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Photo Vignette

Lipoid Proteinosis: a case report in two siblings

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Abstract

Lipoid proteinosis was first reported by Urbach and Wiethe in 1929. It is also known as hyalinosis cutis et mucosae or Urbach-Wiethe disease. It is a rare autosomal recessive disorder and characterized by the infiltration of hyaline material in the skin, oral cavity, larynx, and internal organs. Lipid proteinosis presents early in life. Hoarseness develops in infancy. The classic sign is beaded eyelid papules along the lid margin, also known as 'Monilform Blepherosis'. In India about 30 cases have been reported to date. We report the following case because of its rarity in the Indian literature.

Keywords: Lipoid proteinosis, Urbach-Wiethe disease, Moniliform blepherosis

Introduction

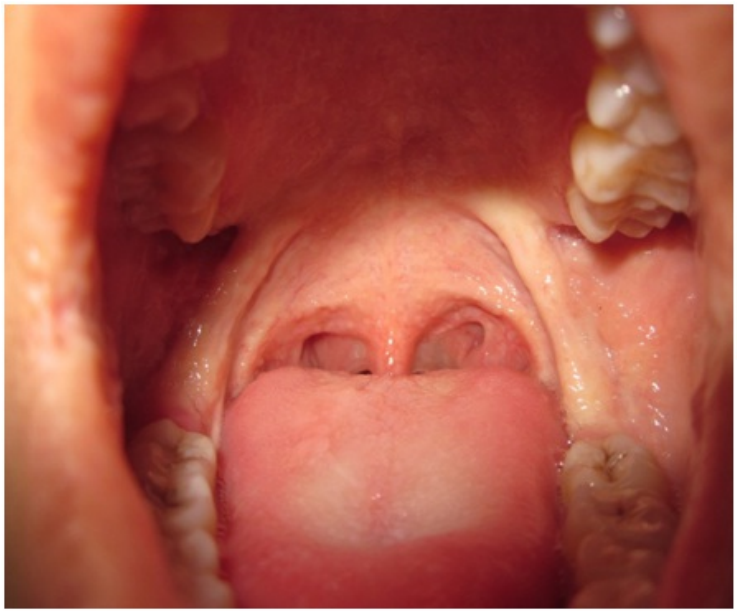
Lipoid proteinosis is also known as hyalinosis cutis et mucosae or Urbach-Wiethe disease. The condition was first reported by Urbach and Wiethe in 1929. It is a rare autosomal recessive disorder. It is characterized by the infiltration of hyaline material in the skin, oral cavity, larynx, and internal organs. The exact pathogenesis of this disease is unknown [1,2]. It usually presents in infancy with hoarseness of voice. Beaded eyelid papules are the classical finding [3]. It is diagnosed clinically and by histopathological examination, but has no effective treatment.

There are only about 300 cases that have been reported in the literature. Occurrence of lipoid proteinosis in siblings is also rare**.** In India there are about 30 reported cases. We report the following patient because of its rarity in the Indian literature.

Case synopsis

A 16-year-old girl presented to our department with chief complaints of multiple raised lesions over neck and bilateral dorsum of hands, along with multiple raised yellowish papules over the lid margins since 2 years of age. She also complained of hoarseness of voice since infancy.

Her sister also had similar complaints since infancy and a similar clinical appearance. There was no history of seizures and her intelligence was normal.



