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## Non-Hodgkin's Lymphoma and Spondylitis in Type-2 Diabetes Mellitus: A Rare Geriatric Case Report

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### Abstract

**Purpose-** Type 2 diabetes mellitus is a metabolic condition characterized by organ failure. In patients with type 2 diabetes, maintaining tight glycaemic control requires timely adjustments and changes in therapy. In children and adolescents, spondylolysis is a common cause of back pain. Spondylitis is more common in men than in women, and it is caused by a congenital defect. T-cell Non-Hodgkin lymphomas are a rare cancer of the lymphatic system. NHL are lymphoid tumours caused by chromosomal translocations, infections, immunodeficiency states, environmental causes, or persistent inflammation.

**Methods-** A 65 years old male patient admitted to the tertiary care hospital. Past medical history of patient includes he was suffering from lower back pain along with increased blood sugar level since 1 month. Past medical history of patient was Type-2 diabetes mellitus since 3 years, spondylitis since 6 months along with newly detected Non-Hodgkin's lymphoma. T-cell Non-Hodgkin lymphomas are a rare cancer of the lymphatic system. There are 9 different clinics pathologic peripheral T-cell NHLs recognized by the current WHO/EORTC classification.

**Result and Conclusion-** Early diagnosis is important for effective and curative therapy management. Early investigations include MRI, Chest X-ray and Ultrasonography. MRI examination of the spine is particularly helpful to diagnose and treatment of this rare disease.

**Keywords-** Oral Anti-Diabetic Drugs, Non-Hodgkin's Lymphoma, Spondylitis, Diabetes mellitus, spondylolisthesis

## INTRODUCTION

In children and adolescents, spondylolysis is a common cause of back pain. Spondylitis is more common in men than in women, and it is caused by a congenital defect. These biases show that spondylitis is caused by a familial tendency.<sup>1</sup>

The 4th and 5th lumbar vertebrae are usually affected by lumbar spondylitis. Spondylitis of the 4th and 5th lumbar vertebrae accounts for more than 95% of all Spondylitis cases.<sup>2</sup> Around 60–85 percent of people experience low back discomfort at some point in their lives. Fortunately, symptoms are mild and temporary in the majority of people, with 90% of cases resolving within 6 weeks. Chronic low back pain, defined as pain that lasts longer than 3 months, affects 15–45 %. For the small portion of the population who have intractable symptoms, the impact on quality of life and economic implications can be considerable.<sup>3</sup>

Type 2 diabetes mellitus is a metabolic condition characterized by organ failure. Progressive pancreatic islet dysfunction is characterized by both qualitative and quantitative abnormalities in beta-cell insulin secretion and unrestrained alpha-cell glucagon production, insulin resistance in muscle and adipose tissue, and dysregulated hepatic glucose production.<sup>4</sup>

In patients with type 2 diabetes, maintaining tight glycemic control requires timely adjustments and changes in therapy when goals are not attained. While the majority of patients are first treated with oral anti-diabetic drugs (OADs), insulin therapy is ultimately required to maintain glycemic control.<sup>5</sup>

Normal pancreatic insulin secretion includes 2 components: 1) a low level of secretion (basal secretion) that suppresses glucose production between meals and overnight, and 2) spikes of higher-level secretion in response to rising glucose levels after meals (postprandial secretion). Basal insulin therapy is a glycemic treatment method that aims to imitate the basal component of normal pancreatic insulin secretion. If used in combination with oral therapy, this can help patients achieve glycemic control.<sup>6</sup>

T-cell Non-Hodgkin lymphomas are a rare cancer of the lymphatic system. There are 9 different clinics pathologic peripheral T-cell NHLs recognized by the current WHO/EORTC classification.<sup>7</sup> These illnesses are the distinction in nature, necessitating individualized diagnosis and therapeutic approaches. In recent years, tremendous progress has been made in the aetiology of many illnesses. Certain lymphomas are now recognized to be connected to specific chromosomal translocations and viral infections.<sup>8</sup>

NHL are lymphoid tumours caused by chromosomal translocations, infections, immunodeficiency states, environmental causes, or persistent inflammation. Clinical signs of NHL are infrequent, especially with primary extra nodal involvement, and rely on criteria such as the process's location, tumour development rate, and the function of the implicated organ.

