Synchronous primary adenocarcinoma and gastrointestinal stromal tumor of stomach: A case report and review of literature

INTRODUCTION

Adenocarcinoma of stomach may coexist with another synchronous tumor of different histological type in a different part of the stomach. It may coexist with lymphoma, carcinoid, or a gastrointestinal stromal tumor (GIST). A synchronous occurrence of adenocarcinoma and GIST in stomach is unusual and only a few case reports have been reported in the literature. This association has been detected incidentally during surgery and it is not known whether such an association is an incidental coexistence or whether two lesions are connected by a causal relationship. We hereby present a 70-year-old male who presented with an ulcerated lesion in the lesser curve of stomach, and also was seen to have a GIST on the serosal aspect of the antrum. The case is presented here for its rarity and surgeons, pathologists, and oncologists need to be aware about the synchronous occurrence of various malignancies, as the treatment modalities of different tumors differ.

CASE REPORT

A 70-year-old male presented with a 3 month history of dyspepsia and pain in the epigastrium. Endoscopy showed ulceration along the lesser curvature of the stomach. A biopsy obtained from the ulcerated area showed a well-differentiated adenocarcinoma. The patient underwent a subtotal gastrectomy. Meanwhile spiral CECT (contrast-enhanced computerized tomography) showed a gastric mass at lesser curve with left gastric lymphadenopathy.

Operation

Per-operatively, a 2 cm ulcerated tumor was seen at the lesser curve. There was a small tumor (1 cm) involving the greater curvature near antrum. This tumor was thought to be a satellite lesion.

Gross

On gross examination of the gastrectomy specimen, a small 2 cm ulcer-infiltrate lesion was seen along the lesser curvature [Figure 1a] which was 3 cm from one resection line and 6 cm from other resection line. There was a small 1 cm grey white nodule on the serosal aspect of the antrum [Figure 1b].

Microscopy

Sections from the ulceroinfiltrative lesion showed features of well-differentiated adenocarcinoma.
infiltrating up to the muscularis propria [Figure 2a]. Resection lines were free. One lymph node out of eight nodes dissected out from the omentum was showing evidence of a tumor.

Bits from the lesion on the serosal aspect showed a spindle cell tumor displaying mild to moderate pleomorphism without any areas of hemorrhage or necrosis [Figure 2b]. The tumor was well encapsulated. On hematoxylin and eosin (H and E) staining features were suggestive of a GIST-low risk category. Immunohistochemistry done showed the tumor to be strongly positive for CD117 [Figure 2c] (C-kit) and CD34.

DISCUSSION

The simultaneous occurrence of gastrointestinal stromal and adenocarcinoma in the stomach is uncommon. Maiorana[8] has published a study on six GISTs, of which five were adenocarcinoma and GIST and one was adenocarcinoma with carcinoid.

Majority of reported synchronous tumors were located in different regions of the stomach.[3‑6] In our case also, the two tumors were located in different regions i.e., lesser curve and antrum. In two cases reported by Maiorana,[8] the neoplasms were closely juxtaposed, but did not merge, and they were separated by a thin normal gastric tissue. In the cases which have been reported, so far[3‑6], the adenocarcinomas were of intestinal morphology except for a case showing adenocarcinoma of diffuse morphology and two cases showing carcinoids.[3‑6] In our case also, the adenocarcinoma was of intestinal morphology. Inflammatory reaction and association with Helicobacter pylori infection has been seen in some cases; however, there was no evidence of chronic gastritis or H. pylori infection in our case.

In our case, the GIST size was less than 2 cm and mitotic count was less than 5/50 high power fields (hpf). Thus, GIST was classified into a very low risk category. Defined as cellular spindle cell, epithelioid, or pleomorphic mesenchymal tumor of the gastrointestinal (GI) tract the term GIST was introduced by Mazur and Clark in 1983 to differentiate GISTs from leiomyomas.[7] The putative origin of these tumors is believed to be the interstitial cells of Cajal, the GI pacemaker cells.[8] 95% of GISTs are positive for expressions of CKIT (CD117-stem cell factor) protein and 70‑80% of GISTs express CD34, the human progenitor cell antigen.[9]

Small GISTs are often detected incidentally on gastric serosa during surgery for other reasons.[8] Histological diagnosis of the stromal tumor was not achieved preoperatively in any of cases reported by Maiorana.[8] In his cases, GISTs were detected incidentally at surgery, the size of the GISTs was 5-6 cm except in one case where it measured 0.6 cm. These tumors were located in submucosa and subserosa of the stomach.[8] Andea reported a case which had multiple stromal tumors (up to 1.2 cm), together with carcinoid and submucosal lipoma.[8]

The simultaneous finding of epithelial and stromal gastric tumors raises a question if it is a coincidental association or a causal relationship like gene mutation is responsible for such an occurrence.[10] Coincidence alone can easily account for such an association in countries which exhibit high incidence rates of gastric cancer, i.e., Japan.[11]

An interesting hypothesis that has been put forward is that a single carcinogenic agent might interact with two neighboring tissues and induce the development of tumors of different histo-types in the same organ. It has been seen that N-methyl-N'-nitro-N-nitrosoguanidine induces the development of gastric adenocarcinomas after oral administration in rats.[12] However, if some compound is combined with agents that alter the gastric mucosal barrier, such as aspirin, leiomyosarcomas develop in conjunction with epithelial tumors.[10]

REFERENCES

3. Maiorana A, Fante R, Cennario AM, Fana RA. Synchronous occurrence
Makhdoomi, et al.: Synchronous primary adenocarcinoma and gastro intestinal stromal tumor of stomach


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