

Gastric Adenocarcinoma and Thyroid Follicular Adenoma with Oncocytic Features: A Rare Synchronous Presentation Managed with Single-stage Surgery

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ABSTRACT

Synchronous tumours involving anatomically and histologically distinct organs are uncommon and present considerable diagnostic and therapeutic challenges. The co-existence of gastric adenocarcinoma and a thyroid neoplasm is particularly rare. A 74-year-old male presented with vomiting, progressive abdominal fullness, anorexia, and significant unintentional weight loss. Upper gastrointestinal endoscopy revealed partial gastric outlet obstruction with a suspicious pyloric lesion. Contrast-Enhanced Computed Tomography (CECT) of the abdomen demonstrated circumferential wall thickening involving the pyloric region of the stomach causing significant luminal narrowing. During staging evaluation, Computed Tomography (CT) of the thorax incidentally detected a well-defined soft tissue lesion in the right lobe of the thyroid gland. Whole-body Positron Emission Tomography-Computed Tomography (PET-CT) demonstrated a heterogeneously enhancing metabolically active thyroid lesion with central necrosis and tracheal displacement, raising suspicion for malignancy. Core needle biopsy of the thyroid lesion suggested a follicular-patterned oncocytic neoplasm suspicious for Hurthle cell neoplasm. Following multidisciplinary tumour board discussion, the patient underwent D2 subtotal gastrectomy with regional lymphadenectomy followed by total thyroidectomy with preservation of three parathyroid glands in a single operative session. Histopathological examination of the gastric specimen revealed well-differentiated adenocarcinoma of the stomach pT3N1M0 {T3 (primary tumour), N1 (regional lymph node involvement), M0 (no distant metastasis)}. Histopathological examination of the thyroid lesion demonstrated follicular adenoma with oncocytic features without evidence of capsular or vascular invasion. Postoperatively, serum calcium and parathyroid hormone levels were monitored, and calcium supplementation was initiated. The patient subsequently received adjuvant chemotherapy for gastric carcinoma. The present case highlights the importance of comprehensive staging, histopathological confirmation, and multidisciplinary management in patients with suspected synchronous neoplastic lesions. Accurate differentiation between metastatic disease and a second primary or benign lesion is essential for appropriate therapeutic planning and prognostic assessment.

Keywords: Multiple primary neoplasms, Oncocytic cells, Positron-emission tomography, Stomach neoplasms, Thyroid adenoma

CASE REPORT

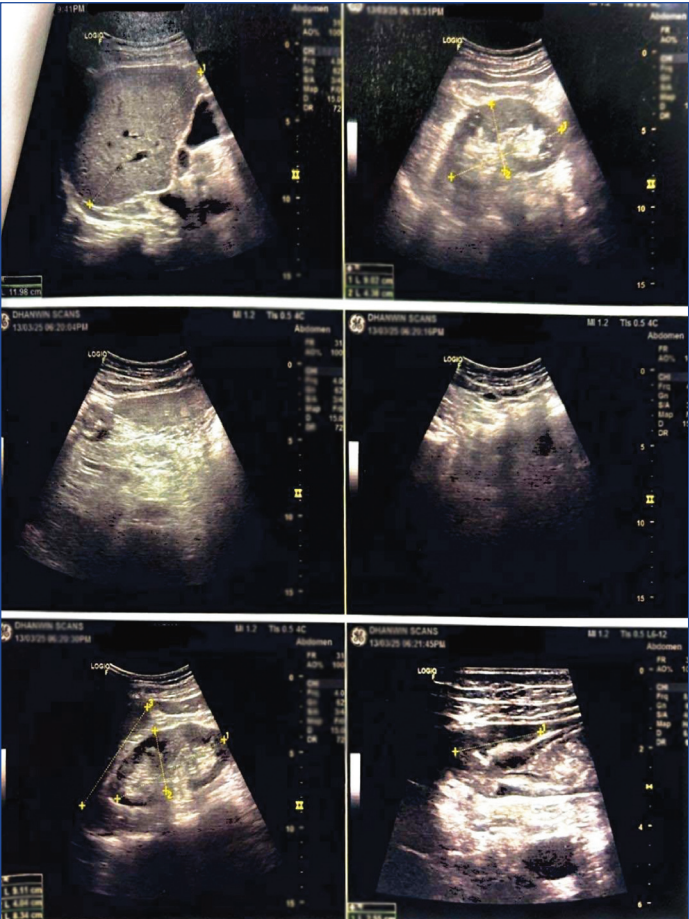
A 74-year-old male presented with progressive abdominal fullness and recurrent episodes of non-bilious vomiting for six months, associated with anorexia and significant unintentional weight loss of approximately 10 kg over two months. He had a long-standing history of heavy tobacco smoking and chronic alcohol consumption. There was no personal or family history of malignancy. The patient was not a known case of diabetes mellitus, hypertension, coronary artery disease, or chronic respiratory illness and was not on any regular medications.

