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Case Report

Young Male with Rash and Decreased Vision

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Abstract: Pseudoxanthoma elasticum is a rare disorder of degeneration and calcification of the elastic fibres. It is believed to be a multisystem disorder with involvement particularly of the skin, eyes and the peripheral circulation. Here we present a case with typical features of pseudoxanthoma elasticum. Confirmation of the disease was based on typical histopathological changes on skin biopsy, positive gene analysis and on findings of fundoscopy.

Introduction

Pseudoxanthoma elasticum also known as Gronblad–Strandberg Syndrome is a very rare multisystem inherited disorder mainly affecting the skin, eyes, cardiovascular and peripheral arterial systems. The hallmark of this rare entity is the progressive calcification and degeneration of the elastic fibres in the target tissues. Mild forms of the disease can be easily overlooked. Although the skin changes are usually the first to appear but rarely are the main cause of concern, indeed the patients usually present with extracutaneous mainly eye problems; of which progressive falling vision, night blindness and loss of sight are the concern. Extracutaneous involvement may be in the form of peripheral arterial disease, cardiovascular diseases and the gastrointestinal problems. Early recognition of the disease is important to minimize the systemic complications.

Case Report

A 32 years old Pakistani male presented to outpatient of dermatology department with fifteen years history of generalised skin eruption and a five year history of decreased vision. Rash started from the anterior part of neck and gradually spread to involve the axilla, chest and abdomen and finally the groin (picture 1a-f). There was no itching, hyperkeratosis or discoloration of skin associated with it. He denied history of any significant sun exposure. There was also history of falling vision in both eyes left>right for last 2 years along with difficulty seeing in dark. There was no associated diplopia, eye swelling, redness, pain in the eye or headache.

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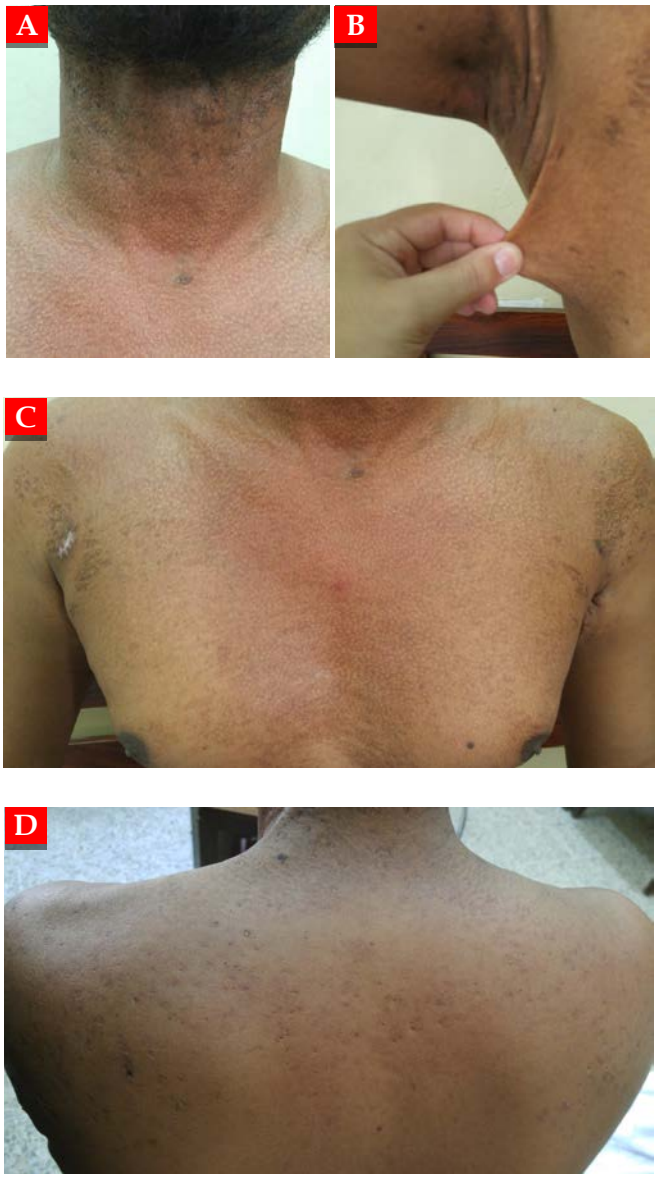
He gave no history of GI bleed, malena, chest pain or shortness of breath. There was no known drug allergy and past history was unremarkable so was the family history. He was a heavy cigarette smoker but denied abuse of illicit drug and there was no history of travelling abroad. He got married four months ago, was educated upto masters, worked as a civil engineer, lives in a joint family system and belongs to middle class family.

