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Case Report

Double synchronous primary gastric and thyroid cancer

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ABSTRACT

Second or multiple primary malignancies is very rare and the number of patients diagnosed with multiple primary cancers has recently been increasing due to the improved diagnostic techniques. Herein we report a very rare case of synchronous double primary cancer of the stomach and thyroid gland for the 39 years old lady who presented with a short period of abdominal pain were diagnosed to have an invasive adenocarcinoma with signet ring differentiation of the stomach by gastroscopy and biopsy. Computed tomography and positron emission tomography scan showed high fludeoxyglucose uptake of the thyroid gland were biopsied to confirm the malignancy. underwent initially for radical distal gastrectomy followed by adjuvant chemotherapy and interval total thyroidectomy. Although Synchronous tumors are defined as ≥2 primary tumors occurring within 6 months of diagnosis of the first primary tumor, our case was discovered concomitantly at the first presentation of the patient. The prognosis of patients with multiple primary cancers can be determined independently by the stage of each cancer.

Keywords: Gastric adenocarcinoma, Second primary neoplasms, Thyroid carcinoma, Subsequent malignant neoplasm, Synchronous, Surgical treatment

INTRODUCTION

This case report is focusing on a rare but important clinical problem and may be more common than has been acknowledged. The incidence of multiple primary cancers is rare and is reported to be between 0.3% and 4.3%.[1] Lee et al reported the most common synchronous sites being colorectal cancer 37.2%, followed by lung cancer 18.6%, esophageal cancer 16.8%, liver cancer 9.7%, and kidney cancer 4.4%.[2] Nothing in the literature in regard the synchronous gastric and thyroid cancer which indicate rarity of the case. In our case presented with invasive adenocarcinoma of the stomach and during investigation and staging found to have papillary thyroid cancer. In early modalities of investigations as well multidisciplinary approach of management as well patients with fair clinical performance status, a favorable prognosis is expected.

CASE REPORT

This is a 39 years old lady known to have hypothyroidism on replacement therapy. She was on her usual state of health till 4 months before her presentation when she starts to complain of progressive epigastric abdominal pain, associated with nausea, vomiting, and markedly weight loss (around 30 kg). Upon examination she looks cachectic and pale, her vital signs were within normal limit. Abdomen soft and lax with tenderness at epigastrium, no palpable masses were felt. She was in severe electrolyte imbalance; her labs as follows: ABG: PH: 7.53 pCO2: 65.7 HCO3: 53.3 lactate: 12, electrolytes: K: 1.6 Na: 126 albumins: 31 iron: 5 FT4: 17.4 TSH: 4.59 HB:9.0 HCT:26 PLT:130. Abdomen X-ray: mild distension of the stomach and small bowel with no air-fluid level.

CT Abdomen and pelvis with contrast circumferential wall thickening, and edema noted along antrum and pylorus of the stomach, resulting in partial gastric obstruction. The abnormal wall thickening measures up to 2 cm with no associated fat stranding or regional lymph node enlargement.

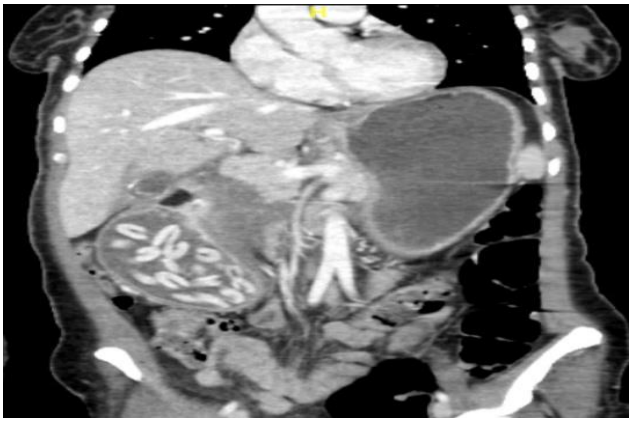

Figure 1: CT scan with coronal view showing dilated stomach with food particles.

