

Carcinoma of the Esophagus Engrafted on Corrosive Stricture

—A Case Report—*)

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ABSTRACT

A case is presented of carcinoma of the esophagus (Im) which developed at a site of chronic corrosive stricture caused by ingestion of an alkaloid mixture about seventy years previously.

Thoracic esophagectomy was performed and the antesternal route reconstruction with esophagogastrotomy was done. The carcinoma was confined to the muscula propria of the strictured esophagus and was surrounded by severe to mild dysplasia. The incidence of carcinoma among patients with chronic corrosive esophageal stricture is significantly higher than that in the general population. But in Japan, the incidence of this type of case has been less than ten.

In this case report, we have emphasized that, (1) The risk of carcinogenesis is high after a lapse of 30 years following stricture of the esophagus and that careful examination is needed, (2) The primary cause of malignant transformation of corrosive stricture is long localized irritation in the area where physical esophageal peristalsis has been lost and (3) During surgical treatment for stricture of the esophagus, with or without carcinoma, esophageal resection with reconstruction is better than a bypass procedure for preventing subsequent development of carcinoma.

INTRODUCTION

The frequency at which esophageal cancer develops in cases of corrosive stricture of the esophagus is believed to be higher than in the general population. However, less than ten cases have been reported in Japan¹⁻⁶⁾. Nevertheless, a study of such cases is believed to be meaningful, because of the inherent problems in the developmental mechanism and treatment of esophageal cancer originating from this kind of condition.

We have experienced a case of esophageal cancer, which is reported here, that developed after a lapse of approximately 70 years from the time when the patient originally suffered corrosive stricture of the esophagus.

CASE REVIEW

The patient was a 75-year-old female with a chief complaint of swallowing disturbance. Her family history was unremarkable. At the age of three, she drank by mistake a mixture of sodium hydroxide and sodium carbonate called "Lye," developed corrosive esophagitis, and underwent gastrotomy. Postoperatively, she received bougienage of the esophagus for the stricture, which resulted in improvement of the symptoms. At the age of six she was able to eat normal food, and her subsequent course was unremarkable. From around the time she was 68 years old (1975), she became conscious of difficulty in swallowing food and received an upper GI series at a hospital in

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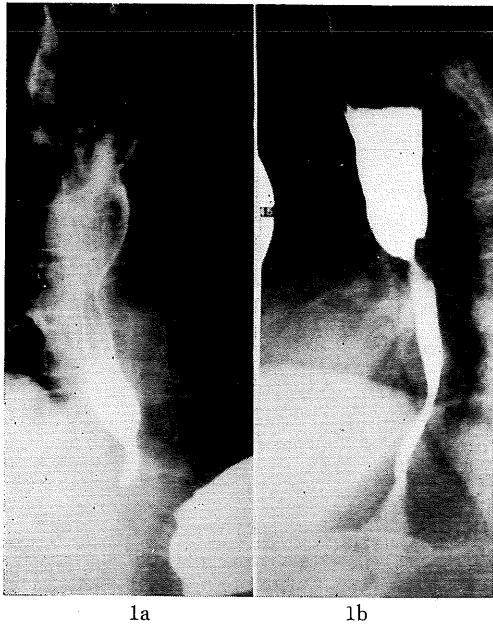


Fig. 1. Esophagogram

1a. At 68 years old (1975), stricture of the esophagus with no malignant sign.

1b. At 75 years old (1983), with malignant sign, narrowing and shaped like a funnel with irregular constrict narrowing and hardness of the wall.

her neighborhood, where only stricture of the esophagus was indicated, with no sign malignancy (Fig. 1a). From around the time she was 72 years old, her symptoms became aggravated and ingesting solid food became difficult. A 75 years of age (May, 1983) even liquid food became difficult for her to ingest and she was again admitted to the neighborhood hospital, where she received bougienage of the esophagus, with no improvement. Neoplastic change was suspected on endoscopic examination and performance of an upper GI series, and the patient was referred to and hospitalized at this department.

The findings at admission were moderate nutrition and physique, absence of anemia and jaundice, and impalpable cervical lymph nodes. Examination of the chest revealed no abnormality, and the liver and spleen were impalpable on abdominal examination. An operation scar approximately 20 cm long was present in the median epigastric region. No abnormalities were found elsewhere.

As regards laboratory data, hematological examination, blood plasma liver function test,

electrolyte test and renal function test showed no abnormality at all. The findings on urinalysis, P. S. P. test and ECG were within normal limits.

Upper GI tract examination (Fig. 1b) at the time of admission revealed the esophagus to be markedly dilated below Im and shaped like a funnel with irregular constant narrowing and hardness of the wall. Endoscopy (Fig. 2) showed marked narrowing at a site 27 cm from the incisor tooth and an irregular, nodular and eroded surface extending from that site toward

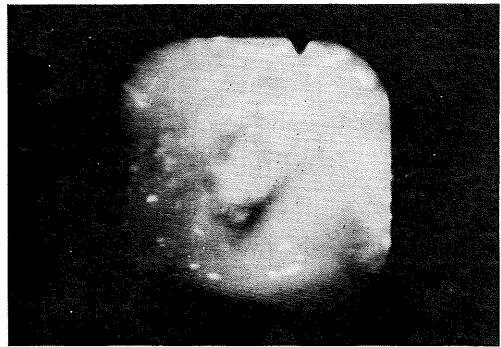
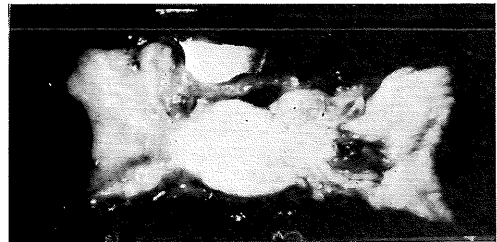
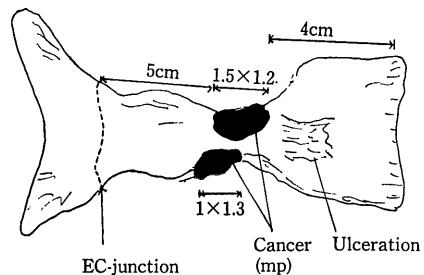


Fig. 2. Endoscopic findings

Marked narrowing with irregular, nodular and eroded surface.