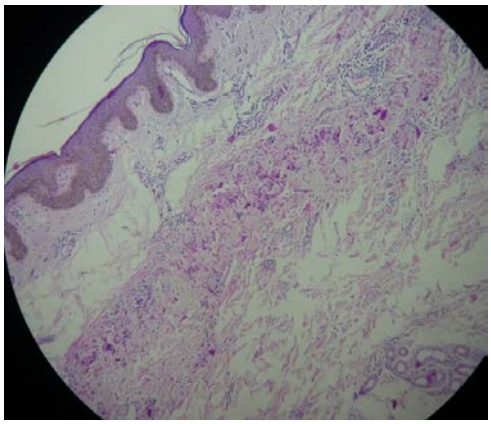
On examination, an average built male conscious oriented in time place and person with a regular pulse of 80/min, BP of 110/80mm of Hg and a respiratory rate of 15/ min. Examination of the intigumentary system revealed numerous, small yellowish non-follicular papules of few millimeters in diameter arranged in linear pattern over the neck, axilla, chest, abdomen and groin area sparing the arms and legs with a soft, and lax underlying skin (picture 1A-D). Eye examination revealed a visual acuity of 6/9 on right and 6/60 on left. Pupillary response, visual fields, colour vision and extra ocular movements were normal and fundoscopy shows angiod streaks (picture 2a&b). Abdomen was soft, non-tender with no evidence of free fluid. Chest was clear to auscultation and cardiac examination revealed normal first and second heart sounds with no added sounds. Examination of central nervous system was unremarkable

His lab examination showed a normal complete blood count with normal biochemistry but deranged lipid profile. ECG and chest radiography along with echo was within normal limits. Examination of axilla skin biopsy specimen stained with hematoxylin-eosin showed normal epidermis with fragmented, swollen and clumped elastic fibers in the mid-dermis. Somewhat loss of appendages was also seen (slides 1a&b). Von-kossa stain confirmed the calcium

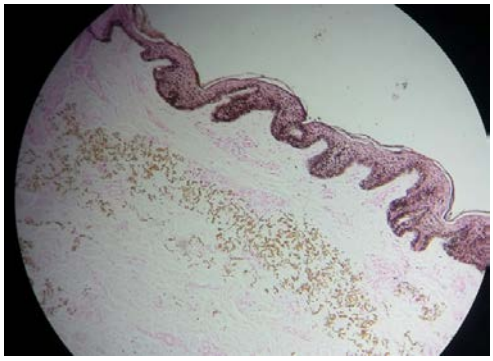
deposition in the dermis (slides 2a&b). Patient also subsequently was found to have positive ABCC6 gene. Diagnosis made on the classical eye changes, histopathological findings along with positive calcium stains and positive gene analysis. Patient is under follow-up treatment with no progressive worsening of skin or eye findings.



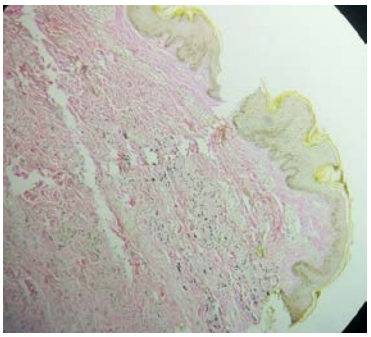
A. showing the classical plucked chicken appearance on the front of neck, B. Skin hyper elasticity of axilla, C&D: Scaring and yellowish to brown papules on the front and back.



