

Shortened QT Interval as an Initial Presentation of Lung Carcinoma

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ABSTRACT

Background: Shortened QT interval is seen in various metabolic abnormalities one such abnormality is hypercalcemia and it is an unusual presentation seen in patients with lung carcinoma.

Case study: A 55YR old female came for general checkup and had complaints of generalized tiredness and fatigue for about 1 month which was gradual in onset, constipation for 1 week. Pallor was present. ECG was done, it showed shortened QT interval. Hemoglobin was estimated to be 4g/dl at presentation on further evaluation a lesion in liver and lung was found. When biopsy was taken from the lung lesion it turned out to be Squamous cell carcinoma of lung.

Conclusion: Shortened QT interval if present in an ECG we should evaluate for electrolyte abnormalities, and if hypercalcemia is found patients should be ruled out of underlying Para neoplastic syndromes..

Key words: Hypercalcemia, Lung carcinoma, Paraneoplastic syndromes, Shortened QT interval, Anemia

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INTRODUCTION

Hypercalcemia is a very rare and unusual metabolic complication in NSCLC PATIENTS. Lung cancer remains the number one cause of cancer-related mortality, a decline in lung cancer deaths has emerged. Cigarette smokers have a 10-fold or greater increased risk of developing lung cancer compared to those who have never smoked [1,2]. A large-scale genomic study suggested that one genetic mutation is induced for every 15 cigarettes smoked. The risk of lung cancer is lower among persons who quit smoking than among those who continue smoking.

CASE STUDY

History

A 55 yr old female patient came for general checkup and had complaints of generalized tiredness and fatigue since 1 month which was gradual in onset and progressive in nature. Patient had complaints of constipation since 1 week; there was no history of polyuria, loss of appetite,

no mood changes, no history of fever, chest pain, cough, hemoptysis, and no other known co-morbidities. On examination pallor was present and patient vitals were: pulse-54pbm, BP-110/70mmHg, spo2- 99%RA, RR-16/Min, and Temp-98.6F.

Investigations

ECG showed shortened QT interval. Complete blood picture was sent and patient had a HB of 4.3gm/dl, MCV-60.8, MCHC-15.4, MCHC-25.4, PCV-16.9%, peripheral smear showed severe microcytic hypochromic anemia. Serum calcium levels were done and it was 11.9mg/dl. Patient was admitted and blood transfusion was done and fluids were given to correct hypercalcemia. Serum PTH levels were done as the patients calcium levels were constantly high and anemia evaluation was also done simultaneously. Stool occult blood was sent and it was positive to find of the cause USG abdomen was sent and it did not reveal any abnormality so CT abdomen was suggested which showed ill-defined hypo dense area in segment IVa of liver [3]. when asked about weight loss history patient attenders explained about recent weight loss and for further evaluation of cause HRCT chest was done the impression was: A heterogeneous soft tissue lesion in the anterior segment of right upper lobe in the para caval region with mild angulations and speculations, interlobular septal thickening involving the anterior and apicoposterior segments of right upper lobe with multiple mediastinal lymph-nodal enlargement. Bronchoscopic biopsy was planned and biopsy revealed squamous cell carcinoma. Oncologist opinion was

obtained and patient was started on cisplatin based chemotherapy [4].

DISCUSSION

Short QT INTERVAL is the duration between q and T wave the interval is said to be short if the duration is <330ms in males, <340ms in females. Hyperkalemia and hypercalcemia causes short qT. As patient had history of weight loss and anemia with stool occult blood positive, and hypercalcemia Para neoplastic syndrome of lung carcinoma was suspected. HRCT chest and CECT abdomen was done, biopsy from lesion revealed squamous cell carcinoma. Hypercalcemia is an unusual metabolic presentation in squamous cell carcinoma patients. Although PTH secretion by tumors is extremely rare, many solid tumors produce PTH-related peptide (PTHrP), which shares homology with PTH in the first 13 amino acids and binds the PTH receptor, thus mimicking effects of PTH on bone and the kidney. In PTHrP-mediated hypercalcemia of malignancy, PTH levels are suppressed by the high serum calcium levels. Measurement of circulating PTHrP may be of differential diagnostic help in hypercalcemic states [5]. The treatment of hypercalcemia in these patients includes IV hydration with loop diuretics along with treatment of life-threatening arrhythmias, followed by bisphosphonates and calcitonin. Our patient had hypercalcemia with normal phosphorus level thus, ruling out primary hyperparathyroidism as a cause of hypercalcemia [6-9], but patient did not have any life-threatening symptoms which were associated with hypercalcemia.

CONCLUSION

In the reported case, the initial finding of shortened

QT interval, hypercalcemia and anemia guided further investigations, leading to diagnose lung carcinoma with liver metastasis. The patient is currently undergoing chemotherapy and is on regular follow-up.

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