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Pseudoxanthoma Elasticum and Calcinosis Cutis

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Abstract

Case Report

Pseudoxanthoma elasticum (PXE) is a genetic and multi-systemic disease characterized by the pathological calcification of elastic connective tissue. Its incidence in women is higher and is mostly inherited as autosomal recessive. It has been shown that the mutation in ABCC6 gene coding the transmembrane transport protein plays a role in the development of PXE. Generally, the first finding is asymptomatic skin involvement and also multisystemic involvement such as eye, cardiovascular system, central nervous system, peripheral veins, and gastrointestinal system can be observed. Even though the pathological calcification seen in the elastic connective tissue is histopathologically observed, it is quite rare to monitor clinically the calcinosis cutis lesions on the skin. In the present case, this rarely seen co-existence is present and this case report was represented in order to contribute to the literature.

INTRODUCTION:

Pseudoxanthoma elasticum (PXE) is a metabolic connective tissue disorder that is characterized by the dystrophic calcification of elastic fibers and may cause multi-systemic involvement such as skin, eye, central nervous system, and cardiovascular system[1]. Its prevalence is between 1:25.000 and 1:100.000 and it is mostly inherited as autosomal recessive. It is rarely seen in autosomal dominant and sporadic cases[2]. Clinically, the yellowish papules observed on the skin are plaques arranged in linear or reticular pattern and they are most commonly located in the flexural areas and trauma areas such as antecubital, popliteal, inguinal, subclavicular, neck, and axilla. Its appearance resembles a "plucked chicken" or a "paving stone"[3,4]. Loss of vision due to the involvement of elastic fibers in the brunch membrane in the eye, early-onset of cardiovascular events depending on the involvement of elastic fibers in vascular structures, cerebrovascular events, peripheral vascular diseases, and gastrointestinal bleeding may be observed in this disease[3]. It is reported that mutations in the ABCC6 (Atp binding cassette, family C, number 6) gene, which is believed to play a role in cellular detoxification, is a transmembrane transport protein and encodes MRP6 produced especially in the liver cause PXE[1,5]. Histopathologically, fragmented calcified elastic fibers are observed in the dermis. Despite the calcium collection in the dermis, the calcinosis cutis co-existence is a quite rarely seen case[3]. This rarely seen co-existence is present in the present case and the case report was represented in order to contribute to the literature.

CASE REPORT

A 56-year-old female patient was diagnosed with PXE via biopsy when she was 8 and was followed up at an external center for years. The reason for the admission of the patient to the outpatient clinic was the presence of five new painful, pruritic papular lesions on the neck. In the dermatological examination of the patient, generalized slightly endured yellowish xanthomatous "paving stone"-like plaques were observed on the anterior and posterior body sides of the neck. Also, on the right lateral side of the neck, 5 white-colored solid papular lesions were present (Figure-1). In the anamnesis taken, it was reported that the newly formed lesions on the neck were present for approximately 1 year and they were gradually growing, and their number was increasing. In the personal history, the patient had pulmonary thromboembolism (PTE) and cerebrovascular disease (CVD) two years ago. There was no sequelae of SVH and she was under close follow-up of both neurology and thoracic diseases. She also had hypertension and insulin resistance. No pathology was observed in the recent cardiac and eye examinations. She had no gastrointestinal complaint. When the family history of the patient was examined, they were 5 siblings and PXE was present in 2 of them. The mother and father of the patient had a cross-cousin marriage (first-degree cousin marriage).

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The patient did not have a cross-cousin marriage and she had 5 children. All were alive-healthy and none of them had PXE.