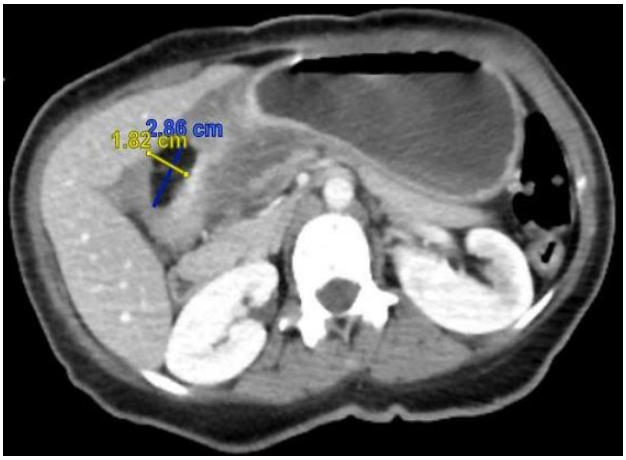

Figure 2: CT scan with axial view showing mass in the antrum and pylorus causing partial obstruction.

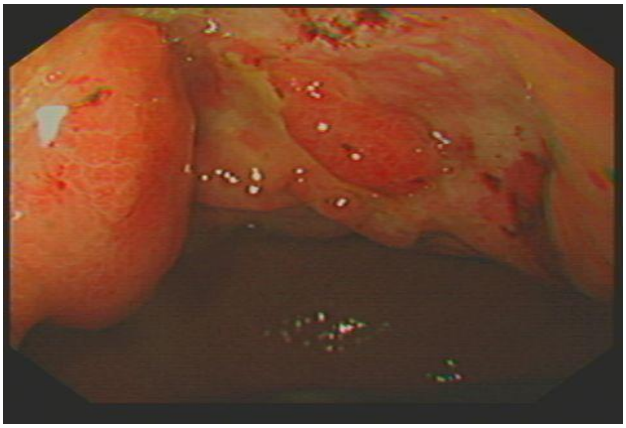

Figure 3: Gastroscopy showed mass in the antrum with ulcers and polyps.

She underwent gastroscopy which showed dilated Stomach with food, ulcerating, deforming, and fragile antrum, easy to bleed, there is pyloric stricture and dilated by CRE 12-15 mm and in the next day she underwent another gastroscopy and the pyloric stricture dilated by CRE 15-18 mm.

Multiple biopsies were taken which came as invasive adenocarcinoma with signet ring differentiation, the cells are positive for CK7 and CDX2 and focally for CD20, HER2/neu is negative (+1).

Tumor markers: AFP: 1.2 CEA: 2.2 CA 125: 25 CA 19-9: 133 CA 15-3: 21. The patient started on TPN to build up her nutritional status and CT chest and PET CT done to rule out any distant metastasis and proper staging of the disease. CT chest with contrast; air space disease more on the right side. CT neck with contrast: It was unremarkable with normal appearance of thyroid with no cystic or solid masses. PET scan showed moderately metabolically active circumferential thickening along the antrum and pyloric region, and nodular thyroid gland in the right lobe with significant-high fludeoxyglucose uptake.

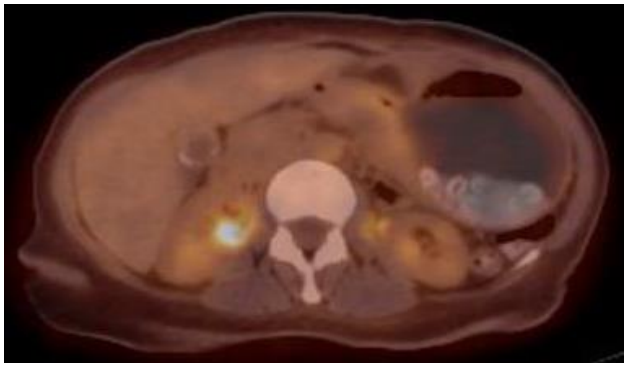

Figure 4: PET scan with high uptake in the antrum and pylorus.

