

Gastric Adenocarcinoma Mucosecretor's metastasis in retrosternal adipose tissue and sternal bone.

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Abstract

Introduction: Gastric cancer 5-year survival rate is 10-30%. Occult micro metastases lead to 80% of recurrences. Tumor markers, CT scan or echo endoscopy may help shorten the time to make diagnosis of the recurrences. A case of Gastric Adenocarcinoma Mucosecretor's metastases in retrosternal adipose tissue and sternal bone is reported which might be the first published clinical case of this kind of metastases. **Presentation of the case:** A 63-year old patient with a subtotal gastrectomy for peptic ulcer years ago was diagnosed with poorly differentiated gastric adenocarcinoma. The patient was staged as cT4 because of an infiltration in the left hepatic lobe. After neoadjuvant chemotherapy, a total gastrectomy D2 with hepatic resection of the II liver segment was performed. Six months later in a control scan, a nodular image of 25 x 25 mm was located above transverse colon adjacent to the peritoneal wall whose biopsy was positive to poorly differentiated adenocarcinoma. Another R0 surgery was carried out, removing two implants: Only one was infiltrated by adenocarcinoma, which was considered to be a local regional recurrence. When tumor markers increased and the patient was affected with mechanical thoracic pain, a thoracic and abdominal scan showed disease progression, bilateral lung metastases and a retrosternal mass which involved the anterior mediastinum with 22 mm bone inclusion. The biopsy showed infiltration by adenocarcinoma mucosecretor. **Conclusion:** Being the first case ever published is imperative to make the medical community aware of this extremely rare metastases.

Keywords

Gastric Cancer, gastric adenocarcinoma mucosecretor, metastasis gastric cancer.

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INTRODUCTION

Gastric cancer 5-year survival rate is 10-30%. Occult micro metastases lead to 80% of recurrences despite R0 surgeries. Perhaps, by the increasing of tumor markers^{2,3} (CEA, CA19.9, CA125 and CA 72.4) and also with CT scan or echo endoscopy may help shorten the time to make a better diagnosis.

The gastric cancer's metastases are typically located in liver, lymph nodes or lungs. Less common are found in bone⁴, skin⁵ or choroid⁶ and its presence is considered extremely rare in the thyroid gland, in a solitary axillary lymph node or in the ureter.

A case of Gastric Adenocarcinoma Mucosecretor's metastases in retrosternal adipose tissue and sternal bone is reported. This might be the first published clinical case of this kind of metastases. Our findings, listed below, could determine that gastric cancer metastasis might appear in other parts of the body than in its most habitual locations.

CASE PRESENTATION

A sixty-three year old man who had undergone a partial gastrectomy at the age of twenty-six due to a peptic ulcer was diagnosed, with gastric adenocarcinoma in June 2011. The gastroscopy showed a three centimeter ulcer on the anterior gastric stump. The biopsy that followed discovered a poorly differentiated adenocarcinoma and a CT scan of the thoracic and abdominal cavities, confirmed an exophytic image located on the gastric stump in direct contact with

the II segment of the liver. The clinical staging was cT4 due to infiltration in the left hepatic lobe.

After four cycles of neoadjuvant chemotherapy, a total gastrectomy D2 with hepatic resection of the II liver segment was performed; a R0 surgery whose histology was: occasional infiltrating adenocarcinoma glands among abundant fibrosis and accumulation of mucus without evidence of vascular or perineural invasion. The resection margins were free of disease and only fibrosis was found in the hepatic resection. Histological staging: ypT3 pN0.