On general examination, the patient was moderately built with a body mass index of 22.1 kg/m² and an Eastern Cooperative Oncology Group performance status of 1 [1]. Abdominal examination revealed mild epigastric fullness without palpable mass or organomegaly. Cardiovascular and respiratory system examinations were unremarkable, and preoperative pulmonary evaluation demonstrated adequate respiratory reserve for major surgery. The patient was classified as American Society of Anaesthesiologists physical status grade II.

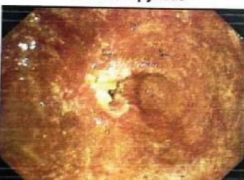
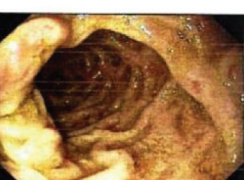
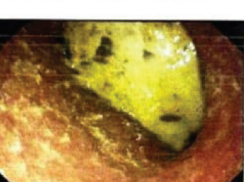
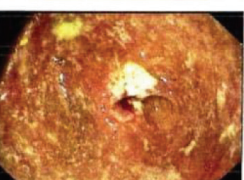
Routine laboratory investigations, including complete blood count, liver function tests, renal function tests, and serum electrolytes, were within normal limits. Serum carcinoembryonic antigen and carbohydrate antigen 19-9 levels were not significantly elevated. Abdominal ultrasonography demonstrated pyloric wall thickening

[Table/Fig-1]. Upper gastrointestinal endoscopy revealed partial gastric outlet obstruction with a suspicious prepyloric growth and cicatrised duodenal ulcer [Table/Fig-2]. CECT of the abdomen showed circumferential wall thickening involving the pyloric region of the stomach causing significant luminal narrowing without evidence of hepatic metastasis or significant perigastric lymphadenopathy [Table/Fig-3]. During staging evaluation, CT of the thorax incidentally identified a well-defined soft tissue lesion in the right lobe of the thyroid gland. Whole-body PET-CT demonstrated a metabolically active heterogeneously enhancing thyroid lesion with central necrosis and tracheal displacement, raising suspicion for a synchronous neoplastic lesion. Differential diagnoses considered included metastatic thyroid involvement from gastric carcinoma, primary thyroid malignancy, and benign oncocytic thyroid neoplasm.

CECT of the thorax was performed as part of routine staging evaluation to assess for intrathoracic metastasis and operability. The scan incidentally revealed a well-defined soft tissue lesion in the right lobe of the thyroid gland. Whole-body PET-CT demonstrated metabolically active lesions involving the pyloric region of the stomach and the right lobe of the thyroid gland [Table/Fig-4]. Whole-body PET-CT demonstrating a metabolically active right thyroid lobe lesion suspicious for an oncocytic thyroid neoplasm [Table/Fig-5]. The thyroid lesion appeared heterogeneously enhancing with central necrosis and mild tracheal displacement, raising suspicion for a



[Table/Fig-1]: Ultrasonography of the abdomen showing pylorus of stomach showing significant wall thickening for length of 2.5 cm.