Hodgkin lymphomas and non-Hodgkin lymphomas are two types of malignant lymphoproliferative disorders. NHL is a nodal and extra nodal disease. Lymphomas of the liver can be either primary or metastatic. Obstructive jaundice is usually a late symptom of NHL, but it can also be a presenting symptom. Obstructive jaundice is only found in 1-2 percent of patients with NHL as their first symptom.<sup>1</sup> Because of the rarity of this condition, patients must be carefully evaluated. [7] NHL's are lymphoid tissue tumours that primarily affect lymph nodes. Chromosome translocations, infections, environmental factors, immunodeficiency states, and chronic inflammation can all cause these malignancies.

## CASE REPORT

A 65 years old male patient admitted to the tertiary care hospital with present complaints of generalized weakness, pain in lower abdomen and back ache in the last 8 days. Past medical history of patient includes he was suffering from lower back pain along with increased blood sugar level since 1 month. Past medical history of patient was Type-2 diabetes mellitus since 3 years, spondylitis since 6 months along with newly detected Non-Hodgkin's lymphoma. His history of past illness was increased in blood sugar level along with back pain of lower spine from 1 month. The patient's social history revealed that he had never smoked or consumed alcohol. Family history of patient was nothing significant. At the time of admission patient was irritable, conscious and oriented. Personal history of patient was Diet-mixed, Appetite-adequate, and sleep without sound, habits- NIL. The time of admission the patient pulse rate was 82b/min, blood pressure- 120/80mmhg, temperature was normal, respiratory rate 20b/min and oxygen saturation was 97%. Investigations includes MRI, Chest-X-ray and Ultrasonography of abdomen and pelvis were normal. According to MRI dorsal spine, whole spine screening done and revealed that Degenerative Spondylitis of whole spine. Cervical disk osteophyte complex at C2/3, C5/6, C6/7 level and mild posterior bulge of D1 D2 disk, Chest X-ray examination revealed that Lumbar disk associated with peridiscal osteocyte also in MRI trace basal pleura thickening and effusion of right side of spine. Patient prognosis was improved and his Blood sugar levels were stable, on the 7<sup>th</sup> day of admission patient was discharged.

**Table 1:** Laboratory investigations

Vitals	Observed range	Reference range
Blood Pressure	140/80 ↑	120/80 mmhg
Haemoglobin	9.5 ↓	13-15gm%
ESR	120 ↑	0-10 mm/hr
Lymphocytes	8.3 ↓	20-45%
PCV	27.2 ↓	40-45%
HbAlc	6.9 ↑	4.02-6.6%
Triglycerides	166 ↑	30-150mg/dl
Sr Creatinine	1.9 ↑	0.8 - 1.4mg/dl

**Table 2: Peripheral T-cell NHLs according to WHO/EORTC classification<sup>8</sup>**

Leukemic/disseminated
Adult T-cell leukaemia/lymphoma
Nodal
Peripheral T-cell lymphoma, unspecified
Angioimmunoblastic T-cell lymphoma
Anaplastic large-cell lymphoma, T/null cell, primary systemic type
Other extra nodal
Subcutaneous panniculitis-like T-cell lymphoma
Cutaneous γ-delta T-cell lymphoma
Hepatosplenic γ-delta T-cell lymphoma
Extra nodal NK/T-cell lymphoma, nasal type
Enteropathy-type T-cell lymphoma