3a



3b

Fig. 3. Macroscopic findings

3a. Macroscopic feature

3b. The schema of esophageal cancer area (block) and corrosive stricture

the mouth. The head of the fiberscope would not pass through the constricted site. A diagnosis of squamous cell carcinoma was made on biopsy.

On 7 September 1983, total thoracic esophagectomy and gastrectomy on the pylorus side were performed upon conducting right thoracotomy and laparotomy and gastroesphagostomy was performed presternally. The stage of the cancer was stage I with $A_0N_0P_0M_0$.

The macroscopic features of the resected specimen were marked narrowing 4-7 cm long on the mouth side from the E-C junction and ulceration on the mouth side from the site of the narrowing (Fig. 3). The microscopic findings were alveolar hyperplasia of heterotypic cells and infiltration of tumor tissues to the muscle layer. The cancer was moderately differentiated squamous cell carcinoma advanced to the musculla propria, presenting intercellular bridges between the tumor cells and in intracellular keratinization tendency with keratinized pearls in some cells (Fig. 4). The tissues in the periphery of the tumor presented a picture



Fig. 4. Microscopic findings
Moderately differentiated squamous cell carcinoma
invaded to the muscularis propria.

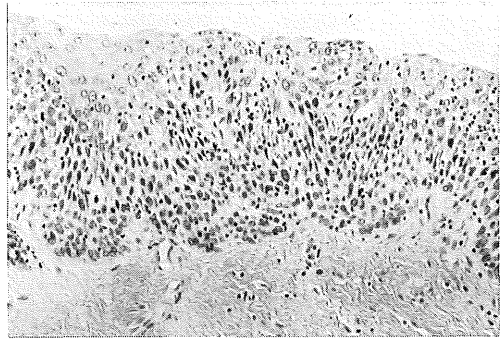


Fig. 5. The tissues in periphery of the tumor
showed severe dysplasia.

of dysplasia (Fig. 5).

DISCUSSION

According to reports from other countries, the frequency at which corrosive stricture of the esophagus is complicated with esophageal cancer is generally 2.4-5.2%. But attention should be paid to this abnormality because some investigators report a maximum frequency of 16.4% while others state that the incidence of esophageal cancer is 22 times higher in cases of corrosive stricture of the esophagus than its incidence among the population as a whole¹⁻⁴. Alkaline detergent has been reported to be the substance causing corrosive stricture of the esophagus in 90% of cases in the USA. According to Nakamura et al.⁵ the causative substance in Japan is alkali in 38.3% of cases, acid in 48.4%, and 13.3% in others. It is said that, compared with acid, alkali generally penetrates more deeply and causes disturbance to all layers of the esophagus resulting in much more severe stricture. The rarity of such cases developing cancer in Japan may be due to this difference in causative substance. The number of cases developing esophageal cancer from corrosive stricture of the esophagus reported in Japan to date is nine⁶, and the case reported here is the tenth.

This disease condition is characterized by its occurrence at a younger age with little difference in sex compared with the usual type of esophageal cancer. This is due to the high frequency of onset of corrosive esophagitis at a young age and to the increased risk of carcinogenesis after the lapse of a certain period of time. The latency period before development of esophageal cancer being 24 to 72 years, or

35 years on average, in Japanese cases and 31.2~45.8 years on average in foreign cases¹⁻⁴. Careful examination is indicated especially after a lapse of 30 years when there is a history of corrosive esophagitis.

As reviewed by the TNM classification in 112 cases, the site of development of cancer was found to be 10.8% in the upper part, 79.4% in the middle part and 9.8% in the lower part. The cancer most commonly developed in the middle part¹⁻⁴. Statistically, the frequency of the carcinoma is high at or above the constricted site. But since the cancer does not develop specifically at the site of stricture where the scarring is marked, it is thought unlikely to be a scar cancer. As regards the mechanism of carcinogenesis, the cancer is presumably caused by long localized irritation due to chronic loss of mobility and physical peristalsis resulting from the scar. On the other hand, compared to the usual type of esophageal cancer, this cancer is said to persist at an early stage for a long period. This may be due to fibrosis and scarring esophageal wall which prevent the cancer from infiltrating through the mucosa and submucosa.

Radical surgery is usually performed when cancer is detected, but the question is what is the best therapy to employ when stricture of the esophagus is found is still debatable. Marked dysplasia generally exists in the periphery of corrosive stricture of the esophagus (Fig. 5). Pathologically, this marked dysplasia is difficult to differentiate from carcinoma in situ, and some investigators^{1,4} suggest that, preventive resection is better because of the high possibility of such marginal lesions developing into cancer. In Japan, however, preventive resection has not

been very positively applied because of the high surgical risk. Reports have also appeared describing bypass surgery and other procedures for the purpose of avoiding irritation, but this cannot be said to be a good method because there are reports of cancer developing from the remnant part of the constricted esophagus. On the other hand, because of recent advances in surgical techniques and management, there has been a remarkable decrease in mortality from radical surgery for esophageal cancer. In view of these facts, it is advisable to perform resection and reconstruction when neoplastic changes are suspected on examination by biopsy from the followup cases which are frequently conducted.

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