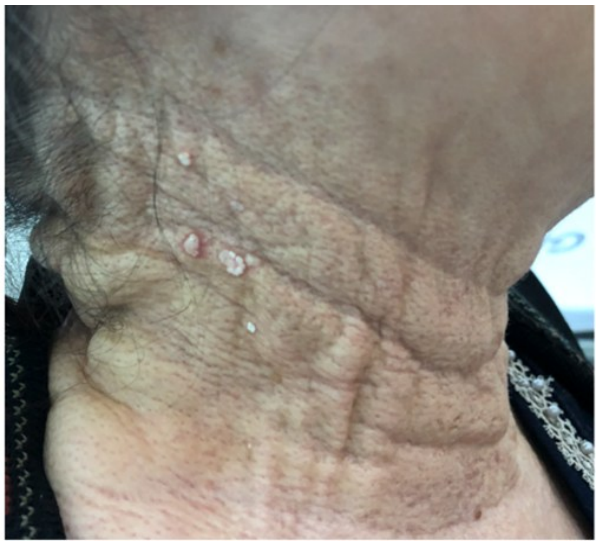

Figure 1; Calcinosis cutis lesions on the xanthomatous plaque in the neck area

Two biopsies were taken from the right lateral side of the neck for the pre-diagnosis of pseudoxanthoma elasticum and from the solid white papules for the pre-diagnosis of calcinosis cutis. The biopsy revealed degeneration in the elastic fiber clusters in the reticular dermis and dystrophic calcium deposits filling the reticular dermis were present (Figure 2). In the laboratory examinations; calcium, phosphate, and parathormone levels were observed within normal levels. The patient was simultaneously diagnosed with pseudoxanthoma elasticum and dystrophic calcinosis cutis. Local steroids and emollient were recommended for the patient in order to reduce local inflammation and rash. Follow-up of the patient at the outpatient clinic still continues.

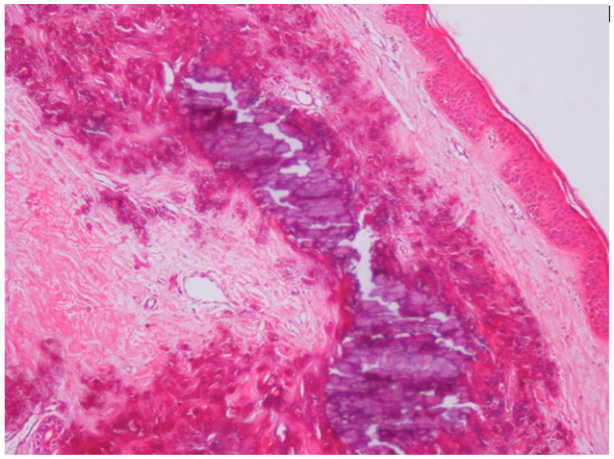

Figure 2; Elastic fibres of the reticular dermis are short and fragmented. Fragmented elastic fibres coated in calcium.

DISCUSSION

Calcinosis cutis is a disease characterized by the irreversible deposition of the calcium salts in the tissues. It has various forms such as dystrophic, metastatic, iatrogenic, and idiopathic. In dystrophic calcinosis cutis, calcium and phosphate levels are normal and they are seen due to the calcium deposition in the damaged or traumatized skin. Although its pathogenesis is not exactly known, it is considered that the abnormalities in the cutaneous and subcutaneous tissues accelerate calcification [6]. Nodule or plaque-like calcium deposits may form on the skin, subcutaneous tissue, tendons, and the muscle[6].

Pseudoxanthoma elasticum (PXE) is a metabolic connective tissue disorder that is characterized by the dystrophic calcification of elastic fibers and may cause multi-systemic involvement such as skin, eye, central nervous system, and cardiovascular system[1]. Even though calcium collection is seen in the degenerated elastic fibers in the dermis, its co-existence with calcinosis cutis is clinically a very rare situation.

It is shown that fetuin-A levels that are systemic calcification inhibitors In PXE patients are lower than the first-degree unaffected relatives. Fetuin-A is produced by hepatocytes, is present in all the extracellular fluids, dissolves in calcium and phosphate and forms colloidal complexes. Thus, calcification in the tissues is inhibited[8,9]. One of the reasons of calcinosis in PXE patients is the low Fetuin-A levels[8].

In the literature, the number of case reports including both diseases is quite low. In 1968, Najjar et al., reported a pair of siblings having PXE-related periarticular tumoral calcinosis and high phosphate levels. Also, in 2000, Buka et al.,[7] reported a patient with PXE having small painful and itchy papular calcifications and normal calcium and phosphate levels. In this sense, it is similar to the present case.

There is no standard treatment for PXE but there are studies reporting that the attempts focused on calcium and phosphate regulation are successful. In a small study including six PXE patients in which oral phosphate binders were used, it was specified that it can be used as a treatment option[10]. However, these are mostly anecdotal reports and it is seen that even though there is a decrease in calcification inhibitor Fetuin-A levels in most of patients with PXE, serum calcium and phosphate levels are normal[8].

In the present case, serum calcium, phosphate, and parathormone levels are within normal limits and it is one of the published rare cases in the literature regarding the co-existence of PXE and calcinosis cutis.

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