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Esophageal Intramural Pseudodiverticulosis with Esophageal Cancer Improved by Target Rotation Irradiation: Case report

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**Introduction**

We report a case of a patient with extensive esophageal cancer and esophageal intramural pseudodiverticulosis which disappeared following radiation therapy. In this case, the entire esophagus was involved with cancer. Therefore radiation was applied to the entire esophagus by the target rotation method. This is the first report to the best of our knowledge that intramural pseudodiverticulosis with esophageal cancer was disappeared by radiation therapy.

**Case report**

A 78 years-old Japanese woman admitted with swallowing disturbance since a few months ago. She had no other major medical problems. Barium swallow revealed narrowing of the cervical esophagus and multiple outpouchings in the entire esophagus (Fig. 1). Paerendoscopy demonstrated small elevated lesions in the cervical esophagus suggestive of esophageal cancer (Fig. 2). Biopsy specimens revealed squamous cell carcinoma in this lesion. After Lugol’s solution was applied to esophageal mucosa, multiple uncolored areas were appeared in entire esophagus. Biopsy specimens from these uncolored areas revealed also squamous cell carcinoma.

Chemotherapy was performed by using CDDP and 5-FU. But intramural pseudodiverticula and narrowing were not improved after two courses of chemotherapy. One month after chemotherapy radiation therapy was performed by Linac system with multi leaf collimator using 10MV X-ray. Since esophageal cancer was spreaded to the entire esophagus and this patient was elderly person, irradiation technique of target rotation method was selected (Fig. 3). 60Gy was given in 30fractions/50days (2weeks split course). After irradiation, barium swallow showed improvement of narrowing of the esophagus and no intramural pseudodiverticula (Fig. 1). Biopsy specimens revealed no carcinoma cells. 6 months later, this patient has remained free of esophageal cancer and intramural pseudodiverticulosis.

**Discussion**

Since esophageal intramural pseudodiverticulosis (ESP) was first reported by Mendhi in 1950 as an abnormality which had radiological...
findings similar to those of Rokitansky-Aschoff sinuses of the gall-bladder, some cases have been documented especially in Europe and America. Levine\textsuperscript{3} detected this abnormality in 0.15% of 1,320 cases of barium swallow. EGIS, however, is very rare condition in Japan\textsuperscript{5}, as there was a few case reports.

Unlike the usual diverticulosis, the dilated esophageal glands were not covered with a muscular layer of mucosa, therefore this disease was designated pseudodivericulosis. Although the causes of dilated esophageal glands remains unknown, two hypotheses have been proposed\textsuperscript{5}. One suggests that the excretory duct of an esophageal gland is filled with, or obstructed by, ablated esophageal epithelium or some inflammatory substances, which then result in dilation. The other theory suggests that the orifice of the excretory duct is compressed and contracted by fibrosis or secondary to chronic esphagitis. These hypotheses are supported by the fact of high incidences of intramural pseudodivericulosis in patients with reflux esophagitis, anc diabetes-related candidiasis, or alcoholics. Particularly, intramural pseudodivericulosis is frequently complicated by esophageal hiatal hernia, and Che et al\textsuperscript{5} noticed the hernia in 18 of 45 patients with intramural pseudodivericulosis.

On the other hand, this disease is also associated with herpetic esophagitis, esophageal carcinoma, post-irradiation, Wegener's granulomatosis, steroid administration, esophageal web and AIDS\textsuperscript{5}.

Radiological findings of barium meal study were characteristic enough to lead to definite diagnosis. The barium study reveals many microdiverticulum-like outpouchings 1 to 3 mm in diameter in the esophageal wall. Stenoses are observed in almost all cases, ranged from several centimeters to one-thirds of length of the esophagus. Many of the diverticulum-like outpouching were segmental, and most frequently occurred in the lower esophagus\textsuperscript{3}. In order to the dilated esophageal glands are filled with viscous mucus, EGIS were shown on esopengram after several or as many as 20 times or more barium swallowings in some cases\textsuperscript{5}. This fact suggests that some cases may possibly be failed to be defined on the conventional barium meal study.

Endoscopic examination of EGIS shows acute or chronic esophagitis with stenosis in the corresponding region of pseudodivercuitum in 50 to 60% of the cases. Clinicians should understand that some patients have no endoscopic abnormalities. Bruhlmann\textsuperscript{4} reported no anomalies in 5 of the 46 patients (13%) with intramural pseudodivericulosis who were undergo endoscopy. Biopsy also reveals acute or chronic esophagitis in many of the cases, and it hardly demonstrated dilated gland\textsuperscript{5}. Biopsy also reveals inflammatory change and fibrosis.

This case showed intramural pseudodiverticula of the entire esophagus with diffuse intramural spreading from cervical esophageal cancer. In this case intramural pseudodiverticula were disappeared completely by external radiation therapy. This fact is suggestive of esophageal glands being obstructed by intramural spreading of esophageal cancer.

References