

OLGU SUNUMU

OSTEOMALACIA DUE TO VITAMIN D DEFICIENCY PRESENTING AS LOW BACK PAIN

BEL AĞRISI İLE PREZENTE OLAN D VİTAMİNİ EKSİKLİĞİNE BAĞLI OSTEOMALAZİ

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ABSTRACT

Osteomalacia is the failure of mineralization of newly formed bone matrix. It is an end stage bone disorder related to different diseases. The most common cause of osteomalacia is vitamin D deficiency. Inadequate exposure to sunlight accompanied by low dietary intake of vitamin D is the main cause of vitamin D deficiency worldwide. Excessive clothing is a risk factor of inadequate exposure to sunlight. We here reported a young woman with osteomalacia whose cultural morals have led to excessive clothing. We aimed to emphasize the association between lack of sunlight exposure due to excessive clothing and vitamin D deficiency and osteomalacia.

Key words: Clothing style, osteomalacia, vitamin D

ÖZET

Osteomalazi yeni oluşan kemik matriksin mineralizasyon bozukluğudur. Farklı hastalıklara bağlı son dönem bir kemik hastalığıdır. Osteomalazinin en sık nedeni vitamin D eksikliğidir. Dünya genelinde vitamin D eksikliğinin en sık nedeni diyetle düşük alım azlığının eşlik ettiği yetersiz güneş ışığına maruziyettir. Aşırı giyim yetersiz güneş ışığına maruziyet için bir risk faktörüdür. Bu makalede kültürel değerleri aşırı giyinmeye neden olan osteomalazili genç bir kadın bildiriyoruz. Yetersiz güneş ışığına maruziyet ile vitamin D eksikliği ve osteomalazi arasındaki ilişkiyi vurgulamayı amaçladık.

Anahtar kelimeler: D vitamini, giyim tarzı, osteomalazi

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INTRODUCTION

Osteomalacia is the failure of mineralization of newly formed bone matrix (1). The most common cause of osteomalacia is vitamin D deficiency as a result of inadequate intake and poor sunlight exposure (2). In addition, vitamin D metabolism disorders, alkaline phosphatase deficiency, hypophosphatemia, certain drugs and heavy metals may also result in osteomalacia (3).

Low vitamin D status and osteomalacia due to vitamin D deficiency have been reported even in countries that have sunny climate. These were attributed to inadequate sunlight exposure due to concealing clothing, indoor life or racial differences (4,5,6).

We reported a young woman with osteomalacia whose cultural morals have led to extensive covering with clothes and who spend most of the day indoors without exposure to sunlight. We aimed to emphasize the association between osteomalacia and lack of sun exposure due to excessive covering and vitamin D deficiency.

CASE

A 35 -year-old woman presented with low back and right bottom-groin pain for two years. She also reported widespread pain, fatigue, and malaise. Her pain was exacerbating with movement but not relieving with rest. She had antalgic gait pattern and had difficulty with standing up. Palpation of lumbar and pelvic regions and ribs was painful. Lumbar flexion was mildly limited due to the pain. The straight leg raising test was bilaterally negative, double straight leg raising test was positive. FABER (flexion, abduction, external rotation) and FADIR (flexion, adduction, internal rotation) tests were positive in the right side, sacroiliac joint compression test was positive at the right side. Bilateral hip flexion strength was 4/5. Sensory and deep tendon reflex examinations were unremarkable and there was no pathological reflex. In laboratory investigation hypocalcaemia, hypophosphatemia, reduced 25(OH)D₃, and elevated alkaline phosphates were detected (table 1). X-ray revealed pseudofracture (Looser zone) in the medial aspect of femoral neck (Figure 1). The patient did not accept endoscopic intervention for malabsorption. She had excessive clothing which prevented the action of sunlight on the skin. She was diagnosed as osteomalacia with these clinical, laboratory, and imaging findings; thereafter 50.000 IU cholecalciferol was prescribed once a week for 8 weeks and subsequently 2000 IU cholecalciferol daily was maintained. The laboratory results at the end of the first and sixth month are shown in table 1. At the sixth month of treatment, healing was observed in the area of pseudofracture (Figure 2). Her pain was relieved and gait disturbance improved.



