

CT Findings of Diffuse Esophageal Spasm: Case Report¹

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We report the CT findings of diffuse esophageal spasm (DES) in a patient with dysphagia. Although an uncommon condition, DES should be included in the differential diagnosis if relatively long and symmetric segmental esophageal wall thickening and an epiphrenic esophageal diverticulum are noted at CT.

Index words : Esophagus, abnormalities
Esophagus, motility
Computed tomography (CT)

Diffuse esophageal spasm (DES) is characterized by substernal chest pain, dysphagia, and a manometric pattern of frequent simultaneous contractions with intermittently normal peristalsis (1). Most patients with DES show abnormal esophageal motility at esophagography, although the findings are nonspecific and require clinical and manometric correlation (1). We report a case of DES in which CT demonstrated relatively long, symmetric, segmental esophageal wall thickening and an epiphrenic esophageal diverticulum.

Case Report

A 62-year-old man who for several years had suffered from intermittent chest pain presented with dysphagia, first experienced two months earlier. Chest CT of the esophagus, demonstrated diffuse circumferential wall thickening of the distal third of the esophagus, from the carina to the gastroesophageal junction (Fig. 1A-C). The long segment of the esophagus was involved, though

periesophageal fat was normal. At the level of the hepatic dome, double intraluminal air densities were present (Fig. 1b), and at the lower level, adjacent to the esophagus, an air cavity thought to be an esophageal diverticulum was noted (Fig. 1C). Subsequent esophagography revealed an intermittent absence of primary peristalsis, but prominent tertiary activity (Fig. 1D) which involved the distal one third of the esophagus. No mucosal lesion or mass was found, but an epiphrenic diverticulum was present (Fig. 1d). Similarly, endoscopy revealed no mucosal lesion, but esophageal manometry demonstrated long duration and high amplitude spontaneous esophageal contraction, consistent with a diagnosis of DES.

Discussion

DES is characterized by intermittent abnormal esophageal motility, chest pain, and dysphagia. The chest pain is usually spontaneous, not related to swal-

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lowing, and can simulate angina. The degree of dysphagia varies, and is not always associated with chest pain. A diagnosis of DES is based on manometric findings of long duration and high amplitude, during simultaneous contraction, more than 10% of initiated swallows and intermittently normal primary peristalsis (1). The pathogenesis of the disorder has not been clearly defined, but appears to reflect an imbalance between excitatory and inhibitory neural pathways affecting esophageal smooth

muscle. Pathologically, the esophageal musculature may be relatively normal or markedly thickened due to hypertrophy. If this has occurred, the circular layer of muscularis propria is most often affected. Unlike achalasia, in which they are reduced or absent, ganglionic cells are invariably preserved (2).

Esophagography after barium swallowing in patients with DES may reveal normal or nonspecific findings such as disruption of primary peristalsis and prominent