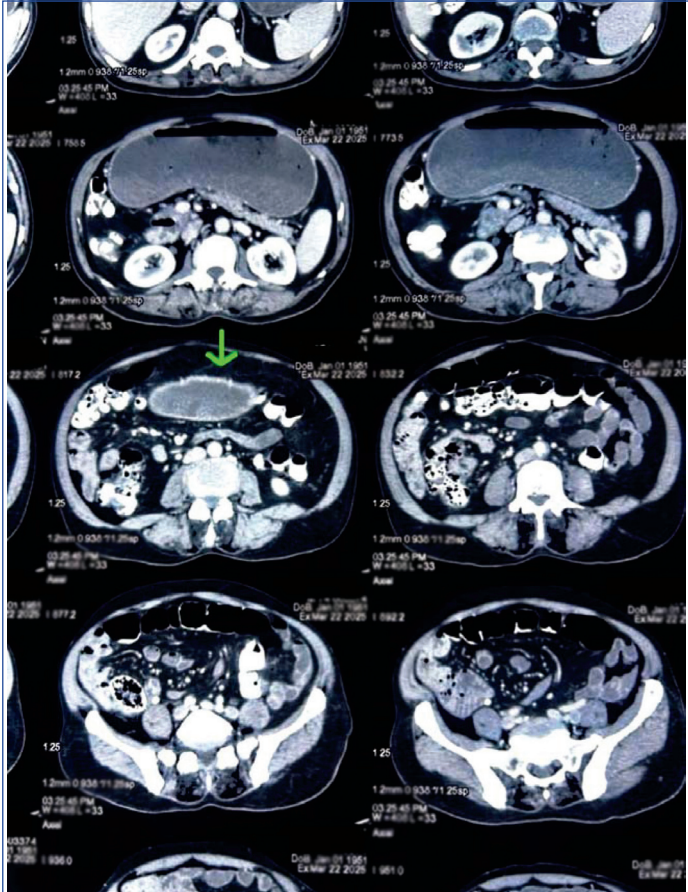
Premedication :	Lox spray	
Esophagus :	Normal	
OG Junction :	40CMS	
Stomach :		
Fundus :	Food stasis(+).	
Body :	Food stasis(+).	
Antrum :	Erosions(+).	
Pylorus :	Deformed.	
Duodenum :		
D1 :	Normal	
D2 :	Normal	
Biopsy :	Taken.	
Impression :	Gastric outlet obstruction-?early pyloric growth/ cicatrised DU for biopsy correlation.	

[Table/Fig-2]: Upper gastrointestinal endoscopy showing an ulceroproliferative lesion involving the anteropyloric region causing gastric outlet obstruction.

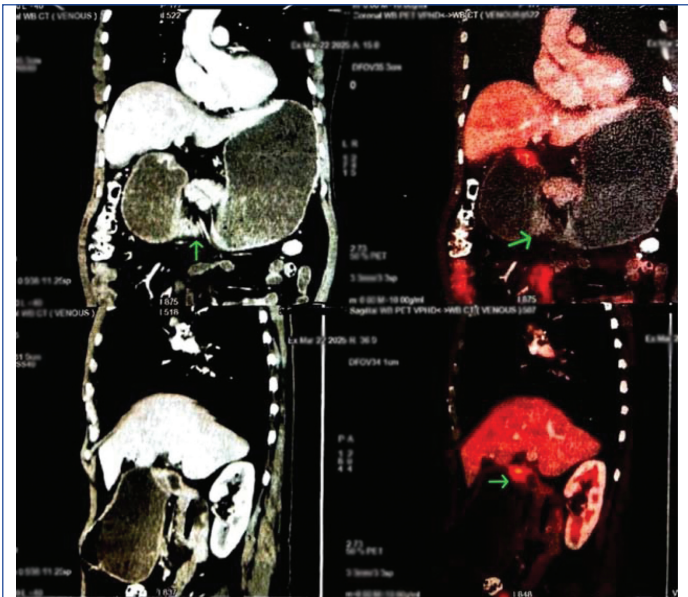
synchronous neoplastic lesion. Quantitative Maximum Standardized Uptake Value (SUVmax) values were not available from the archived imaging records.

Ultrasound-guided core needle biopsy of the thyroid lesion demonstrated a follicular-patterned oncocytic neoplasm suspicious for Hurthle cell neoplasm. Core needle biopsy was preferred over fine needle aspiration cytology because the lesion demonstrated suspicious radiological features with central necrosis and significant metabolic activity on PET-CT, necessitating better architectural assessment of the follicular-patterned lesion.