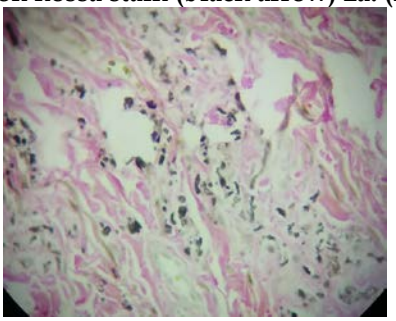
Elastic and collagen fibre degeneration (black arrow); (H&E, ×40)



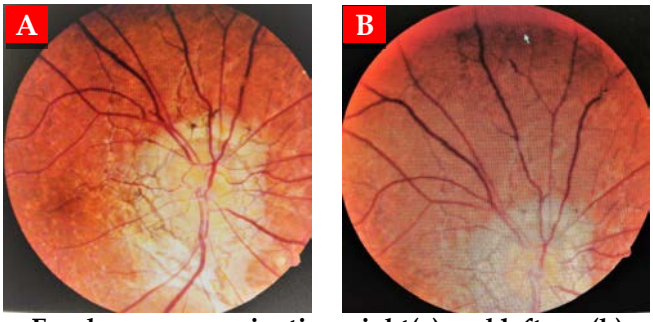
Calcium deposition with positive Von kossa stain (black arrow) (H&E, ×40)



Skin biopsy showing calcium deposition with positive Von kossa stain (black arrow) 2a. (H&E, ×40)



Skin biopsy showing calcium deposition with positive Von kossa stain (black arrow) 2a. (H&E,×100)



Fundoscopy examination, right(a) and left eye(b) showing the classical Angiod streaks (black arrows).

Discussion

Psedoxanthoma elasticum (PXE) and its association with the angiod streaks otherwise known as the Gronblad-Strandberg syndrome is a very rare connective tissue dystrophy. Prevalence is estimated to be at 1:10000 with a female predominance[1]. It has been linked to a defect in an ABCC6 gene on chromosome 16[2, 3]. It is believed to be inherited as an autosomal recessive disorder[2]. Most cases are diagnosed at a mean age of 10-15 years but childhood skin changes do occur[4-6]. But because of the slow and asymptomatic progressive nature of the disease and delayed extracutaneous changes an average delay in diagnosis of about nine years is the usual occurrence[4]. The skin changes consist of small yellowish papules typically on the neck giving a plucked chicken appearance. The axillae, popliteal and antecubital fossa can also get involved. The issue initially is only cosmetic; however, with time the skin becomes lax and wrinkled and often hangs by the folds[7]. Perforating and other unusal forms of pseudoxanthoma elasticum have been recognized. Although PXE has a female predominance our patient was a male. Also as mentioned above the diagnosis was delayed for about ten years until the appearance of eye changes. Our patient also had the classical skin changes as described.

Eye signs characteristic for pseudoxanthoma elasticum are angiod streaks which are grey to reddish-brown lines radiating from the optic disc as present in this patient. These are present in about 85% of the patients of pseudoxanthoma elasticum and when present in association with pseudoxanthoma elasticum it is known as Gronblad- Strandberg syndrome. Onset of eye changes is between 15-25 years[8]. These changes are due to calcium deposition and degeneration of the elastic fibres of retina leading to breaks in the Bruch's membrane. Other complications include retinal hemorrhages, neovascularization, scarring, loss of central vision, A-V anastomosis at the optic disc[9, 10]. Other eye changes include peau d'orange, colooid bodies and macular degeneration[11, 12].

Vascular manifestations in psaudoxanthoma elasticum are due to calcium deposition and degeneration of the elastic lamina of medium sized arteries. Claudication is usually the first sign. Cornorary artery disease and hypertension due to renovascular causes may occur far more early in these patients. Complications like angina, myocardial infarction, congestive cardiac failure and stoke can occur[12, 13]. Echocardiogram may show calcification of the valves and the endocardium.

Gastrointestinal tract and kidneys may also be involved with G.I bleeding and hypertension being important complications. Bleeding may affect the Cerebrovascular system, urinary tract and joint can also occur.

The diagnosis is based on finding the classical skin changes, the eye changes and/or positive gene analysis. The histology of PXE is characteristic. Skin lesions show clumped, and fragmented elastic
fibres and calcium deposits are found in reticular dermis[14]. All these findings were present in our case. Similar changes can also occur in other blood vessels like that of eyes, heart and other organs. Stains for elastic fibres and calcium are helpful in making the diagnosis. Indeed Von kossa stain for calcium deposition was positive in our patient.

Management depends upon early diagnosis and prevention of complications. Patients usually have a normal lifespan but morbidities depend upon extent of systemic involvement. Lifestyle changes to prevent complications are the key.

Further studies are required to make possible the early diagnosis and to provide an effective treatment for this rare inherited disorder.

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E. Critical Review
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