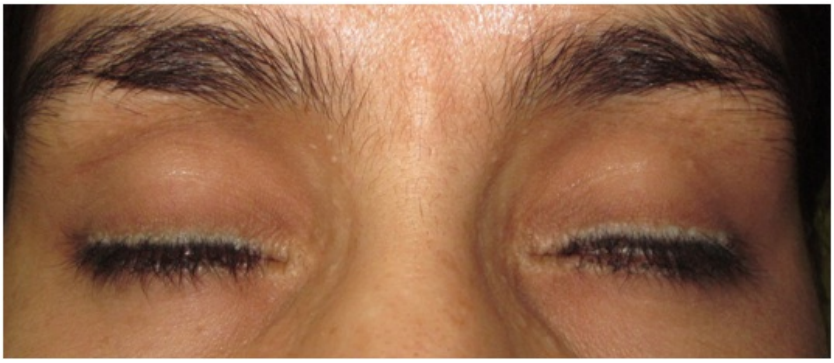


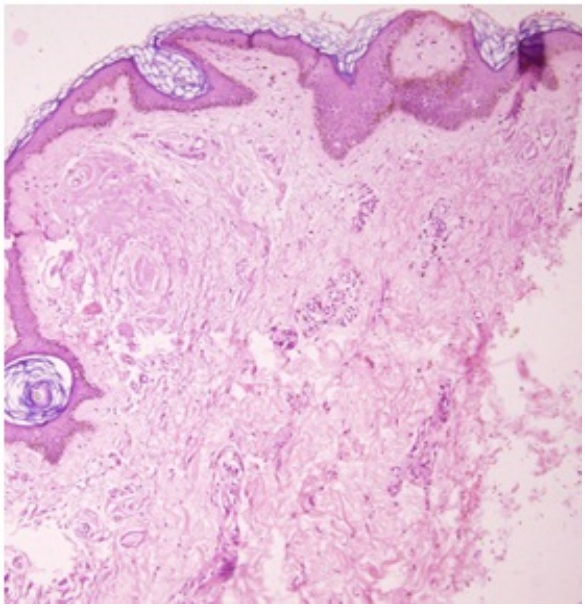
Figure 1. Multiple well defined, skin colored to waxy yellowish, beaded papules, arranged in linear pattern were seen over bilateral eyelid margins. **Figure 2.** Thickening of the frenulum of tongue and waxy yellow -white infiltration present over the anterior and posterior pillar of tonsils and soft palate

On examination multiple well defined, skin colored to waxy yellowish, beaded papules, linearly arranged were seen over bilateral eyelid margins. Also multiple waxy yellowish to skin colored papules of pin point to 0.5x0.5 cm in size were present over the neck and dorsum of hands. The patient also exhibited a few pock-like scars over the face.

Oral cavity examination revealed thickening of the frenulum of the tongue; the patient was not able to protrude the tongue completely. There was waxy yellow-white infiltration present over the anterior and posterior pillar of tonsils and soft palate.

Fiberoptic examination of the larynx showed whitish yellowish deposition over the palate, epiglottis, and bilateral false vocal cord above arytenoids.

Eye examination and all blood investigations were normal.



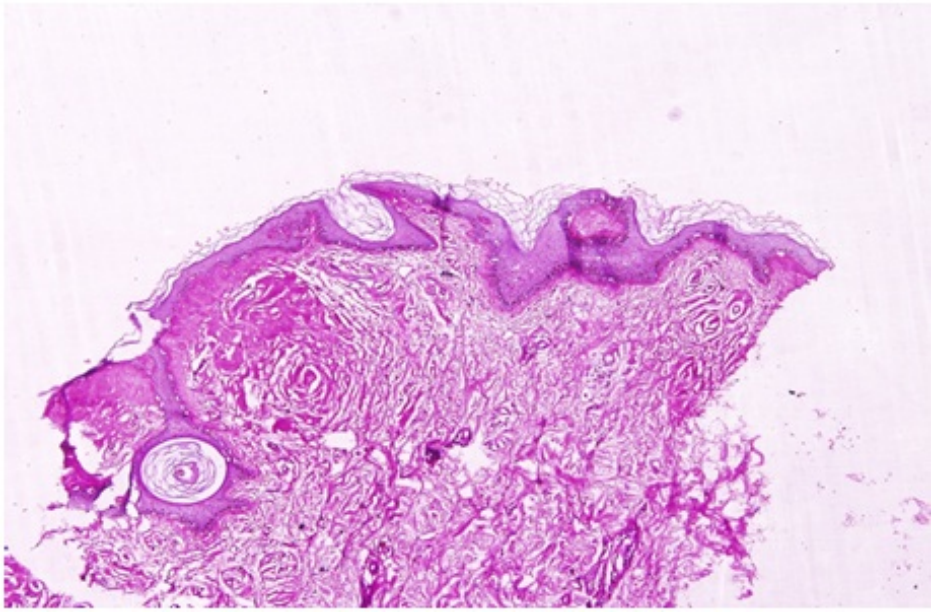


Figure 3: Histopathological examination (H&E) showed that epidermis was mildly hyperkeratotic. Upper dermis showed amorphous hyaline deposition in extracellular space. **Figure 4:** PAS positive eosinophillic amorphous hyaline deposition in extracellular space in dermis. Hyaline deposit was also present around perivascular region with thickening of vessel wall

Histopathological examination showed that the epidermis was mildly hyperkeratotic. The upper dermis showed a PAS positive eosinophillic amorphous hyaline deposition in the extracellular space. Hyaline deposit was also present around the perivascular region with thickening of the vessel wall. Congo red stain was negative.

An X-ray of the skull was taken but no calcification was seen.

On the basis of examination findings and biopsy, a diagnosis of lipoid proteinosis was made.

Discussion

Lipoid proteinosis (Urbach-Wiethe disease) is a rare, chronic, autosomal recessive disorder charecterized by papules, indurated plaques, and sometimes ulcerated lesions healing with pock-like scarring. This condition appears to be more common in Europeans, with both sexes being affected equally. It primarily involves the skin and mucous membranes. The lesions are produced by accumulation of hyaline-like material in various connective tissue sites [1- 5].

