In conclusion, clinical clues to a cavernous malformation include peri-ocular location, lack of true punctum and the presence of a pseudo-punctum. This differential diagnosis of an epidermoid cyst enables the surgeon to suspect a vascular malformation during on-table gross evaluation and change their approach to pre-empt haemorrhagic losses and post-operative hematoma formation.

Declaration of Patient consent

The authors certify that they have obtained all appropriate patient consent.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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References

1. Garcia-Zuazaga J, Ke MS, Willen M. Epidermoid cyst mimicry: report of seven cases and review of the literature. J Clin Aesthet Dermatol 2009;2:28–33.
2. White CL, Olivieri B, Restrepo R, McKeon B, Karakas SP, Lee EY. Low-flow vascular malformation pitfalls: From clinical examination to practical imaging evaluation–Part 1, lymphatic malformation mimickers. Am J Roentgenol 2016;206:940–51.
3. Boon LM, Vikkula M. Vascular malformations. In: Goldsmith LA, Katz SI, Gilchrest BA, Paller AS, Leffell DJ, Wolff K, eds. Fitzpatrick's Dermatology in General Medicine, 8th ed. New York, NY: McGraw-Hill, 2012. p. 2076–93.
4. ISSVA Classification of Vascular Anomalies ©2018 International Society for the Study of Vascular Anomalies Available at "issva.org/classification" Accessed March 2021.
5. Olivieri B, White CL, Restrepo R, McKeon B, Karakas SP, Lee EY. Low-flow vascular malformation pitfalls: From clinical examination to practical imaging evaluation-Part 2, lymphatic malformation mimickers. Am J Roentgenol 2016;206:952–62.

Pseudoxanthoma elasticum-like changes in longstanding gadolinium-naïve nephrogenic systemic fibrosis in a patient with chronic kidney disease

Sir,

Nephrogenic systemic fibrosis is a rare systemic fibrosing disorder which has been recently described in settings of renal insufficiency, especially with gadolinium exposure.[1] The exact etiopathogenesis is still to be elucidated. Almost no treatment described for the disease has been completely successful. Histopathological features are similar to the sclerodermoid spectrum of disorders. A pseudoxanthoma elasticum like pattern has been rarely reported as an incidental finding in the setting of calciphylaxis. We present such a case in an adolescent with chronic kidney disease.

A 16-year-old boy presented with a history of pruritic skin thickening of one year duration, initially presenting over thighs and later involving the abdomen and legs. It was also associated with multiple, soft swellings which developed from the thickened skin. He was diagnosed with nephrotic syndrome at the age of five years and was on long-term systemic steroids, at a starting dose of 60 mg prednisolone. This dose was tapered gradually to 5 mg till the age of 12 years. He was not on medication at present and was recently detected with stage 5 chronic kidney disease, for which he was on multiple sessions of haemodialysis and erythropoietin injections. Patient also had a history of hypothyroidism and hypogonadotropic hypogonadism, but no exposure to gadolinium. Patient was on 50 μg thyroxine and currently on no drug for hypogonadotropic hypogonadism.

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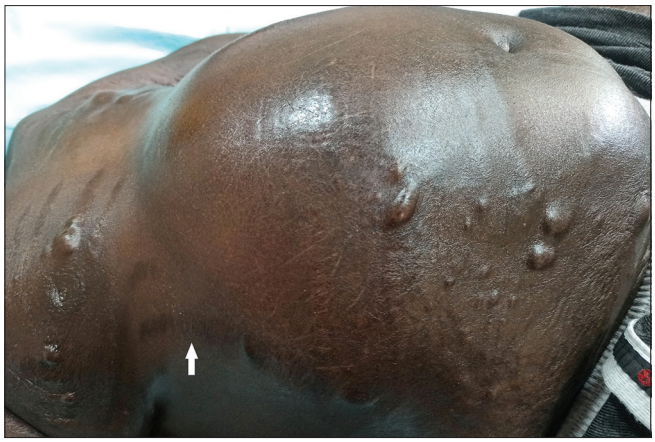

Figure 1: Sclerotic indurated plaques with amoeboid borders (white arrow) and uneven surface with soft nodules distributed over abdomen and anterior chest

