

# Gluteal Calcinosis in a Patient With Undifferentiated Connective Tissue Disease: A Bulky Lesion Resected Surgically

## Andiferansiye Bađ Doku Hastalıklı Olguda Gluteal Kalsinozis: Cerrahi Rezeksiyonu Yapılmış Dev Lezyon

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### Summary

Calcinosis frequently accompanies rheumatologic diseases and mostly occurs after trauma, due to structural damage, hypovascularity, and tissue hypoxia. Calcinosis may be seen in a localized area or it may be widespread, causing muscle atrophy, joint contractures, and skin ulceration. Herein, we report a patient with localized form of calcinosis that occurred without history of trauma and the patient also has a diagnosis of undifferentiated connective tissue disease. *Türk J Phys Med Rehab 2011;57 Suppl 2: 358-60.*

**Key Words:** Dystrophic calcification, undifferentiated connective tissue disease

### Özet

Kalsinozis sıklıkla romatolojik hastalıklara eşlik eder ve genelde travmalardan sonra yapısal hasar, hipovaskülarizasyon ve doku hipoksisine bađlı oluşur. Kalsinozis lokalize bir alanda görülebileceđi gibi yaygın olup kas atrofisi, eklem kontraktürü ve cilt ülserasyonuna da sebep olabilir. Burada, travma öyküsü olmadan görülen lokalize bir kalsinozis olgusu sunuldu. Bu hastanın ayrıca andiferansiye bađ doku hastalığı da mevcuttur. *Türk Fiz Tıp Rehab Derg 2011;57 Özel Sayı 2: 358-60.*

**Anahtar Kelimeler:** Distrofik kalsifikasyon, andiferansiye bađ doku hastalığı

### Introduction

Nonarticular soft-tissue calcification or with the frequently known name, calcinosis mostly accompanies rheumatologic diseases and occurs in tissues affected by structural damage, hypovascularity, and tissue hypoxia. Calcinosis may be seen in a localized area or may be widespread, causing muscle atrophy, joint contractures, and skin ulceration. The other important complications of calcinosis are recurrent episodes of local inflammation and infection.

Soft tissue calcification may represent a nonspecific local response or may occur due to a complex underlying disease, and there is no widely accepted classification of calcification in the literature (1,2). In 1985, Black and Kanat (3) classified soft-tissue calcifications into three

categories: metastatic calcification, dystrophic calcification, and calcinosis. Marzano et al. (1), classified soft tissue calcification into four groups, dystrophic (including calcinosis), idiopathic, tumoral, and metastatic. Wilmer et al. (2), in 2002 defined an additional type of soft-tissue calcification, namely, calciphylaxis. Dystrophic calcification, which also includes calcinosis, occurs in the presence of normal calcium metabolism and takes place in damaged tissues, mostly seen in subcutaneous tissues after trauma or infection and also was reported in systemic lupus erythematosus (SLE), scleroderma, or dermatomyositis (DM) (2). It was mostly reported as an incidental radiologic finding, mostly located to the extremities and buttocks. The clinical presentation may be a subcutaneous nodule or a plaque or extensive small or large cutaneous deposition.

Dystrophic calcification mostly occurs in altered tissues, but serum Ca and P levels are within normal limits. Pathophysiologic changes promoting calcification are structural tissue damage, hypovascularity and hypoxia, age-related changes, and genetic predisposition.

Calcification may take place when the calcification promoters such as crystal nucleators appear or when the inhibitors of calcifications are lost, but the detailed mechanisms of calcification are poorly understood. Therefore, it is not easy to determine the exact cause of calcification in individual patients (4).

There is a limited form of calcinosis involving a relatively localized area, especially over the extensor sides of the joints and fingertips. Hard nodules are formed due to accumulation of calcinotic material and these nodules induce muscle atrophy and contractures (5).

Crystal arthropaties may also cause calcinosis. Hydroxyapatite (HA) crystals are formed first within the protective microenvironment of the membrane-enclosed microspace. Then HA crystals serve as nuclei or templates, thus supporting progressive, autocatalytic mineral crystal proliferation (6).