After surgery, the patient's overall condition did not manifest any signs of improvement; hence, it was decided not to continue with chemotherapy. Six months later in a control scan, a nodular image of 25 x 25 mm was located above transverse colon adjacent to the peritoneal wall whose biopsy was positive to poorly differentiated adenocarcinoma. A re-laparotomy was performed and two implants were removed: one of them included a transverse colon resection and the other included abdominal wall. The first implant was the unique infiltrated by adenocarcinoma, which was considered a local regional recurrence once again. Therefore, chemotherapy was re-started but it had been stopped after the second cycle due to considerable levels of toxicity. Radiotherapy was not applied because of patient's morbidity. In December 2012, the tumor markers CEA, CA19.9 and CA72.4 began to increase at the time that the patient was affected with mechanical thoracic pain, a bone scintigraphy was performed which showed no disease and a thoracic and abdominal scan showed disease

Gastric Adenocarcinoma Mucosecretor's metastasis in retrosternal adipose tissue and sternal bone.

progression, with bilateral lung metastases and a significant retrosternal mass (13 cm) which involved the anterior mediastinum with 22 mm bone inclusion that supports a metastases. The biopsy of this mass showed infiltration by adenocarcinoma mucosecretor.

DISCUSSION

Partial gastrectomy for peptic ulcer disease is a risk factor for gastric cancer. So that, all patients who undergo peptic ulcer operation require careful long-term follow up. The interval between initial gastrectomy and diagnosis of gastric cancer stump is greater when the first operation is due to benign disease than to malignant because peptic ulcer usually occurs in younger patients than in cancer. In gastrectomy for peptic ulcer disease the peak incidence of gastric cancer stump occurred around the fourth decade after the first operation (as in the case presented) whereas it occurs after 10-15 years in those patients whose initial lesion was malignant. The anatomical region most commonly affected is next to the anastomosis, in the gastric side. Among 0.8-8.9% of patients who underwent partial gastric surgery resection for peptic ulcer develop gastric cancer. The main pathogenesis of gastric stump cancer is biliary-pancreatic reflux causing chronic inflammation of the remaining mucosa, developing into atrophic gastritis, intestinal metaplasia and dysplasia¹¹. Other possible causes are hypo or achlorhydria, effect of hormonal regulation after vagotomy and hipogastrinemia, the presence of surgical suture and Epstein-Barr virus. *Helicobacter pylori* is not common after partial gastrectomy so its role in cancer

gastric stump is not considered. The most common location of the tumor in the remnant stomach depends on the type of operation carried out previously. When the surgery performed is Billroth II, the recurrence is placed in the anastomosis area by the fact of persistent contact by the anastomosis of gastric stump with the biliary acids. Other predisposing factors are smoking and heavy alcohol use.

Chemotherapy and radiotherapy combined could improve survival rates in recurrences because treatment with surgery alone offers a high rate of failure. Taking into account that gastric stump cancer has bad prognosis in general, a D2 resection of remaining stomach, plus lymphadenectomy including organs and other adjacent lymph nodes resection has to be imperative¹⁰.

In the case reported, the patient had not any follow up after the first gastrectomy, a Billroth II technique. Furthermore, as a benign disease the surgery was performed without lymphadenectomy, because it was not necessary. After 36 years, the diagnosis of cancer gastric stump was delayed because the cancer affected the liver and the treatment was insufficient in spite of the fact a D2 surgery. Moreover, chemotherapy and radiotherapy could not be applied correctly and the rate of recurrence was absolutely elevated.

It is well known that elevated marker levels decrease after curative resection of the tumor, only to elevate again on recurrence. The measurement of tumor markers might be useful in the monitoring responses and the prediction of prognosis. All the tumor markers previously stated were generally associated with tumor progression but it is pointed out that they could be elevated several months before

Gastric Adenocarcinoma Mucosecretor's metastasis in retrosternal adipose tissue and sternal bone.

imaging abnormalities. In the literature, CA72.4 appeared to be the most sensitive and specific marker in gastric cancer patients and its positivity was associated with advanced tumor stage, lymph node metastases, distant metastases and poor long-term survival^{1,12,13}. The tumor markers in our patient increased when metastases were developing, as the literature has postulated.