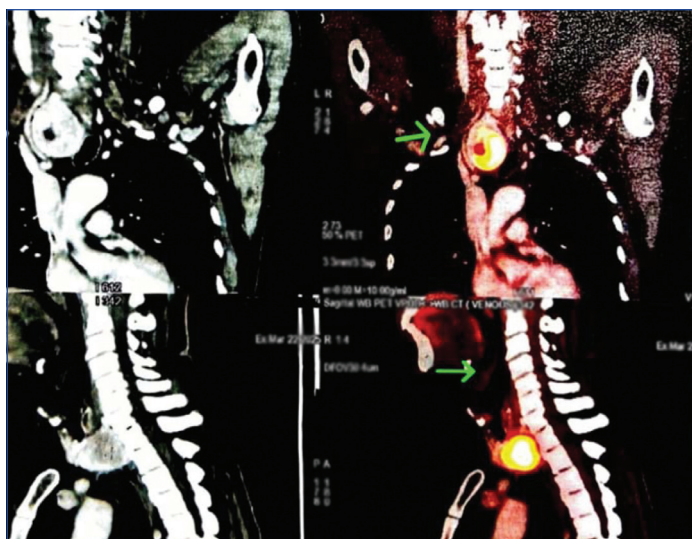
Following multidisciplinary tumour board discussion, a curative surgical approach was planned in view of the absence of distant



[Table/Fig-3]: Contrast-enhanced computed tomography demonstrating circumferential pyloric wall thickening with gastric outlet obstruction.



[Table/Fig-4]: Whole-body PET-CT scan demonstrating metabolically active circumferential wall thickening involving the pyloric region of the stomach (green arrow), corresponding to the primary gastric adenocarcinoma.



[Table/Fig-5]: Whole-body PET-CT demonstrating a metabolically active right thyroid lobe lesion suspicious for an oncocytic thyroid neoplasm.

metastasis, acceptable cardiopulmonary reserve, and good functional status. Gastrectomy was performed prior to thyroidectomy because the gastric lesion was symptomatic and associated with partial gastric outlet obstruction, representing the primary oncologic priority. The patient underwent D2 subtotal gastrectomy with regional lymphadenectomy followed by total thyroidectomy in a single operative session. Reconstruction was performed using Billroth II gastrojejunostomy. Three parathyroid glands were preserved during thyroidectomy.

Histopathological examination of the gastric specimen revealed well-differentiated adenocarcinoma of the stomach (pT3N1M0). One of 18 examined regional lymph nodes showed metastatic involvement. Histopathological examination of the thyroid specimen demonstrated follicular adenoma with oncocytic (Hurthle cell) features without evidence of capsular or vascular invasion, confirming a benign thyroid neoplasm. Representative histopathological images are unavailable from the archived records.

The postoperative period was uneventful. Serum calcium and parathyroid hormone levels were monitored serially in the postoperative period, and calcium supplementation was initiated for transient postoperative hypocalcaemia. Levothyroxine replacement therapy was started following thyroidectomy. Oral intake was resumed gradually, and the patient tolerated diet adequately. Adjuvant chemotherapy with the FOLFOX (Folinic acid, Fluorouracil, Oxaliplatin) regimen was initiated for gastric adenocarcinoma. The patient was discharged in stable condition and remains on regular follow-up with clinical and radiological surveillance.

The present case is notable for three reasons: first, the thyroid lesion demonstrated significant fluorodeoxyglucose uptake on PET-CT, raising suspicion for malignancy or metastatic disease; second, despite concerning radiological and biopsy findings, histopathological examination confirmed a benign follicular adenoma with oncocytic (Hurthle cell) features; and third, both lesions were successfully managed using a single-stage surgical approach.

DISCUSSION

Synchronous tumours involving the stomach and thyroid gland are exceptionally uncommon and present important diagnostic and therapeutic challenges. Gastric cancer remains a major global health burden, accounting for over one million new cases annually and ranking among the leading causes of cancer-related mortality worldwide [2]. Despite advances in diagnosis and treatment, gastric carcinoma continues to be associated with significant morbidity and mortality. Recent developments in imaging modalities, staging protocols, and multidisciplinary oncological care have improved diagnostic accuracy and survival outcomes, resulting in an

increased detection of synchronous lesions during routine cancer evaluation [3].