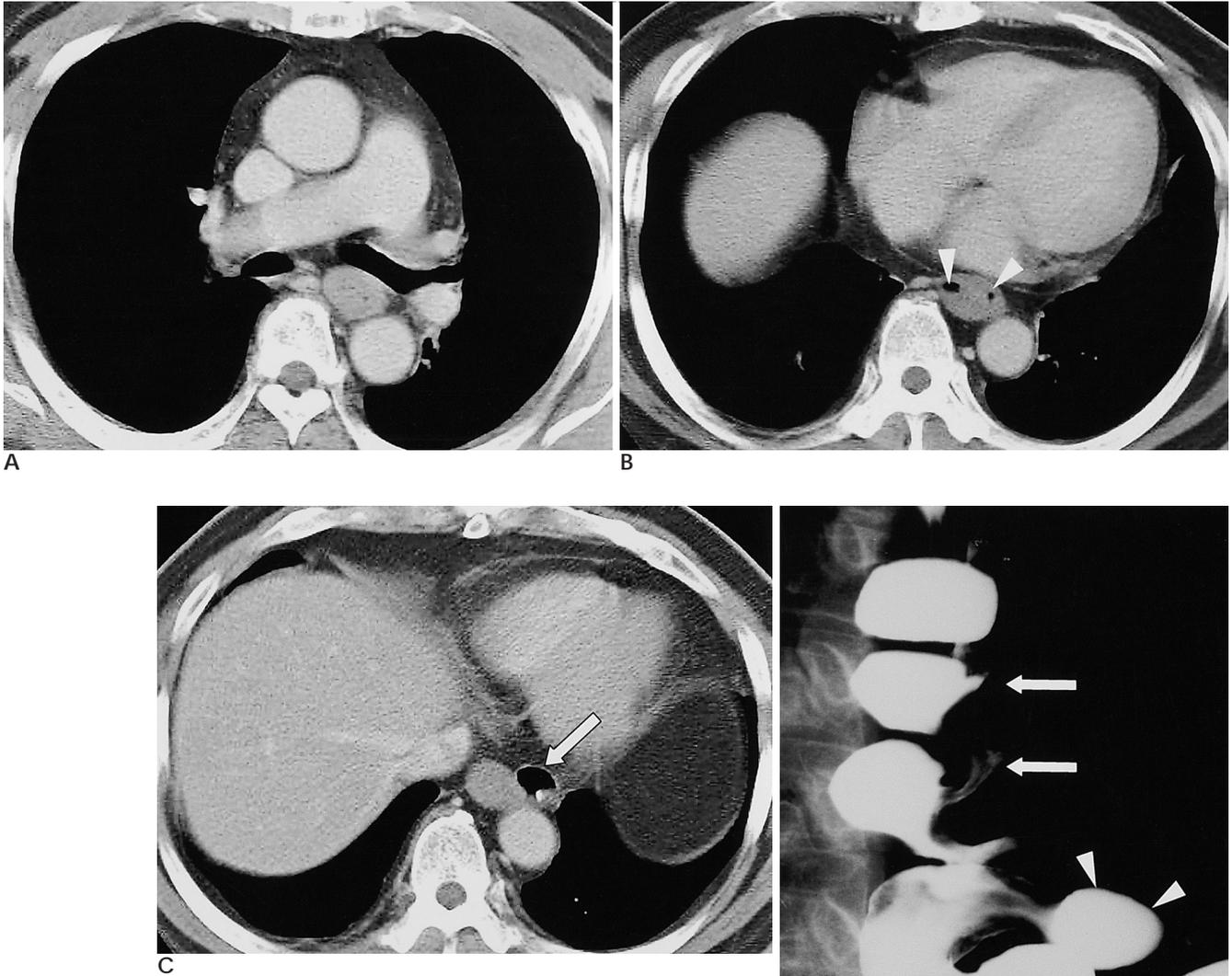


Fig. 1. A. CT scan obtained at subcarinal level shows circumferential esophageal wall thickening with preservation of adjacent soft tissue plane. Dilatation of proximal esophagus was also noted (not shown). B. CT scan at hepatic dome level shows double intraluminal air densities (arrowheads), which is thought to be folding of the thickened esophageal wall. C. CT scan obtained at gastroesophageal junction level shows exophytic air density due to epiphrenic esophageal diverticulum (arrow). D. Double contrast esophagogram shows proximal dilatation and “cork screw” appearance due to prominent tertiary wave without mucosal abnormality (arrows). Also noted is epiphrenic diverticulum at gastroesophageal junction (arrowheads). Primary peristalsis was not seen on fluoroscopic evaluation after barium swallow (not shown).

tertiary activity. The contractions are usually repetitive and simultaneous, causing the typical "cork screw" or "curling" appearance (3). Coexisting diverticula secondary to marked increased in intraluminal pressure, as in our case, are not uncommon. The reported radiologic sensitivity of esophagography in the diagnosis of DES is about 75%, though with careful fluoroscopic observation of five single swallows, the detection rate would probably be improved (4).

The esophagus is easily evaluated by CT, a sensitive method of demonstrating esophageal abnormalities, including esophageal wall thickening, if careful attention is paid (5). For optimal study conditions, intravenous contrast material should be administered, since this better defines the tissue planes. The thickness of the esophageal wall depends on the degree of esophageal distention, and should normally not exceed 3 - 5 mm (5 - 7). Thickening is a nonspecific response to a variety of esophageal conditions, and although these can be classified into patterns and evaluated for length of esophageal involvement, it has still not usually been possible to conclusively identify the cause of wall thickening on the basis of CT appearance alone (5). Benign or malignant tumors of the esophagus are usually manifested at CT as focal, asymmetric thickening of the esophageal wall (5, 7), while wall thickening in esophagitis has been shown to be concentric and circumferential, involving a relatively long segment of the esophagus in 75% of patients (8).

Nino-Murcia et al. (3) reported that the CT findings of DES in three patients were smooth, symmetric, circumferential wall thickening of the distal two-thirds of the esophagus, with normal periesophageal fat. While DES is a benign condition that is not dissimilar to esophagitis,

certain findings are indicative of DES. In our case, an epiphrenic esophageal diverticulum was detected at CT, as well as relatively long, symmetric, segmental esophageal wall thickening. In addition, the esophageal lumen contained double intraluminal air densities, a finding thought to be due to folding of the thickened esophageal wall.

We suggest that if CT demonstrates relatively long, symmetric, segmental esophageal wall thickening and an epiphrenic esophageal diverticulum in patients with chest pain or dysphasia, DES should be included in the differential diagnosis and further evaluation such as esophagography and/or manometry is required.

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