Clinical Biochemistry 49 (2016) 613–616

Contents lists available at ScienceDirect

Clinical Biochemistry

journal homepage: www.elsevier.com/locate/clinbiochem

Case Report

A case of amylase-producing small cell lung cancer

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ARTICLE INFO

Article history:
Received 1 October 2015
Received in revised form 17 December 2015
Accepted 12 January 2016
Available online 15 January 2016

ABSTRACT

Objectives: To assess the relationship between amylase level and small cell lung cancer in a patient with hyperamylasemia of non-pancreatic disease.

Design and Methods: Case report with correlation analysis between hyperamylasemia and small cell lung cancer while considering immunohistochemistry study and response to chemotherapy.

Results: We observed a strong correlation between amylase levels and small cell lung cancer. Immunohistochemistry findings suggested that amylase was produced by the lung cancer in this case.

Conclusions: Amylase can be considered as a tumor marker reflecting response to chemotherapy and disease relapse.

Case presentation:

A 58-year-old Chinese male was admitted to our hospital on September 30, 2014. He initially presented with dizziness and headache in last 3 days, aggravating with nausea and vomiting during last 2 h. He had no history of cigarette smoking or alcohol intake. He denied history of overeating. Physical examination at admission revealed no abnormalities, vitals of T 36 °C,P 78 bpm,BP 122/76 mmHg, R 18/min. Laboratory studies (Table 1) at the time of admission revealed marked hyperamylasemia, hyperamylasuria and hyponatremia. Levels of amylase increased significantly in both serum (736 U/L; normal value [NV], 1 to 100 U/L) and urine (1279 U/L; NV, less than 600 U/L). Furthermore, there was elevated neurone-specific enolase (NSE) (38.93 ng/ml; NV, 6–18 ng/ml) level. A full body CT scan excluded pancreatic lesions but exhibited a nodule (1.9*1.8 cm) at the left lung base and enlarged mediastinal lymph nodes. So a PET-CT was scheduled to further assess his pulmonary nodule. PET - CT revealed that a soft tissue density nodule with metabolism increased located on the left lower lobe soft tissue, concerning of the lung cancer. Multiple enlarged lymph nodes can be found in the left supraclavicular fossa, left hilar and mediastinal 5,6,7 zone. Multiple bone metastases were also confirmed (Fig. 1A). Tissue histology following CT guided lung biopsy revealed small cell lung cancer. CKpan(+)、NapsinA(−)、CEA(+)、TTF-1(+)、NSE(+)、P63(−)、CK5/6(−)、P53(+)、Ki-67(60%)、ALK-L(−)、CK7(+)、P40(−)、CD56(+)、Syn(+)、CgA(±) (Fig. 2a and b). Based on the symptoms and on the radiologic findings, an acute pancreatitis was excluded, while the neoplasm seemed the major source of hyperamylasemia. To confirm this hypothesis, immunohistochemistry of the tumor tissue was performed and most of the tumor cells showed a strong cytoplasmic positivity with anti-salivary amylase antibody (Fig. 3). Upon electrolyte improvement following sodium administration, the patient was immediately put on standard chemotherapy for advanced small cell lung cancer (cisplatin plus etoposide for 6 cycles), and

Table 1
Biochemical study on admission.

Item	Value	Reference	Unit
ALT	22	5–40	U/L
AST	26	5–40	U/L
Tbil	14.2	0–25	umol/L
Dbil	6.9	0–10	umol/L
TP	76.2	55–85	g/L
ALB	51.4	35–55	g/L
A/G	2.1	1–2.5	
PA	321	150–400	mg/L
ADA	8	5–25	U/L
TBA	2	0–10	umol/L
ChE	175	203–460	U/L
Ca	2	2–3	mmol/L
Pi	0.5	0.5–1.6	mmol/L
GLU	7	3.6–6.1	mmol/L
Amylase	736	0–200	U/L
LDH	158	158	U/L
α-HBDH	118	95–250	U/L
CK	208	34–184	U/L
CK-MB	18	0–25	U/L
CRP	1.7	0–3	mg/L
K	4.1	3.5–5.5	mmol/L
Na	129	135–155	mmol/L
Cl	88	90–110	mmol/L
Mg	1	0.74–1	mmol/L
BUN	2.1	2.5–7.2	mmol/L
Cr	49	34–140	umol/L
UA	76	108–420	umol/L
β2-MG	1.3	1–3	mg/L