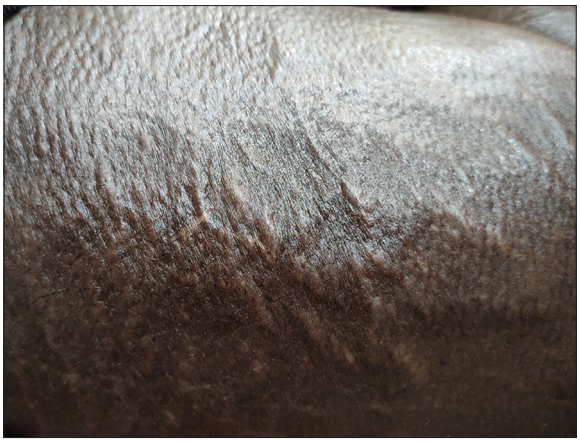

Figure 2: Cobblestoning of plaques over the thighs

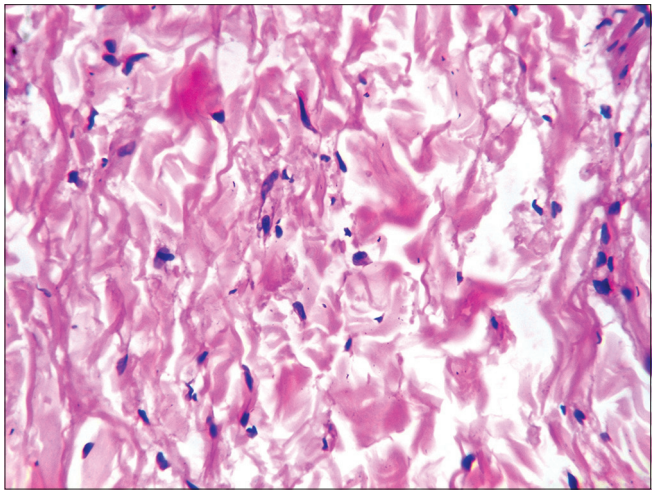

Figure 3: Skin biopsy showing dermal sclerosis with spindle shaped fibroblasts, Haematoxylin & Eosin ×400

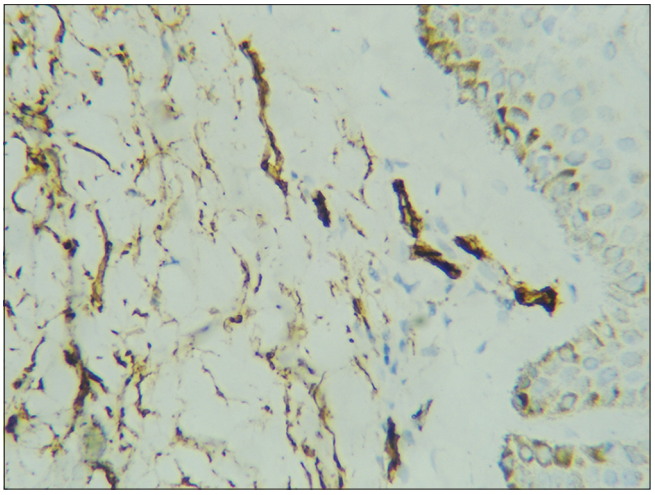

Figure 4: Spindle-shaped fibroblasts with positive CD34 staining, CD34 stain ×400

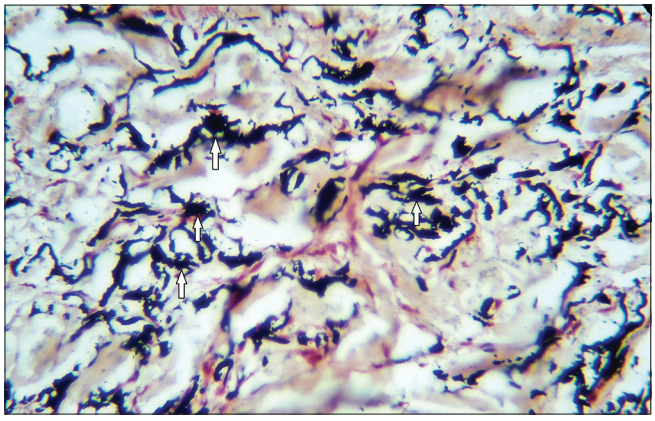

Figure 5: Dermis showing altered calcified elastic fibres as black irregular strands, Von Kossa ×400

General examination revealed a short stature (height –134 cm), gross ascites, hydrocoele and micropenis. Dermatological examination revealed multiple irregular discrete and confluent sclerotic indurated plaques with amoeboid borders and uneven surface, with soft nodules distributed over the abdomen [Figure 1], anterior chest, thighs and legs. In addition, there were multiple linear atrophic fissured plaques over the upper limbs, axillae and sides of abdomen. Plaques over thighs had a cobblestone texture [Figure 2]. No restriction of range of motion was noticed in any joint.

Relevant investigations demonstrated features of chronic kidney disease: anaemia (haemoglobin - 9 g/dL), hypoalbuminemia (albumin - 1.6 g/dL) and glomerular filtration rate of 28 ml/min/1.73 m^2. Serum calcium was 8.2 mg, serum phosphorus 3.2 mg and calcium/phosphorus product was 26.24. Antinuclear antibody and antiphospholipid antibody tests were negative. Ultrasound abdomen with kidney, ureters and bladder showed gross ascites and chronic nephropathy. High resolution computed tomography of chest showed a right-sided pleural effusion without any parenchymal fibrosis. Echocardiogram was normal. Skin biopsy taken from the sclerotic plaque over abdomen and thighs showed dermal fibrosis with haphazardly arranged collagen bundles in a background of a few spindle shaped fibroblasts [Figure 3]. Immunohistochemistry

highlighted the CD34 positive fibroblasts in the dermis [Figure 4].

