

Alpha-fetoprotein Producing Gastric Cancer with Yolk Sac Component: Two Rare Case Reports

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Abstract

Alpha-fetoprotein producing gastric cancer accounts for less than 10% of the gastric adenocarcinomas. Different histologic subtypes may exist, the least common of which is yolk sac morphology. To the best of our knowledge less than 10 cases have been reported with high alpha-fetoprotein and yolk sac components, either pure or mixed with ordinary adenocarcinoma of the stomach. During 10 years, from among more than 500 gastric adenocarcinoma cases that presented to the largest referral center in Southern Iran, two cases of gastric cancer with yolk sac components and high alpha-fetoprotein have been diagnosed, as presented in this case report.

Keywords: Alfa-fetoprotein, Gastric cancer

Introduction

Adenocarcinoma of the stomach with a yolk sac component is an extremely rare event. Very few cases have been reported in the English literature thus far.¹ This tumor type usually has a high serum alpha-fetoprotein (AFP) level. Herein, we have reported our experiences with two cases of gastric adenocarcinoma with yolk sac component and high AFP. One case, a 50-year-old lady, did not receive chemoradiation after surgery and 2 months after surgery she is alive and tumor free. The second case, a 70-year-old man,

expired shortly after surgery because of multiple organ failure.

Case Reports

Case 1

A 50-year-old lady presented with weight loss, postprandial vomiting and abdominal pain since one month prior to admission. Imaging studies that included a CT scan showed gastric wall thickening, with no evidence of intrathoracic or intra-abdominal metastasis. Endoscopy revealed a large circumscribed mass in the antrum. A biopsy confirmed the diagnosis of intestinal type gastric

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adenocarcinoma. The patient underwent a partial gastrectomy. The stomach specimen showed a large fungating mass in the antrum that measured 5×3×2 cm with involvement of full wall thickness. Sections from the gastric tumor indicated an adenocarcinoma with areas of reticular and solid growth pattern, clear cell changes, and intracytoplasmic PAS positive diastase resistant hyaline globules (arrow; Figure 1a,b). There were 2 out of 15 isolated lymph nodes involved (N1). Her AFP level of 500 ng/ml was 250 times the normal level of <2 ng/ml. She has left the hospital in good condition and after 2 months, she is doing well and tumor free. The patient refused chemoradiation after surgery.

Case 2

A 75-year-old man presented with weight loss, melena and abdominal pain since 40 days prior to admission. Endoscopy revealed a gastric mass, the biopsy of which showed adenocarcinoma. A CT scan failed to show any evidence of metastasis. The patient underwent surgery and a subtotal gastrectomy was performed. The gastrectomy specimen showed an infiltrative mass that measured 4×3×2 cm in the antrum. Sections from the mass revealed foci of papillary-like structures (Figure 2 a,b). His serum AFP level was 110 ng/ml. There were 21 out of 25 isolated lymph nodes that had tumor involvement (N3). After surgery, the patient developed respiratory distress

and hypotension. A few days later he expired due to multiple organ failure.

Discussion

Bourneville reported the first AFP producing gastric cancer in 1970 which has been mentioned by Kinjo et al.² After this report, sporadic cases have been published. The typical AFP producing gastric cancer is an adenocarcinoma with hepatoid differentiation; however, there are other histologic subtypes with high serum AFP that include common tubular/papillary adenocarcinoma with clear cells, poorly differentiated medullary cancer and enteroblastic adenocarcinoma.³ Gastric adenocarcinoma with yolk sac component is very rare and less than 10 cases have been reported in the English literature.⁴ Different theories exist regarding the histogenesis of gastric cancer with yolk sac component and include sequestered germ cells during embryogenesis, retrodifferentiation and heterogenous differentiation of the same cell clone in both the adenocarcinoma and yolk sac component.⁵ During the last 15 years in our center, which is the largest referral center in Southern Iran, we have seen two cases of gastric adenocarcinoma with yolk sac component. Most previously reported cases have been elderly male patients.⁴

Our cases were 50 and 75 years of age, both of whom were diagnosed as adenocarcinoma (intestinal type) in the biopsy specimen. Neither had elevated AFP levels before surgery. After