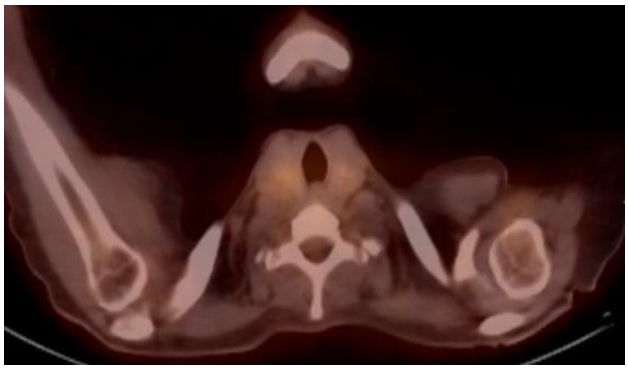

Figure 5: PET scan with high uptake in the thyroid nodule uptake.

Thyroid US showed

Nodule 1 measuring 0.9x1.3 cm located in the anterior upper third of right lobe, solid, hypoechoic, and punctate

echogenic foci, Ti-RADS level 5. Nodule 2 measuring 0.7x0.7 cm located in the anterior mid-third of the right lobe, solid, hypoechoic, and punctate echogenic foci, Ti-RADS level 4.

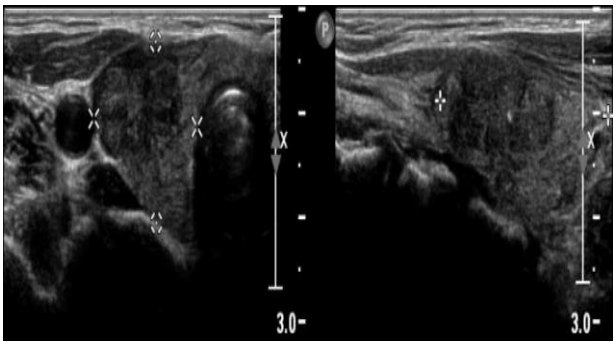

Figure 6: Thyroid US showed hypoechoic and punctate echogenic nodule.

FNA of thyroid nodule showed small clusters of highly atypical cells, some of them showed signet ring-like features, the finding highly suspicious of metastasis carcinoma.

Thyroid I 123 scan showed A cold nodule involving the right thyroid lobe and probably a smaller one in the left thyroid lobe. The patient was taken to the OR and underwent radical distal gastrectomy, omentectomy, cholecystectomy.

The histopathology showed poorly differentiated adenocarcinoma, diffuse type with signet ring cell differentiation. The tumor invades through muscularis propria into the sub-serosal tissue and focally reaching the serosal surface. Distal margin is involved by the tumor (mainly sub-serosal involvement). Proximal margin is free of tumor. Perineural invasion is present. An uninvolved stomach is unremarkable. Metastatic carcinoma of 8/16 lymph nodes. Omentum is positive for metastasis carcinoma.

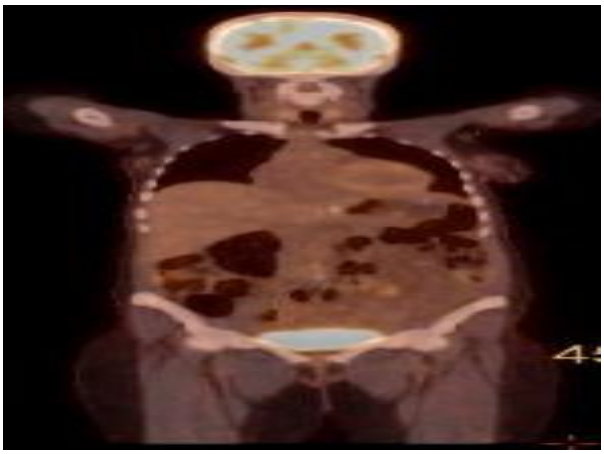

Figure 7: PET scan post OP with no evidence of metabolic activity.

The patient was referred to oncology and started on chemotherapy (Xelox), follow up PAN CT showed no signs of local recurrence or distant metastasis except for Heterogeneously appearance of the thyroid gland with diffuse nodularity, prominently in the right lobe.

PET CT showed no evidence to suggest of local recurrence or distant metastasis, nodular thyroid gland with mild hypermetabolism involving both lobes.

