndrome⁹, Cornelia de Lange syndrome¹⁰ and 18p monosomy¹¹ are also found to be in association with the occurrence of Ulerythema ophryogenes.

A possibility of association with multiple miscarriages and Human Papilloma Virus DNA within lesions has also been described.¹²

The exact pathogenesis of Ulerythema ophryogenes is unknown. However, autosomal recessive Keratosis Pilaris Atrophicans has been associated with mutations in the Desmoglein 4 gene.¹³

A lack of LAMA 1 gene expression along with 18p chromosomal deletion was also postulated as a pathogenetic

mechanism along with the speculation that the genes involved in follicular keratinization could be located on the 18p chromosome.¹⁴

Another possible mechanism could lie within the association with the Noonan, Cardiofaciocutaneous and Costello syndromes which are known as RASopathies, all with a common underlying Ras/MAPK (Mitogen activated protein kinase) pathway dysregulation. As the Ras/MAPK pathway plays an essential role in regulating cell cycle, cellular growth and differentiation which are required for normal development, this dysregulation could be the cause of abnormal follicular development and keratinization.¹⁵

Ulerythema is likely to resolve with age, however, it may be persistent and resistant to treatment. Avoidance of sun exposure should be explained to the patient. Methods of treatment include topical keratolytics such as Salicylic acid, Lactic acid, Urea etc., topical steroids and topical Tacrolimus. Topical retinoids may be used, but give rise to greater side effects as compared to benefits.¹⁶

Hecht¹⁷ demonstrated moderate improvement by administering oral Vitamin A and oral Iron pills but there was a return of the disease following discontinuation of treatment.

A modest improvement has been seen with Oral Isotretinoin. Good results have been obtained with Pulsed Dye Laser of 585 or 595 nm wavelength. 570 nm Intense Pulsed Light can also be explored in treatment, as well as CO2 laser. Hair transplantation could be an option for the areas which have undergone scarring alopecia.¹⁶

CONCLUSION

As Ulerythema ophryogenes is known to be associated with a variety of severe anomalies, it is important to recognise it as a cutaneous marker of underlying syndromes. The resultant changes of scarring and Alopecia are often permanent, hence, the patient and family members need to be counselled about possible issues regarding self esteem and body image. As it is a relatively rare disease, the clinical features need to be kept in mind as a differential for keratotic papules associated with scarring alopecia.

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