Asymmetrical multiple stress fractures in an elderly lady due to secondary hyperparathyroidism

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ABSTRACT

Multiple asymmetrical stress fractures occur very rarely. We describe here the case of an elderly lady with multiple asymmetrical stress fractures including those in non-weight bearing bones.

The fractures included bilateral neck of femur fractures, bilateral tibial condyle fractures and those at costochondral junction. The known causes of multiple stress fractures including Cushing’s Syndrome, Rheumatoid Arthritis and epilepsy were absent in this case.

The patient underwent bilateral hemiarthroplasty in a staged manner. The patient is ambulant now with a walker and a knee brace to protect tibial condyle fracture.

Keywords: Multiple stress fractures, secondary hyperparathyroidism

INTRODUCTION

Stress fractures are usually seen in young individuals and in weight bearing bones. They occur commonly following repeated trauma. Multiple asymmetrical fractures occur very rarely. The usual causes include osteoporosis, either primary or secondary to Cushing’s syndrome¹ or rheumatoid arthritis².

It can also occur following epileptiform convulsions or in association with irradiation. Stress fractures due to hyperparathyroidism have been described in the calcaneum.³ A few cases of femoral stress fracture have been described in association with chronic renal failure.⁴

CASE REPORT

A 70 year old lady presented with history of pain both hips for 2 years, which was increasing in severity rendering patient immobile and bed ridden for the past two months.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Normal range</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 hr urine Cortisol</td>
<td>99 ug/ 24hr</td>
<td>46 - 131 ug/ 24hr</td>
</tr>
<tr>
<td>8 am Serum Cortisol</td>
<td>15.6 ug/dl</td>
<td>7 - 23 ug/dl</td>
</tr>
<tr>
<td>4 pm Serum Cortisol</td>
<td>8.5 IU/ml</td>
<td>3 - 16 ug/dl</td>
</tr>
<tr>
<td>Vit. D</td>
<td>10.1 ng/dl</td>
<td>Deficiency = &lt; 6ng/dl</td>
</tr>
<tr>
<td>PTH</td>
<td>91.54 pg/ml</td>
<td>10 - 65 pg/ml</td>
</tr>
<tr>
<td>Free T4</td>
<td>1.54 ng/dl</td>
<td>0.9 - 1.71 ng/dl</td>
</tr>
<tr>
<td>TSH</td>
<td>2.66 micro IU /ml</td>
<td></td>
</tr>
<tr>
<td>Hb1ac</td>
<td>6.3%</td>
<td>&lt; 6%</td>
</tr>
</tbody>
</table>

Table 1. Biochemical parameters

Table 1. Biochemical parameters - continued
There was no history of trauma. Patient was on treatment for diabetes mellitus, hypertension and chronic kidney disease. She gave a history of carcinoma cervix for which patient had been given six cycles of local radiotherapy four years back. Symptoms of ca cervix preceded the hip pain. She was obese with body weight 73 kg and Body Mass Index (BMI) 35.26.

On examination, left hip joint line tenderness was present. Movements of the left hip were painful and restricted. Patient was evaluated for osteomalacia, Cushing’s syndrome and other known causes of stress fractures. Bone scan showed an increased uptake in the skull due to hyperparathyroidism, in the costochondral junction due to stress fracture, in bilateral femoral neck due to stress fracture and in bilateral tibial condyles due to due to stress fracture.

Patient underwent hemiarthroplasty of the left hip with Austin Moore prosthesis followed by that of the right hip as staged procedure in view of her poor anesthetic risk (ASA grade II).

Following surgery, there was relief for her hip pain. The patient was mobilised in a walker and knee brace to protect the tibial condyle fracture. Pin fixation was not considered as head fragment was avascular. Biopsy was negative for malignancy, osteoporosis, radiation necrosis and osteomalacia. Harris hip score improved from 25 to 50 following surgery.

**CONCLUSION**

Stress fractures usually occur in the weight bearing bones of young individuals due to repeated activity and trauma. Multiple stress fractures are rare. Most cases of reported multiple stress fractures are symmetrical.

Here, we report a case of multiple asymmetric stress fractures with involvement of non-weight bearing bone as well. There was a stress fracture in the costochondral junction which is a non-weight bearing bone. There was increased uptake in the skull in bone scan, due to hyperparathyroidism.

She had Chronic renal failure, which resulted in secondary hyperparathyroidism, which in turn resulted in multiple stress fractures even though there was no history of trauma.

**REFERENCES**

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