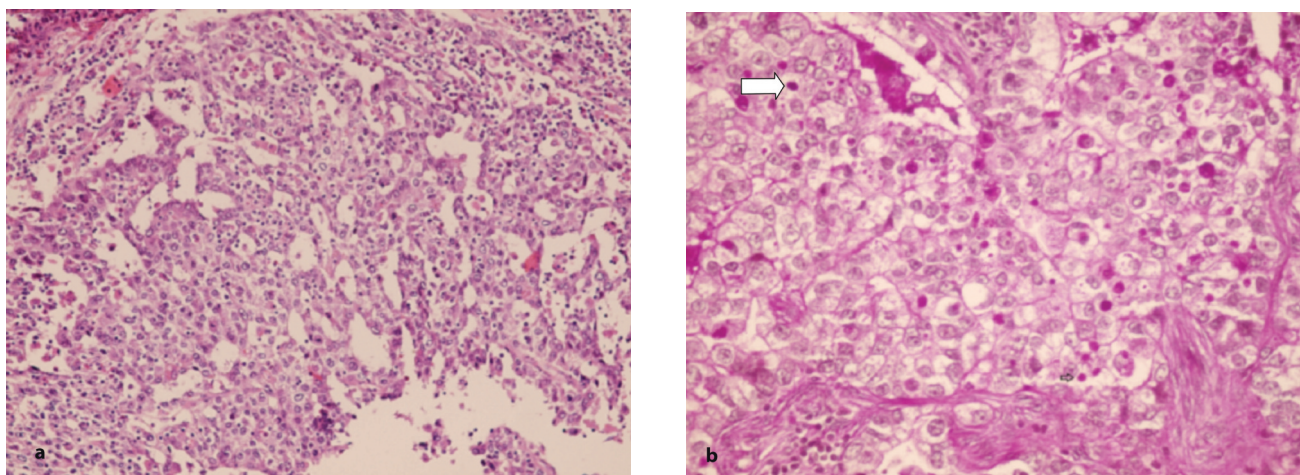


Figure 1. (a) Sections from the gastric tumor show tumor cells with abundant clear cytoplasm (H&E, 250×); (b) PAS positive diastase-resistant hyaline globules (arrow) at 400× magnification.

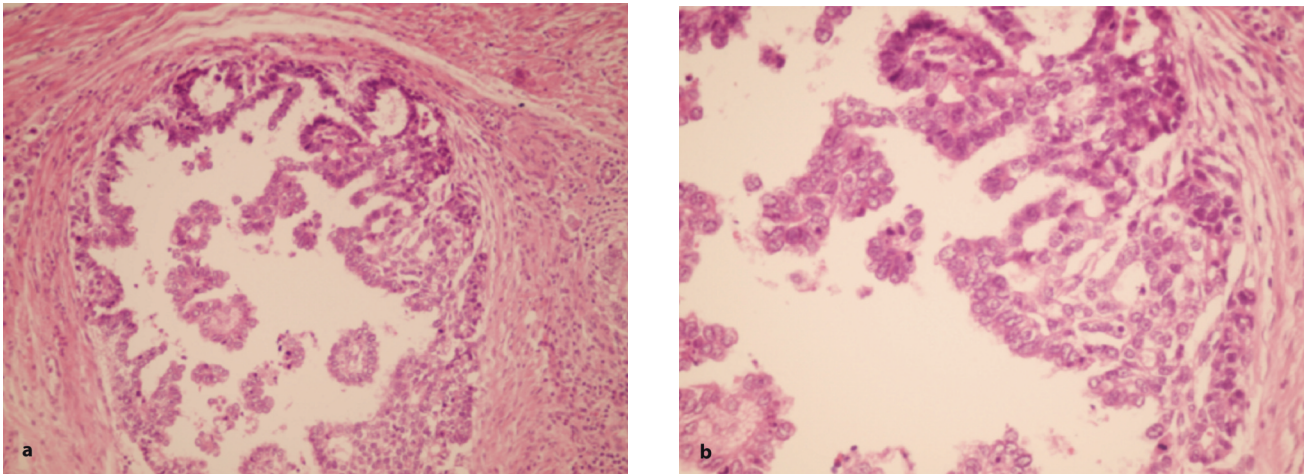


Figure 2. Sections from the gastric tumor show papillary configuration in a cystic space. (a) H&E, 250 \times , (b): H&E, 400 \times .

tumor resection, the yolk sac component was discovered and immunohistochemistry results indicated AFP reactivity in the tumor cells. This event has also been reported in previous cases.⁶

The histopathologic features of yolk sac component have been reported as a lace like (reticular) network of clear cells with an endoblastic pattern associated with a glandular pattern that resembles the primitive gut.^{2,4,7}

There is one case report of early gastric cancer with yolk sac component from Korea.⁸ Otherwise, most previously reported tumors have been aggressive with multiple metastases.⁹ However, the number of reported cases is too low to make an exact conclusion about the behavior of this type of gastric cancer.

One of our cases is doing well after surgery although she refused chemotherapy. The other patient had a poor prognosis due to stage III and subsequently expired a few days after surgery. The benefit of chemoradiation on this tumor is not definite.⁵

In conclusion, gastric cancers with germ cell components are uncommon. They should be diagnosed after tumor resection and precise examination of the pathology specimen.

Conflict of Interest

No conflict of interest is declared.

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