

Observation of normal appearance and wall thickness of esophagus on CT images.

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Abstract

PURPOSE:

This study sought to observe the appearance of normal esophagus, measure and record the thickness of esophageal wall in order to offer reference for estimating esophageal wall abnormalities and delineating gross tumor target of esophageal carcinomas on CT images.

MATERIALS AND METHODS:

From September 2006 to February 2007, 110 consecutive CT films from adult patients without esophageal diseases were collected and studied. On CT images the entire esophagus was divided into cervical, thoracic, retrocardiac and intraabdominal segments. The appearance of esophagus was described when the esophagus contracted or dilated. Thickness of esophageal wall and diameters of esophageal cavities were measured by hard-copy reading with a magnifying glass. Age, sex and the thickness of subcutaneous fat of each patient were recorded.

RESULTS:

It was observed that the esophagus presented both contracted and dilated status on CT images. In each segment there were certain portions of esophagus in complete contraction or dilatation. 47 images (42.7%) showed contracted esophagus in each segment available for measurement. The largest wall thickness when esophagus was in contraction and dilatation was 4.70 (95% CI: 4.44-4.95) mm and 2.11 (95% CI: 2.00-2.23) mm, respectively. When contracting, the intraabdominal esophagus was thicker than the cervical, thoracic and retrocardiac parts, and the average thickness was 5.68 (95% CI: 5.28-6.09) mm, 4.67 (95% CI: 4.36-4.86) mm, 4.56 (95% CI: 4.31-4.87) mm, and 4.05 (95% CI: 3.71-4.21) mm, respectively. When the esophagus was dilating, the average esophageal wall thickness was between 1.87 and 2.70 mm. The thickest part was cervical esophagus. Thickness of esophageal wall was larger in males than that of females (5.26 mm vs. 4.34 mm $p < 0.001$). Age and the thickness of subcutaneous fat had no significant impact on the thickness of esophageal wall (p -value was 0.056 and 0.173, respectively).

CONCLUSION:

The Observation of normal appearance and wall thickness of esophagus helps us to identify thickened esophageal wall on CT images using new CT scan technologies. Thus it is probably

helpful in judging esophageal diseases and delineating gross tumor target of esophageal carcinomas in modern radiotherapy.