We reviewed the published bibliography at the time of the writing of this paper and we did not find any evidence about any case whatsoever that had ever referred to a cancer gastric with retrosternal metastases from the adipose tissue^{7,8,9}. Therefore, being the first case ever published on the above mentioned findings, it is necessary to make the medical community aware of this

extremely rare metastases.

CONCLUSION

Gastric Cancer can indeed metastasize to unusual sites and one of these could be the retrosternal adipose tissue and the sternal bone, like the one in the patient described herein above. Moreover, closer attention must be paid to the tumor markers because, they can suggest metastases.

Consent: the patient gave his permission of publishing the case before he died.

Acknowledgements: The authors thank all the professionals who helped during the patients' treatments.

Gastric Adenocarcinoma Mucosecretor's metastasis in retrosternal adipose tissue and sternal bone.

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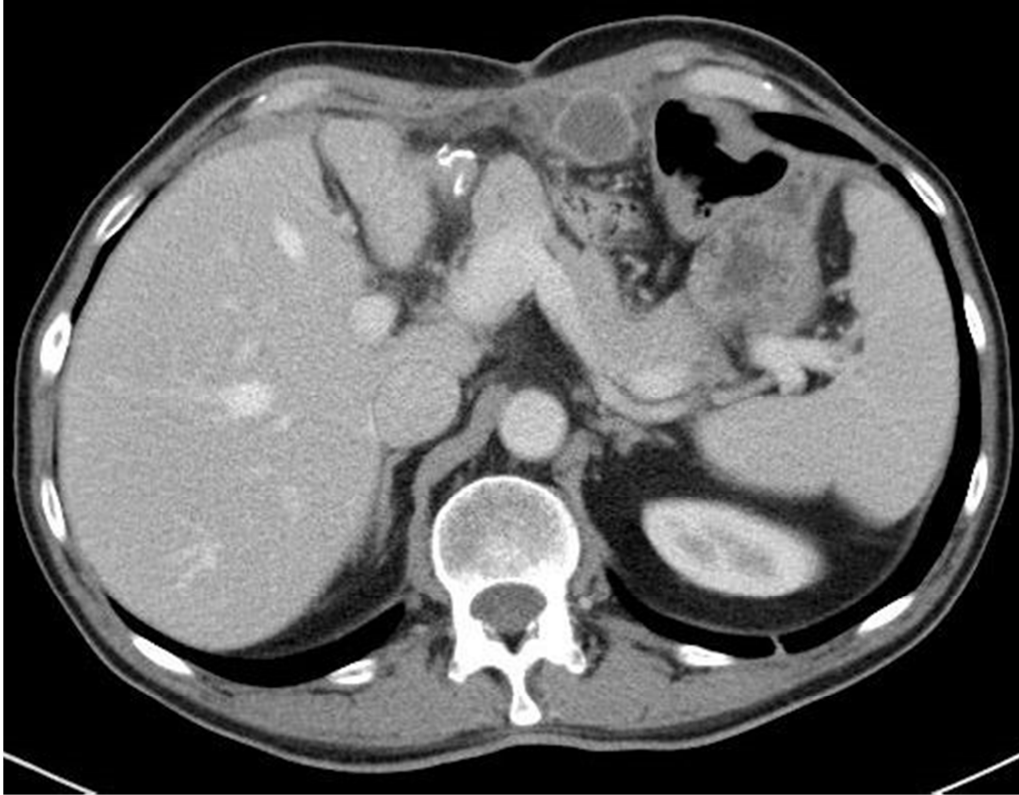
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Gastric Adenocarcinoma Mucosecretor's metastasis in retrosternal adipose tissue and sternal bone.

Figures:

Figure 1. The first recurrence: a nodular image of 25 x 25 mm located above transverse colon.



Gastric Adenocarcinoma Mucosecretor's metastasis in retrosternal adipose tissue and sternal bone.

Figure 2 and 3: The second recurrence as a mass o 13 cm which involved the anterior mediastinum with 22 mm bone inclusion.

