Diffuse Interstitial Skeletal Hyperostosis (DISH) in Type 2 Diabetes


Abstract
A 58 years type 2 diabetic woman, school teacher by profession, presented with backache, neck pain and generalised weakness since last few months. Pain was mild with stiffness and neck pain was particularly associated with extension of the neck towards back. There was no focal neurological deficit on central nervous system examination. X-ray of lumbo-sacral spine showed prolific osteophytes and new bone formation in the body of lumbar vertebrae. Cervical X-ray showed ‘Melting candle -wax’ appearance at the anterior to the cervical vertebrae. In view of clinical and radiological association the case was diagnosed as DISH syndrome. It is being presented for its rarity.

INTRODUCTION
Diffuse interstitial skeletal hyperostosis (DISH) may be common in diabetic population, but it is not very commonly diagnosed in practice. There is no data regarding its rate of occurrence among Asian Indian population. It is reported that 2-4% of the general population may have hyperostotic changes and these changes are present in approximately 25% of the diabetes population.

Exact aetiology of DISH syndrome is unclear. However it is more common in type 2 diabetes and prolonged hyperinsulinaemia may be an explanation. Among other possible factors, elevated levels of insulin growth factor and elevated levels of growth hormone may play a part in the new bone formation.

One half of all patients with DISH syndrome will have manifest diabetes or impaired glucose tolerance. DISH syndrome may be associated with obesity, hyperlipidaemia and hyperuricaemia, in addition to its association with diabetes. It does not show an association with the duration of diabetes.

CASE REPORT
A 58 years lady school teacher, having diabetes for 5 years, with positive family history of diabetes, treated with oral hypoglycaemic agents, presented with mild intermittent backache with mild stiffness and neck pain particularly while extending towards back. Occasionally she felt obstructive symptoms while swallowing tablets with an extended neck. She has hypertension for four years and is on antihypertensive agents.

On physical examination, pulse rate was 78/min regular, BP was 140/80 mmHg and BMI was 25.7 kg/m². On systemic examination, abdomen, respiratory system and cardiovascular system were normal. There was no focal neurological deficit on central nervous system examination. There were restricted joint movements of neck on extension towards back.

Haemogram, urea, creatinine, renal function tests, liver function tests and urine deposits were within normal limits. Total cholesterol was 209 mg/dl, triglyceride 97 mg/dl, HDL cholesterol 41 mg/dl, LDL cholesterol 149 mg/dl and VLDL cholesterol was 19 mg/dl. Serum uric acid was 5.1 mg/dl. HbA1c was 8.0 % and C-reactive protein, rheumatoid factor and antinuclear antibody were within normal limits. HLA-B27 antigen was absent. There was no diabetic retinopathy, ECG and echocardiography were normal. Biothesiometry and microfilament tests showed no peripheral neuropathic changes. Doppler study of both the legs showed normal peripheral circulation.

Chest X-ray was normal. Cervical X-Ray (Fig. 1) showed osteophytes and new bone formation anterior to the cervical vertebrae with calcification of anterior ligaments (often described as ‘Melting candle-Wax’ appearance), a radiolucent line is seen between the newly deposited bone and the vertebral body. There are non-affected intervertebral disc and absence of any radiological bony erosions. X-Ray of lumbo-sacral spine (Fig. 2) shows osteophytes and new bone formation in the body of lumbar vertebrae and there are no radiological bony erosions and intervertebral disc is intact. There is a radio opaque shadow to the right of the 1st and 2nd lumbar vertebrae. Ultrasound abdomen was done and
that revealed only hepatomegaly. Pelvis X-ray showed normal appearance of the sacro-iliac joint without any widening or fusion of the joint and there were no bony erosions.

She was advised to have tight glycaemic control and regular physiotherapy of the neck and pelvis. Antihypertensive agents were continued with added statin therapy.

**DISCUSSION**

This reports a case of a 58 years woman suffering from type 2 diabetes with obesity, hypertension, hyperlipidaemia and having the DISH syndrome. In 1975, Resnick et al described clinical and radiological associations of this condition under the term DISH syndrome. They proposed the diagnostic criteria for the DISH syndrome affecting the

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<th>DISH Syndrome</th>
<th>Ankylosing spondylitis</th>
<th>Cervical spondylitis</th>
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<td>Age</td>
<td>Occurs in the middle-aged and the elderly age group.</td>
<td>After 40 year is unusual, generally begins in the 2nd and 3rd decade.</td>
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<td>Symptoms</td>
<td>Low grade pain and stiffness and a degree of spinal restriction. In some it may be very low or no complaint at all. Obesity may be an associated feature.</td>
<td>Low backache - associated with morning stiffness and not relieved by rest, gradually nocturnal exacerbation will be there.</td>
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<td>Laboratory findings</td>
<td>12 - 18 % of the subjects are either IGT or overt diabetes 2. Hyperlipidaemia and hyperuricaemia may be associated.</td>
<td>Elevated ESR, serum CRP, serum anti-nuclear antibody and serum IgA. HLA B 27 antigen is present in 90 % of cases.</td>
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<td>Radiological findings</td>
<td>Prolific osteophytes and new bone formation at the anterior to the vertebrae with calcification of anterior ligaments ('Melting candle-wax' appearance). A radiolucency may be seen between the newly deposited bones and the vertebral body, which differentiate DISH from the marginal osteophytes in cervical spondylosis. Non-effected intervertebral disc. Absence of any radiological bony erosions.</td>
<td>Earliest involved joint is the sacroiliac joint with features of sacroilitis eg. blurring of the cortical margins of the subchondral bone-&gt; erosions and sclerosis -&gt; pseudo-widening of the joint-&gt; fibrosis and bony ankylosis-&gt; joint obliteration. Ascending progression of this process leads to 'bamboo spine'.</td>
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*Fig. 1 : X ray cervical spine. Shows “Melting Candle - wax” appearance anterior to the 3rd to 6th cervical spines. A radiolucent line is seen between the newly deposited bone and the vertebral body. Inter - vertebral spaces are intact. No bony erosion is seen. |

*Fig. 2 : X - ray Lumbo - sacral spine. Shows osteophytes and new bone formation in the body of the 2nd & 3rd lumbar vertebrae. Inter - vertebral spaces are intact. No bony erosion is seen. |
Definite data regarding effect of tight glycaemic control in the disease process and prognosis of the disease are not available, all of which need to be answered by well-designed studies.

REFERENCES


Announcement

Alcohol in Gastroenterology

Single Theme Conference on Alcohol in Gastroenterology will be held on April 3, 2005.

For details, please contact: Dr. Uday C Ghoshal, Department of Gastroenterology, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow 226014.

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Announcement

The XIth Annual Conference of Cardiological Society of India (UP Chapter) will be organised by the Centre of Cardiology, JN Medical College, AMU, Aligarh on February 5-6, 2005.

For further details, please contact: Prof. MU Rabbani, Organising Secretary, CARDICON-2005 Centre of Cardiology, JN Medical College, AMU., Aligarh (UP) 202002.

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