Herein, we report a patient with localized form of calcinosis who has also a diagnosis of undifferentiated connective tissue disease without any history of trauma.

## Case

A 47-year-old female patient admitted to our outpatient unit with back pain, dry eye, photosensitivity, morning stiffness of two hours and livedo reticularis on February 2006. The patient had a history of diabetes for five years and hypertension for 20 years. On laboratory examination only the anti-nuclear antibody was 1/160 positive with a homogeneous pattern and the erythrocyte sedimentation rate was 44 mm/hr. Hemoglobin, white blood cell count, Ca and P were within normal limits, renal and liver function tests were normal and the tests for Anti ds DNA and ENA revealed negative results. The fasting serum glucose level was 126 mg/dL and post-prandial glucose level was 156 mg/dL. The Schirmer test and the electromyography for carpal tunnel syndrome were also normal. A year after the first visit the patient came with bilateral shoulder pain. On laboratory evaluation the test for extracted nuclear antigen (ENA) ssA revealed a positive result. The salivary gland biopsy was normal. With these results the patient was diagnosed as undifferentiated collagen tissue disease. Chloroquine 200 mg/day, azothiopurine 150 mg/day and colchicine 0.5 mg twice daily were administered, but not indomethasine, and the patient was still on the treatment for the last 44 months and reports that more than 90% of her complaints dissolved. Four years after the diagnosis the patient admitted to our outpatient clinic with a complaint of gluteal stiffening that she had detected two years ago but never asked for medical assistance although she had great pain on the gluteal region. On the physical examination stiffening and skin contractions were detected on both sides of the buttocks. Calcifications were detected on bilateral gluteal regions on antero-posterior pelvic X-Ray (Figure 1). In ultrasonography, nodular thickening of the subcutaneous adipose tissue was seen on both of the gluteal regions. The biopsy revealed hyalinization and calcification of the connective tissue. The patient was operated for these lesions on the gluteal regions and these lesions were resected. A mass with a diameter of 75x55x50 millimeters on the left and a mass with a diameter of 80x70x55 millimeters on the right side was resected. Two

formaldehyde-fixed skin and subcutaneous tissue specimens of 7.5x5.5 cm, 8x7 cm largest diameter and 6 cm, 4.3 cm length of skin on one surface respectively were sectioned. On the cut surface, there were large, nodular, white lesions observed. After decalcification, tissue samples for pathological examination were taken, following routine tissue processing and paraffin embedding, 6 µm-thick, hematoxylin-eosin stained sections were prepared. Microscopic examination of the sections revealed hypocellular, massive nodular tumoral calcifications, hyalinization, necrobiosis and giant cell formation in deeper dermis and subcutaneous fat tissue (Figure 2).

Although calcinosis may result from recurrent intramuscular injections or recurrent trauma, the case we report had no history of trauma and had received only one previous intramuscular injection on



Figure 1. Radiologic presentation of calcifications on the gluteal region, trochanters, iliac crests and intra-pelvic parts.