An important challenge in patients presenting with multiple lesions is differentiating synchronous primary tumours from metastatic disease. This distinction has significant implications for prognosis, staging, and therapeutic planning. In the present case, the metabolically active thyroid lesion identified during staging investigations raised concern for either metastatic involvement or a synchronous thyroid malignancy because of its fluorodeoxyglucose avidity and suspicious radiological characteristics. However, definitive histopathological examination demonstrated a benign follicular adenoma with oncocytic (Hurthle cell) features, thereby excluding metastatic disease and altering the final staging and management strategy.

Whole-body PET-CT played a pivotal role in detecting the clinically occult thyroid lesion. Nevertheless, fluorodeoxyglucose uptake is not specific for malignancy. Current thyroid cancer guidelines emphasise that metabolically active thyroid nodules require careful evaluation because both benign and malignant oncocytic lesions may exhibit increased metabolic activity on imaging studies [4]. Histopathological examination therefore remains the gold standard for diagnosis, particularly in follicular-patterned thyroid lesions where the assessment of capsular and vascular invasion is necessary to establish malignant potential. The present case highlights the limitations of imaging alone and underscores the importance of tissue diagnosis before attributing hypermetabolic lesions to metastatic disease.

Recent literature describing synchronous primary tumours involving gastrointestinal malignancies has highlighted the importance of multidisciplinary management and individualised therapeutic planning [5,6]. So M et al., reported successful treatment of synchronous gastric and ovarian malignancies using an integrated therapeutic approach, demonstrating the feasibility of coordinated management in selected patients [5]. Similarly, Bi XR et al., described multiple primary cancers presenting initially as gastrointestinal malignancies and emphasised the importance of comprehensive diagnostic evaluation to accurately distinguish independent primary tumours from metastatic lesions [6]. Furthermore, Yuan M et al., demonstrated that multimodal imaging combined with pathological correlation is crucial for establishing the correct diagnosis and guiding appropriate treatment in patients with synchronous neoplasms [7]. The findings in the present case are consistent with these observations and further reinforce the necessity of meticulous staging and histopathological confirmation before definitive treatment decisions are made.

The decision to perform single-stage surgery in our patient was based on his acceptable performance status, adequate cardiopulmonary reserve, absence of distant metastatic disease, and symptomatic gastric outlet obstruction requiring definitive surgical management. Combined surgical treatment minimised repeated anaesthetic exposure, reduced overall treatment burden, and facilitated coordinated postoperative recovery. Careful multidisciplinary discussion involving surgical oncology, endocrinology, pathology, radiology, and anaesthesia teams was instrumental in formulating the optimal treatment strategy.

Advanced age and prolonged tobacco exposure may have contributed to the development of gastric malignancy in the present patient. Tobacco smoking is a recognised risk factor for gastric carcinogenesis through chronic mucosal inflammation, oxidative stress, and cumulative genetic damage [3]. Although the thyroid lesion was ultimately benign, its radiological appearance closely mimicked malignancy and significantly influenced preoperative decision-making. The present case therefore highlights the importance of comprehensive staging, multidisciplinary evaluation, and definitive histopathological assessment in patients presenting with suspected synchronous neoplastic lesions. Recognition that

hypermetabolic lesions may represent benign pathology is essential to avoid overstaging and to ensure appropriate individualised management.

CONCLUSION(S)

The present rare presentation of dual primary gastric adenocarcinoma and thyroid follicular adenoma highlights the critical importance of comprehensive staging in elderly patients diagnosed with malignancy. Thorough evaluation, including whole-body metabolic imaging, can detect clinically silent lesions that may significantly influence staging and therapeutic decision-making. In this case, PET-CT identified a metabolically active thyroid lesion that initially raised concern for metastatic disease but ultimately proved to be a benign neoplasm on histopathological examination. The case underscores the value of a multidisciplinary approach in complex oncologic scenarios. Collaborative decision-making allowed for individualised treatment planning and successful execution of a single-stage surgical strategy. In carefully selected patients with resectable disease and adequate performance status, combined oncologic procedures can be performed safely, minimising overall hospitalisation and enabling timely initiation of adjuvant therapy. Importantly, heightened clinical awareness of dual primary neoplasms is essential to prevent misclassification of a second primary tumour as metastatic spread. Accurate tissue diagnosis remains the cornerstone of staging and management. Recognising this distinction ensures appropriate

therapeutic intervention, avoids overtreatment, and ultimately contributes to improved patient outcomes.

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