## DISCUSSION

According to the findings, there is a link between having type 2 diabetes and an increased risk of non-Hodgkin lymphoma. Age, obesity, lifestyle variables, socioeconomic status correlates, and certain medical diseases are all possible causes of type 2 diabetes mellitus and non-Hodgkin lymphoma. Although there is some indication that type 2 diabetes mellitus is linked to an increased risk of non-Hodgkin lymphoma, the evidence is inconsistent.<sup>9</sup>

Degenerative alterations in the intervertebral discs begin with the production of osteophytes and the involvement of neighbouring soft tissue structures in cervical Spondylitis. Even severe degenerative changes can go unnoticed, but they can cause neck pain, stiffness, and neurological consequences.<sup>11</sup>

**Chul-Hyun-park et al.**, Type 2 diabetes was found to be substantially linked to lumbar spine problems such as lumbar disc dysfunction, lumbar spondylitis radiculopathy, spondylolisthesis, and spinal stenosis in a study. (10) In our research, we discovered that MRI examinations of the dorsal spine and whole-spine screening were performed. Cervical disc osteocyte complex at levels c2/3, c5/6, and c6/7, as well as a minor posterior bulge of the D1/2 disc the right side of the lungs showed that trace basal pleura thickening and effusion, according to a chest X-ray.

According to **Raikan Buyukavci et al.**, He was admitted to surgery for palpable swellings on the right inguinal and hypochondrial region persisting for a month. An abdominal ultrasonographic evaluation revealed an initial diagnosis of mesenteric lymphadenitis. Results of the control hematologic tests necessitated (WBC: 13250/ mm3, Hb: 13 g/dl, Hct: 42%, PLT: 393000 mm3, CRP: 17.1 mg/l) discontinuation of etanercept therapy and consultations from Department of Surgery and Internal Diseases were requested in order to determine the etiologic status of lymph nodes.<sup>12</sup>

In our study Investigations includes MRI, Chest-X-ray and Ultrasonography of abdomen and pelvis were normal. According to MRI dorsal spine, whole spine screening done and revealed that Degenerative Spondylitis of whole spine. Cervical disk osteophyte complex at C2/3, C5/6, C6/7 level and mild posterior bulge of D1 D2 disk. Chest X-ray examination revealed that Lumbar disk associated with peridiscal osteocyte also in MRI trace basal pleura thickening and effusion of right side of spine.

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According to our study abnormal Haematological tests includes Hb: 9.5gm%, Lymphocytes: 8.3% were decreased and ESR: 120mm/hr, HbA1c :6.9% was increased. Renal function test includes Sr creatinine:1.9mg/dl and Triglycerides:166mg/dl were increased.

On the day of Admission, the patient was treated with Intravenous fluids included Normal Saline with Multivitamins 1-pint 50ml/hr, Inj Ondansetron 2mg/ml iv twice daily, Inj Dexamethasone 4mg iv twice daily, Inj Pantoprazole iv 40mg twice daily, Inj Tramadol 5mg/ml iv three times a day, Inj Paracetamol 100ml twice daily, Tab Neuman (Glimipride+Metformin) 500mg+2mg OD, Tab Vitamin D3 and calcium PO 30mg once daily. Tab Apristar once a day given, during 1<sup>st</sup> few days of cancer chemotherapy treatment of nausea and vomiting experienced as a side effect of chemotherapy or Anti-cancer treatment.

## CONCLUSION

In our case study a male patient diagnosed with Type-2 diabetes melitus, Spondylitis and Non-Hodgkin's Lymphoma is a rare case report. NHL have a wide range of Histological appearance and clinical features at presentation, which makes diagnosis is difficult. Early diagnosis is important for effective and curative therapy management. Early investigations include MRI, Chest X-ray and Ultrasonography. MRI examination of the spine is particularly helpful to diagnose and treatment of this rare disease. In this study, sign and symptoms were resolved, controlled blood sugar levels and backpain of the spine is improved.

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## Author's Contribution:

**AP:** preparation of manuscript;

**AP, PB:** Decision Making;

**AP:** Data Collection.

All the authors were involved in patient care.

**AP, PB** is the guarantor for this paper

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