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http://dx.doi.org/10.1016/j.clinbiochem.2016.01.011
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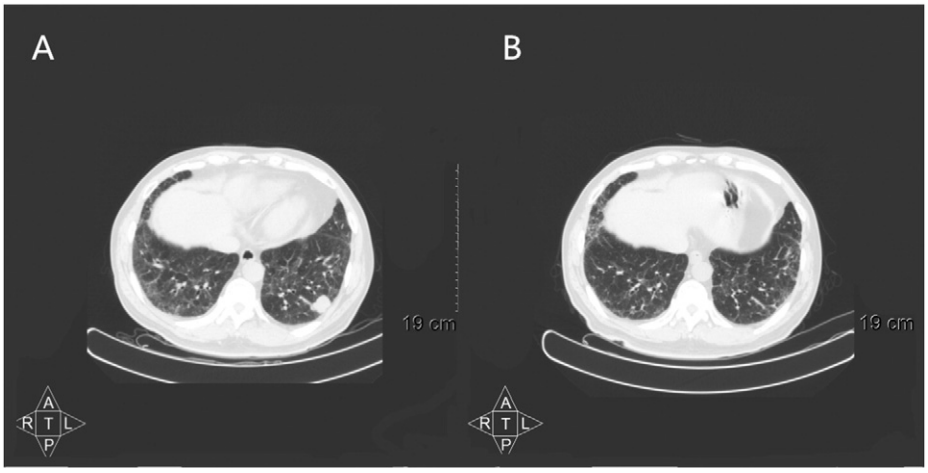

Fig. 1. A is PET - CT result before chemotherapy, B is repeat PET-CT checked after chemotherapy.

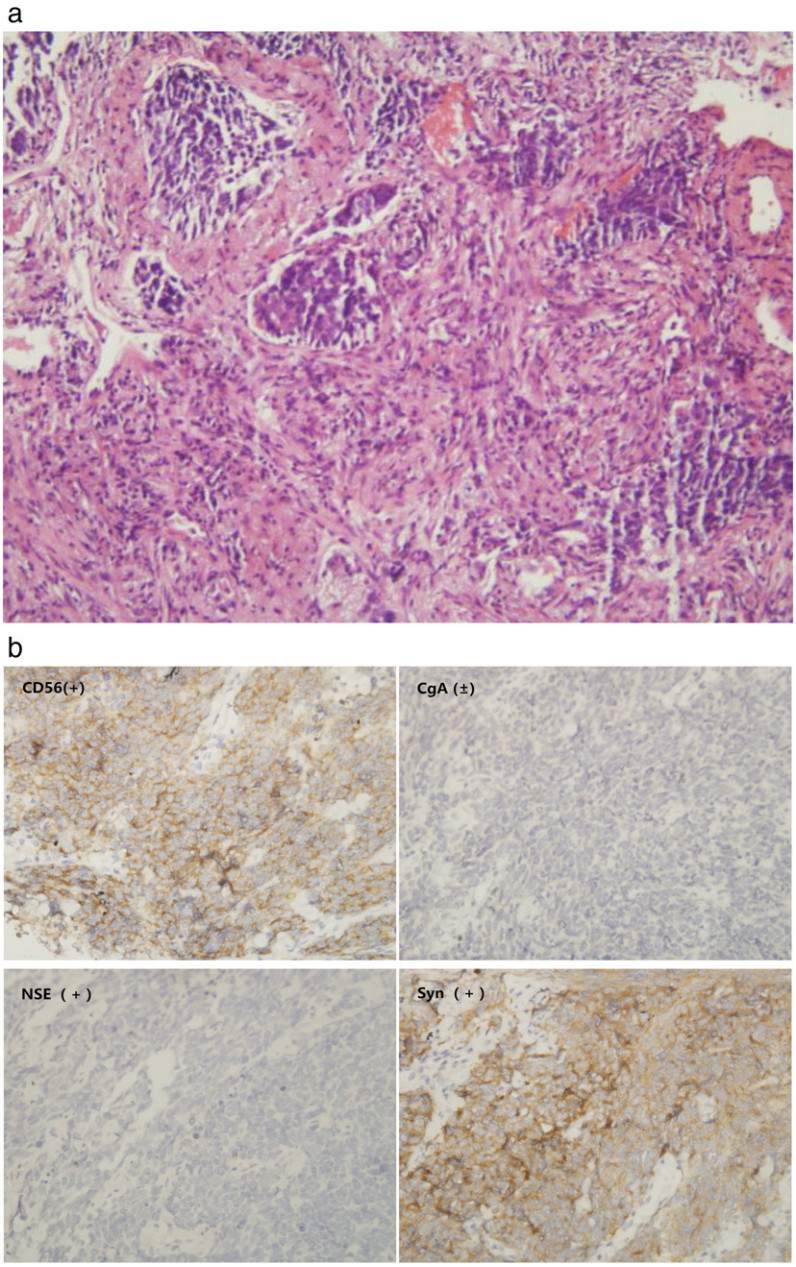

Fig. 2. a. Lung biopsy pathology (HE staining) shows small cell lung cancer. b. Immunohistochemistry of tumor tissue shows small cell lung cancer.