The patient was referred to Endocrine surgery for possible excision of thyroid nodules and a tru-cut biopsy of the thyroid was taken which showed follicular cells with irregular nuclear membranes, powdery chromatin, pseudo-inclusions, grooving, overlapping and crowding of nuclei, features are highly suggestive of papillary thyroid carcinoma. So, the patient underwent total thyroidectomy and the histopathology showed papillary thyroid carcinoma, classical variant, in the right lobe, the tumor is unifocal, no lympho-vascular invasion, extra thyroid extension, all surgical margins are free of tumor. WB I-123 scintigraphy post-op showed the focus of radioiodine uptake in the midline of the neck, concordant with the known PTC, intense radioiodine uptake in the stomach most likely physiological. The patient underwent endoscopy and biopsy was taken from the stomach and anastomosis site to rule out recurrence which reported as stomach, anastomosis site, biopsy; gastric and duodenal junctional mucosa is identified. Gastric mucosa with chronic inactive gastritis. Duodenal mucosa with intact villous architecture with no significant pathology. Negative for *Helicobacter pylori* organisms. Negative for dysplasia and malignancy. Stomach, biopsy; gastric mucosa with chronic inactive gastritis, mild. Negative for *Helicobacter pylori*. Negative for intestinal metaplasia, dysplasia, and malignancy.

DISCUSSION

There are very few publications that have reported an analysis of second primary malignancies following gastric cancer. The incidence of multiple primary cancers is rare and is reported to be between 0.3% and 4.3%. The second primary lesion is identified either simultaneously with the primary lesion (synchronous) within 6 months from the time of diagnosis of the first tumor or after 6 months (metachronous).[1]

Multiple primary cancers are defined as those cases that display primary malignant tumors of different histologic origins in one person. The number of patients diagnosed with multiple primary cancers has recently been increasing due to the improved diagnostic techniques, the prolonged life span, and the increased incidence of long-term survival of patients with malignancy. However, most multiple primary cancers are double primary cancers, and the incidence has decreased as the number of concomitant cancers has increased.

Though multiple primary cancers are not common, yet it is believed that the incidence is increasing. In the era of revolutionary medical and surgical options including anticancer therapy and tailored intervention lead to the prolongation of survival. This is evident in survivors of various primary cancers since in patients with multiple cancers, the focus is mainly on the primary disease, there is a higher likelihood of missing incidental co-existence of another primary malignant lesion. Therefore, it is important to make an early diagnosis and administer prompt therapy in case of multiple cancers.[3]

The co-occurrence of second primary malignancy (SPM) could be randomly occurring or association with risk factors such as primary cancer treatment i.e. chemotherapy, target therapy, hormonal therapy radiotherapy, environmental, genetic predisposition, and one or more therapy-related.[4]

Reports of multiple synchronous primary cancers have increased owing to the increased population of elderly patients and routine general check-ups in this population. A study by Lee et al showed that the incidence of synchronous cancer in gastric cancer patients was 3.4%, with the most common synchronous sites being colorectal cancer 37.2%, followed by lung cancer 18.6%, esophageal cancer 16.8%, liver cancer 9.7%, and kidney cancer 4.4%.[5]

There are several possible explanations for the increased incidence of multiple primary cancer. Firstly, recent improvements in the survival of patients with tumors have led to an increase in the incidence of second primary tumors, and the frequency of multiple primary tumors is expected to increase as the population ages. Secondly, changes in therapeutic modality and constant follow-up examinations for the primary tumor can affect the incidence of synchronous or metachronous multiple primary tumors.

The etiologies and epidemiology of multiple primary tumors are under investigation, and relationships between some tumors are well-established. Multiple primary tumors are predominantly seen in both the genitourinary and gastrointestinal tracts. Because breast, ovarian, and endometrial tissues are all hormonally responsive, there are increased risks of synchronous primary tumors among tumors at these sites.[6]

CONCLUSION

Patients with gastric first primary cancer were found to be at increased risk of developing synchronous primary cancer, mainly in digestive organs, when compared to the general population. Close surveillance of these patients may allow early detection of SPC and aggressive use of modern diagnostic modalities as possible for any suspected cases.

Further investigations focusing on oncogenes are necessary to clarify the etiology of the development of multiple synchronous primary tumors. Up to our knowledge this is the first case report of synchronous primary gastric and thyroid cancer.

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