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Case Report Open Access

Gastric Squamous Cell Carcinoma Diagnosed Preoperatively as Adenocarcinoma: A Case Report

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Abstract

Gastric cancer is the most prevalent gastrointestinal cancer in East Asia, and the fifth most common type of cancers in the world. The gastric squamous cell carcinoma is a very uncommon entity, with worldwide incidence of 0.04% to 0.07% of all gastric cancers. Although surgery remains the main therapeutic option, the clear etiology has not been firmly determined for the squamous cell cancer of the stomach. In this study, we report the case of a 55-year old female patient who underwent subtotal gastrectomy along with the literature review.

Keywords: Gastric; Squamous; Carcinoma; Cancer; Case report

Introduction

Gastric cancer is the most prevalent gastrointestinal cancer in East Asia, and the fifth most common type of cancers in the world [1]. While the incidence and mortality rate of gastric cancer of worldwide shows a declining trend, gastric cancer seems to be one of the greatest maladies in South Korea. South Korea has been experiencing rapid population aging. As a result, the number of stomach cancer cases shows a rising trend. Over 90% of gastric cancers are adenocarcinomas. The gastric squamous cell carcinoma (SCC) is a very uncommon entity, with worldwide incidence of 0.04% to 0.07% of all gastric cancers [2,3]. Recent studies have shown that gastric SCC is more commonly observed among individuals in their 60s, male, and in the upper third of stomach [4,5]. The authors report the case of a 55-year old female patient who underwent subtotal gastrectomy along with the literature review.

Case

A 55-year old female patient with 3-months history of epigastric abdominal pain and heartburn after meal and suspected of stomach cancer by esophagogastroduodenoscopy, was admitted to our department from another institution. Upon admission, the patient's vital sign was stable. Abdominal examination showed normal bowel sound and no tenderness in abdomen. Laboratory examination revealed the level of CA19-9 and carcinoembryonic antigen was within normal limits. Thoracic and abdominal X-ray showed no specific findings. Endoscopy biopsy revealed ulcerative lesion highly suggestive of a Bormann Type III gastric cancer (Figure 1A). Poorly differentiated adenocarcinoma was detected through endoscopic biopsy (Figure 1B). Abdominal computerized tomography showed a lump on the posterior wall attached to the pancreas (Figure 2). The patient underwent splenectomy, subtotal gastrectomy with Roux en Y reconstruction and D2 lymphadenectomy.

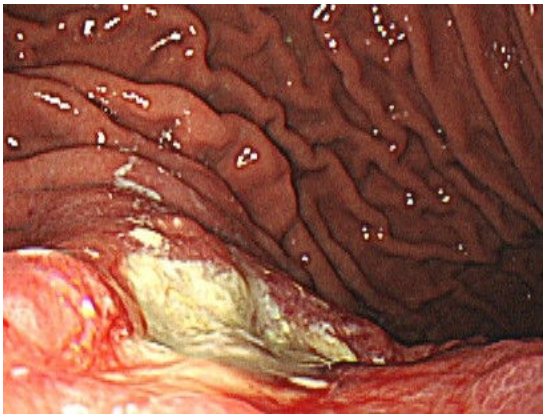

Figure 1 (A): Bormann Type III gastric cancer.

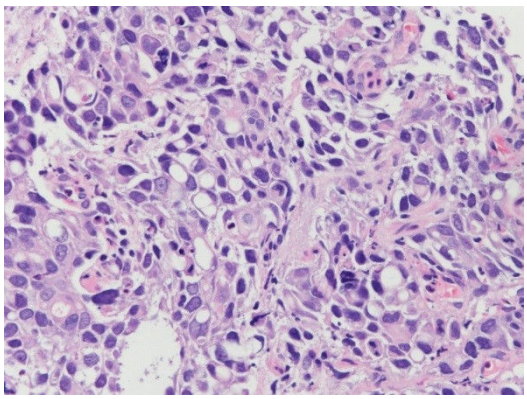

Figure 1 (B): Detection of poorly differentiated adenocarcinoma through endoscopic biopsy.

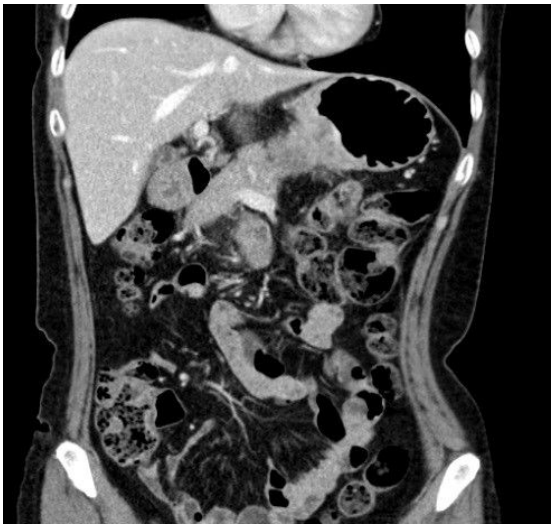

Figure 2: Lump on the posterior wall attached to the pancreas.