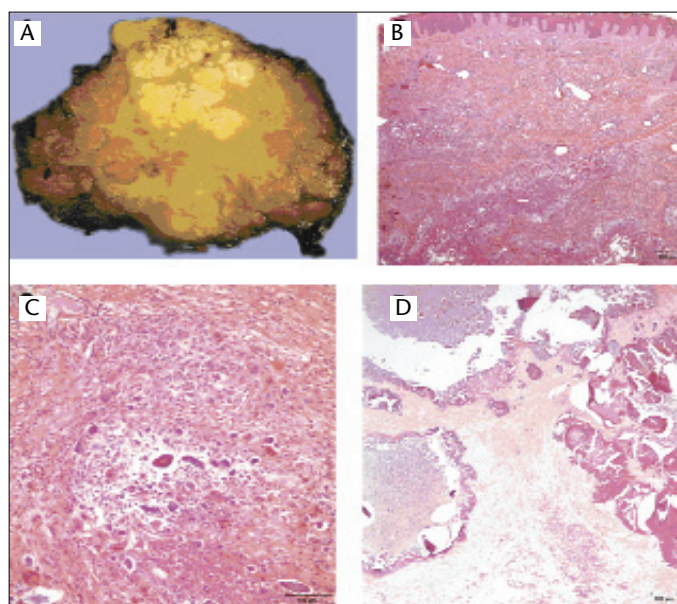


Figure 2. Numerous large, nodular, calcified masses are easily recognized in subcutaneous tissue on macroscopic examination (A). Underneath the epidermis, upper part of the necrobiotic – calcified lesions with occasional giant cells are seen (B, C). Deeper areas of lesion composed of nodular calcium deposits that are surrounded by hyalinization and fibrosis (D).

the gluteal region. The patient did not have a complaint of dysphagia, Raynaud phenomena or there were no telangiectasias or sclerodactily, therefore the diagnosis could not be CREST syndrome.

## Discussion

Herein, we report a case of undifferentiated connective tissue disease and gluteal calcinosis with no history of recurrent traumas or multiple injections.

Calcinosis, in other words soft-tissue calcification, is the accumulation of Ca and P in the presence of normal Ca and P metabolism in damaged or devitalized tissues. It is most often diagnosed in subcutaneous tissues after trauma or infection and also has been described in SLE, scleroderma, or dermatomyositis in the literature (1,7). It is generally an incidental radiologic finding, mostly located on the extremities and buttocks. On physical examination, it may present as subcutaneous nodules or plaques or extensive small or large deposits. In this case the lesion presented as a plaque nearly 8 cm in diameter on bilateral buttocks.

Calcinosis may cause significant pain and disability, but there are few studies investigating treatment alternatives. Sharma LN et al. (8), reported an 17-year-old girl with juvenile idiopathic arthritis and calcinosis, in whom calcinosis had resolved following diltiazem and magnesium/aluminum antacid treatment. In the literature there is no pharmacological treatment that prevents or eliminates calcinosis and to our knowledge no clear recommendations or approach to this problem is present. Warfarin, colchicine, bisphosphonates, probenecid, and diltiazem have been used with variable success rates and may be tried in individual cases, according to the clinical circumstances (7). An other interesting point here in this case is that the calcinosis got bigger although she went on using colchicine which was reported to be a choice of treatment.

Surgical treatment may be of benefit in troublesome larger lesions, on the other hand small superficial lesions may be effectively treated with CO<sub>2</sub> laser. We preferred surgical treatment because the patient was in great pain and also had trouble in walking due to skin contractions. The lesions were very big and local treatments or non-surgical interventions should not be suitable in this situation.

Many new molecule and biological agents are being evaluated in patients with dermatomyositis and calcinosis: cyclosporine, intravenous immunoglobulin, and TNF-alpha inhibitors have been reported to be effective against calcinosis (9,10). The efficacy of tacrolimus, mycophenolate mofetil, and leflunomide needs further evaluation with prospective studies to determine whether these molecules are effective for dermatomyositis and calcinosis secondary to dermatomyositis (10).

Intralesional corticosteroid injection may be effective for palliation and control of calcinosis in Scleroderma by reducing secondary inflammation. This treatment appears to be well tolerated (11).

An other interesting point is that severe diabetes may also cause tissue calcification in some patients, but in our case the patient had no complication of diabetes and by the treatment the diabetes was well regulated. Therefore it does not seem to be possible that the etiology for calcinosis in our patient is diabetes (12).

In conclusion, to our knowledge, this is the first case with dystrophic gluteal calcification in a patient with undifferentiated collagen tissue disease free of recurrent trauma. Therefore, it should be kept in mind that calcinosis is not always dependent to recurrent trauma and other than reported diseases also undifferentiated connective tissue disease may accompany calcinosis.

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