The disorder has recently been shown to result from loss-of-function mutations in the extracellular matrix protein 1 gene on chromosome 1q21. The function of the protein extracellular matrix protein 1 gene is still unclear [3]. Lipid proteinosis presents early in life. Hoarseness develops in infancy and becomes prominent within the first few years of life. It is caused by infiltration of the laryngeal mucosa. The mucosae of the pharynx, tongue, and lips soon develop firm, yellow-white infiltrates. The frenulum of the tongue becomes infiltrated and thickened, which leads to tongue-tying. Skin changes become prominent in early life with the development of yellow-brown papules and nodules on the face and lips. These lesions may ulcerate and heal with acne-like scars that may be seen on the face as well as on non-acne prone regions of the body. The classic and most recognizable sign is the beaded eyelid papules along the lid margin, also known as ‘monilform blepherosis’. Translucent,verrucous, keratotic papules are seen on the elbows and knees.

In classic cases the most characteristic radiological findings are bilateral, fairly dense, para-cellular, symmetrical, and regular calcifications. Fifty percent of cases may have oval symmetrical intracranial calcification of the hippocampai gyri [3]. No specific laboratory finding is seen in lipoid proteinosis.

On histopathology, the epidermis shows hyperkeratosis and irregular acanthosis. The dermis is thickened with deposition of extracellular, homogenous, hyaline material seen in the upper half. The hyaline material is at first deposited along the course of capillaries, in arrector pili muscles, and concentrically around sweat coils. Hyaline material stains strongly with PAS stain. Surrounding the blood vessels, there is reduplication of basal laminae in an ‘onion skin’ arrangement. It is suggested that there is overproduction of basement membrane collagens (Type IV and V) by the endothelial cells of blood vessels and underproduction of fibrous collagens (Type I and II) [1-5].

The disease must be differentiated from erythropoietic porphyria. In the latter, the lesions are found mainly in the sun-exposed areas and the mucous membranes are not involved. Other diseases in the differential diagnosis to be ruled out histologically are amyloidosis, lichen myxedematosis, and xanthomatosis.

As the exact pathogenesis of this disease is unknown, there is presently no effective therapy for lipoid proteinosis. Various treatment modalities including dimethyl sulfoxide, etretinate, acitretin, penicillamine, surgical procedures, carbon dioxide laser, and dermabrasion have been used with variable results [6 -10]. Conservative treatment only has been given to our patient. Generally, lipoid proteinosis is benign and patients have normal life expectancy.

Table 1. Lipoid proteinosis case reports from India

Serial No.	Authors and journals	Publication type	Age / Sex	Additional findings
	Ranjan et al, Ophthalmic Genet. 2013 [11]	Case report	8 y / female	
	Ravi Prakash et al Saudi Dent J. 2013 April [12]	Case report	32 y / male	
	Kachewar et al, J Clin Diagn Res. 2012 November [13]	Case report	52 y /male	Intracranial calcification
	Parmar et al, Indian J Dermatol Venereol Leprol.	Case report	6 y / male	

	2013 [14]			
	Gutte et al, Indian Dermatol Online J. 2012 May-Aug [15]	Case report	3.5 y / female	
	Nayak et al,Indian Dermatol Online J. 2012 Jan [16]	Case report	6 y / female	
	Kuchabal et al, Int J Dermatol.2011 Aug [17]	Case report	5 patients	
	Mainali et al, J Indian Soc Pedod Prev Dent. 2011 Jan-Mar [18]	Case report	12 y /female	
	Sainani et al, Int Ophthalmol. 2011 Apr [19]	Case report	One patient	
	Naha et al, Australas Med J.2011 [20]	Case report	19 y / male	
	Rao et al, J Oral Maxillofac Pathol.2009 Jul [21]	Case report	62 y/ male	
	Srivalli et al, Indian J Otolaryngol Head Neck Surg. 2009 January [22]	Case report	2 siblings 12 y/ female 5 y/ male	
	Batra et al, Ear Nose Throat J.2008 Sep [23]	Case report	12 y/ female	
	Rao et al, Dermatol Online J. 2008 Jul [24]	Case report	2 y /female	
	Venkatesh et al ,J Cataract Refract Surg. 2007 Aug [25]	Case report	One patient	B/Llens subluxation
	Yadava et al, Pathology.2006 Dec [26]	Case report	One patient	
	Kini et al, Dermatol Online J.2006 Jan [27]	Case report	12 y / male	
	Vedamurthy et al,Dermatol Online J. 2003 Dec [28]	Case report	2 siblings 16 y/ female 11 y / female	
	Shivaswamy et al, Dermatol	Case report	6 y / female	

	Online J.2003 Dec [29]		9 y / male	
	Sethuraman et al, J Dermatol. 2003 Jul [30]	Case report	2 siblings	
	Shah et al,Indian J Dermatol Venereol Leprol.1996 Nov-Dec [31]	Case report	20 y / male	
	Singh et al, Int J Dermatol.1988 Jun [32]	Case report	One patient	
	Ramanan et al, Indian J Dermatol.1983 Oct [33]	Case report	One patient	

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