During the surgery, abdominal disseminated tumor or metastasis to other organs were not found. Post-operative pathohistological examination revealed tumor cells in 7 out of 52 lymph nodes. Lymphatic, venous, perineural and infiltrated tumor border were identified along with desmoplastic reaction in cancer stroma. Immunochemical investigation showed CK19, P63 positive, CK7, CK5/6 partial positive, CK20, CDX-2 negative expression and was confirmed as moderately differentiated gastric SCC. The patient is currently hospitalized without further complication.

Discussion

As the gastric wall is mainly composed of columnar epithelium, adenocarcinoma is the most common type of cancer while SCC being the least common (0.04~0.07%) [6]. Although, Lauren classification, which was established in 1965, is widely used to classify gastric cancer, it is limited mainly to adenocarcinoma. It has been over 100 years after gastric adenocarcinoma was first reported in 1905 further studies on its causes, treatment and prognosis are still in progress [7]. After WHO Classification of Tumors (2010), SCC was classified as rare variants along with signet ring cell carcinoma, composite tumor and other less integral types.

Boswell and Helwig's histopathological criteria and Japanese Classification of Gastric Carcinoma by the Japanese Gastric Cancer Association (JGCA) are the two main criteria that are required for the diagnosis of gastric SCC [6,8].

First, according to Boswell's criteria, at least 1 of the following criteria must be met for diagnostic confirmation: (1) the presence of keratinizing cell masses with pearl formation, (2) a mosaic pattern of cell arrangement, (3) intercellular bridges and (4) high concentrations of sulfhydryl or disulfide groups indicative of keratin production.

Second, according to the JGCA classification, the diagnostic criteria include the following: (1) all tumor cells are SCC cells, and (2) there is distinct evidence supporting the origin of SCC directly in the gastric mucosa. The patient in this study met all 3 of the 4 Boswell's criteria as well as the JGCA classification criteria as the lesion was located at the body part, which is distant from the squamoscolumnar transformation zone of the cardia. (Figure 3A, 3B).

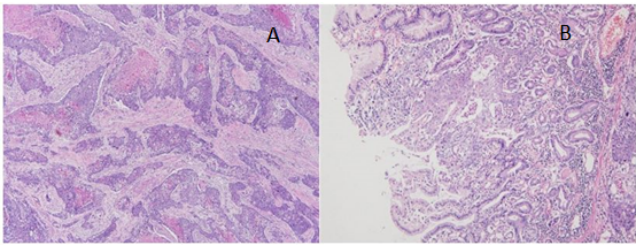

Figure 3: Lesion was located at the body part, which is distant from the squamoscolumnar transformation zone of the cardia.

To date, there are approximately 4 histopathological causes of gastric SCC. First, squamous cell in the adenocarcinoma becomes more prevalent than pre-existing gastric adenocarcinoma cells. This is supported by histopathological findings of the gastric squamous epithelial metaplasia which exhibits a transformation from adenocarcinoma to SCC [9-11]. Second, a possible squamous metaplasia of the gastric mucosa resulting in malignant transformation, developmental mechanism of squamous epithelium within the stomach is metaplastic gastritis due to chronic inflammation, squamous cell migration into the stomach followed by gastric mucosa exfoliation due to inflammation, ulceration or metaplasia of the squamous epithelium [11-13]. Third, adenocarcinoma arising from pluripotent stem cells or endothelial cells of blood vessels, which eventually results in SCC [14,15]. Last hypothesis is the possibility of cancer resulting from Epstein-Barr virus (EBV) infection. Recent studies suggested that EBV infection may also be involved in the pathogenesis of gastric SCC [10,16]. They used immunohistochemistry and liquid hybridization assays for detection of human papilloma virus infection, and polymerase chain reaction method to analyze EBV infection.

Since EBV infection was found in 21 of the 97 cases of gastric adenocarcinoma, further research of its correlation to other rare stomach cancers, including gastric SCC, is needed [10].

Clinical features of primary gastric SCC that distinguishes it from gastric adenocarcinoma is not clear and will most likely resemble that of gastric adenocarcinoma. Bonheim et al. proposed that prognosis of primary gastric SCC is more favorable compared to gastric adenocarcinoma. However, later case reports reported otherwise [17-19]. This may be due to the recent advancement in immunohistochemical technology, which enabled more detailed exploration of perineural and lymphovascular tumor invasion. To date, the best-known treatment of gastric SCC is radical surgical excision plus adjuvant chemotherapy. Marubashi et al. reported a successful case with low-dose cisplatin and 5-fluorouracil therapy [19]. Based on a case report in regards to a successful treatment of rectal squamous cell carcinoma with liver metastasis through 6 cycles of cisplatin+5-fluorouracil injections, multicenter prospective study using the above mentioned chemotherapeutic combination to treat SCC in the intestinal tract that consists mainly of columnar epithelium, will assist in establishing the standard regimen [20].

Conclusion

Due to the rarity of the disease, there are no domestic or international literatures on prospective research about treatment of primary SCC. Therefore, it is necessary to develop a standard therapeutic regimen through multicenter prospective study.

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