Figure 1. Looser zone in the medial aspect of right femoral neck is seen. The X-ray also is seen as badly taken.



Figure 2. The healing with sclerosis of Looser zone in the medial aspect of right femoral neck is seen at sixth month of treatment. Also the appearance of the x-ray as if taken badly is seen well.

	<u>Before treatment</u>	<u>1.month</u>	<u>6.month</u>
Hemoglobine (g/dl) (11-16)	9.1	9.5	12.9
Calcium (mg/dl) (8.1-10.7)	7.1	8.4	10.0
Phosphorus (mg/dl) (2.6-4.5)	2.4	4.1	3.1
Alkaline phosphatase (U/L) (30-120)	190	245	136
Parathormone (pg/ml) (15-88)	320.3	215	90.4
25(OH)D ₃ (ng/ml) (30-150)	6.1	50.5	40.3

Table 1. Laboratory findings before treatment, at first and sixth month of treatment

DISCUSSION

In this report, we presented a young adult woman with complaint of low back-buttock-groin pain who was finally diagnosed as osteomalacia due to vitamin D deficiency. Vitamin D deficiency of the patient was related to inadequate sunlight exposure because of concealing clothing and spending most of the day indoors.

The most common cause of osteomalacia is vitamin D deficiency (2). The occurrence of vitamin D deficiency in developed countries is most commonly due to gastrointestinal disorders, whereas inadequate exposure to sunlight accompanied by low dietary intake of vitamin D is responsible worldwide (2,7,8). Our case was a young woman who had poor sunlight exposure because of excessive clothing despite she had been living in a sunny Mediterranean climate. Malabsorption was excluded because of increase of serum calcium level and improvement in anemia after treatment with cholecalciferol and iron.

The symptom triad of osteomalacia is bone pain and tenderness, proximal muscle weakness, and difficulty in walking (2,3,9). Osteomalacia can be monitored as spondyloarthritis, fibromyalgia, myopathy, probable neurological disease or osteoarthritis throughout many years (2,3,10). Our case presented with low back, bottom, and groin pain. She also reported widespread pain and fatigue. We ruled out neurological disease in the light of the patient's medical history, neurological examination, and laboratory tests. Low serum 25(OH)D₃ and radiographic findings indicated a diagnosis of osteomalacia.

In osteomalacia due to vitamin D deficiency, the classic laboratory triad is hypocalcaemia, hypophosphatemia, and elevated alkaline phosphatase (11). Our patient's laboratory findings were compatible with these. The characteristic radiographic finding of osteomalacia is pseudofractures. Also radiographic signs of secondary hyperparathyroidism, including subperiosteal erosions, erosions of the outer ends of clavicles, and bone cysts may present (2,3). Looser zone which is the stress fracture of unmineralised osteoid tissue was detected in our patient.

Risk factors for hypovitaminosis D in worldwide include older age; female sex; lower latitude; winter season; darker skin pigmentation

factors that determine sunlight exposure, such as clothing and cultural practises; dietary habits. Vitamin D deficiency is prevalent in sunny Middle East (12). The paradox in these geographic areas is probably due to clothing style related to sociocultural and religious factors and inadequate nutritional supports. Guzel et al. (13) demonstrated low vitamin D status in veiled women who also were leading indoor life in sunny southern Turkey. Gullu et al. (4) reported 9 patients with osteomalacia due to vitamin D deficiency related to excessive clothing. It is also an important problem in Turkish adolescent girls with excessive clothing for religious reasons (14). Elsammak et al. (6) demonstrated the vitamin D deficiency in both male and female in Eastern Saudia Arabia. They could not explain the low vitamin D levels by poor sunlight exposure or low intake because their trial sample reported sufficient intake of vitamin D and most of them had enough exposure to sunlight. They suggested that racial difference or genetic disposition was the cause of low vitamin D levels. Mishal (15) compared the three groups of healty young woman with different dress style in summer and winter. Dress styles were western type dress style, dress style covering nearly whole body and dress style covering whole body. In this study no differences were demonstrated between three groups, but adverse effect of dress styles covering the nearly or totally body on vitamin D levels were highlighted.

In conclusion, ostomalacia should be kept in mind in any woman with excessive clothing which is a risk factor for vitamin D deficiency and osteomalacia.

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