Von Kossa staining demonstrated the presence of calcium deposits over fragmented and altered elastic fibres [Figure 5]. The clinical and histological findings were diagnostic of nephrogenic systemic fibrosis with pseudoxanthoma elasticum like changes. The patient was started on NB-UVB phototherapy along with levocetirizine and white soft paraffin application.

Our patient was a known case of chronic kidney disease with a history of hypothyroidism and multiple treatment sessions of haemodialysis and erythropoietin therapy, all risk factors for nephrogenic systemic fibrosis, even though he was gadolinium naïve.[2] Clinical presentation with sclerotic indurated plaques with amoeboid border, cobble-stoning and linear indurated fissured plaques was suggestive of nephrogenic systemic fibrosis and histopathology demonstrating dermal fibrosis with spindle shaped fibroblasts positive for CD34 was diagnostic of nephrogenic systemic fibrosis according to latest European guidelines, while fragmented altered elastic fibres with calcium deposits by Von Kossa stain was diagnostic of pseudoxanthoma elasticum.[3,4] Therefore, we made a final diagnosis of nephrogenic systemic fibrosis with pseudoxanthoma elasticum like changes. This condition is a recently described entity, the pathogenesis being aberrantly directed circulating fibroblasts to the dermis and the subcutis. It resembles other fibrosing dermopathies such as scleromyxedema, scleredema and eosinophilic fasciitis. The systemic features such as joint contractures, cardiomyopathy and interstitial lung disease were absent in our patient. The hallmark of the present case report is the histopathological feature of pseudoxanthoma elasticum-like changes with calcium deposits on the altered elastic fibres, which is extremely rare and hitherto reported in only one case report.[5] Previously, pseudoxanthoma elasticum-like histopathology has been reported in the context of calciphylaxis.[4-6] However, in our case, there was no clinical evidence of calciphylaxis at the time of presentation. The patient was not toxic and there were no necrotic painful ulcers on the limbs discharging chalky material, which is a classical feature of calciphylaxis. Calcium deposits in a case of nephrogenic systemic fibrosis could be explained in the context of chronic kidney disease, but the pathogenesis of elastic fibre damage in the dermis is still to be elucidated. Pseudoxanthoma elasticum like changes, perforating osteoma cutis and cutaneous mucinosis are rare associations of nephrogenic systemic fibrosis reported in the literature.[5,7,8]

This case is reported due to the uniqueness of its presentation, in an adolescent without prior gadolinium exposure and the extremely rare histopathology of pseudoxanthoma elasticum changes in the setting of nephrogenic systemic fibrosis. Calcification of elastic fibres in the setting of nephrogenic systemic fibrosis could be a forerunner of calciphylaxis and systemic involvement, which warrants further investigations and monitoring.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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References

1. Haemel AK, Sadowski EA, Shafer MM, Djamali A. Update in nephrogenic systemic fibrosis: Are we making progress? Int J Dermatol 2011;50:659-66.
2. Basak P, Jesmajian S. Nephrogenic systemic fibrosis: Current concepts. Indian J Dermatol 2011;56:59-64.
3. Knobler R, Moinzadeh N, Hunzelmann A, Kreuter A, Cozzio L, Mouthan M, *et al*. European dermatology forum S1-guideline on the diagnosis and treatment of sclerosing diseases of the skin, Part 2: Scleromyxedema, scleredema and nephrogenic systemic fibrosis. J Eur Acad Dermatol Venereol 2017;31:1581-94.
4. Panagou E, Ratynska M, Kara Heelan K. Pseudoxanthoma elasticum-like papillary dermal elastolysis: A case report and review of literature. Int J Dermatol 2013;58:93-7.
5. Lewis KG, Lester BW, Pan TD, Robinson-Bostom L. Nephrogenic fibrosing dermopathy with pseudoxanthoma elasticum like changes. J Cutan Pathol 2006;33:695-700.
6. Ragunatha S, Palit A, Inamadar AC, Madraki RM, Yelikar BR. Nephrogenic fibrosing dermopathy. Indian J Dermatol Venereol Leprol 2009;75:63-7.
7. Edward M, Fitzgerald L, Thind J, Leman J, Burden AD. Cutaneous mucinosis associated with dermatomyositis and nephrogenic fibrosing dermopathy: Fibroblast hyaluranan synthesis and effect of patient serum. Br J Dermatol 2006;156:473-9.
8. Cuong V, Nguyen BS, Boyle AM, Lee RA. Perforating osteoma cutis in the setting of long standing nephrogenic systemic fibrosis. Int J Dermatol 2015;54:571-2.