STUDY OF NORMAL ANATOMY OF POST-CRICOID REGION OF THE PHARYNX AND CERVICAL OESOPHAGUS BY CT AND MR IMAGING

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Abstract
This study aimed to define the normal position of the oesophagus and the appearance of the postcricoid region, oesophageal verge and upper oesophageal region at CT and MR imaging. It was conducted on 55 consecutive (CT) scans of the neck individual patients (30 males and 25 females) with age range 18 - 65 years. MR images were in the transverse plane with T1 pulse sequence. Patients who have dysphagia, clinical or imaging finding suggestive of pharyngeal or oesophageal abnormalities or history and signs of head or neck malignancy were excluded. The location of the oesophagus and the appearance of the postcricoid region, oesophageal verge, upper oesophageal region and the visibility of the fat planes at CT and MR imaging were determined.

The oesophagus was located centrally in 49 cases (89.1%) at CT versus 40 cases (77.7%) at MR imaging, at the oesophageal verge. Just below the oesophageal verge, the oesophagus typically coursed to the left side in all cases except in 4 cases (7.3%) at both CT and MR imaging, where it is shifted to the right.

The entire thickness of the muscular wall in the postcricoid region varied little through its cephalocaudal extent, but at the oesophageal verge, there was an abrupt change, then the cervical oesophagus showed little change at 1 cm and 2 cm below the oesophageal verge.

The visibility of the intramural fat planes is diminished caudally in the postcricoid region with slightly higher rate in CT than in MRL. Also, the fat planes around the postcricoid region were visible more frequent on both right and left sides than the posterior one. and more frequent on the CT
scans than MRI, while fat planes around the cervical oesophagus were visible at a similar frequency in both CT and MRI, but also the posterior fat planes were the less frequent. Small or submucosal infiltrating tumors might be missed with fluroscopy and/or endoscopy, with biopsy. So, only CT and/or MR imaging might enable the diagnosis of such a mass while it is still at a curable stage.

Introduction

The pharynx is the part of the digestive tube which is placed behind the nasal cavities, the mouth and the larynx. It extends from the basal surface of the skull to the level of the sixth cervical vertebra opposite the lower border of the cricoid cartilage. Its width is greatest at its uppermost part where it measures 3.5 cm: at the junction with the oesophagus it is reduced to about 1.5 cm. (Williams et al., 1995).

The lower part of the pharynx (hypopharynx) extends from the pharyngoepiglottic fold to the oesophageal ostium. The hypopharynx includes the piriform sinuses, the postcricoid area and the posterior pharyngeal wall (Bast et al., 2000).

Detailed knowledge of the normal anatomy of postcricoid portion of the hypopharynx, oesophageal verge and cervical oesophagus is required in patients with swallowing difficulties or other symptoms potentially related to pharynx, oesophagus and other adjacent anatomical structures, which is reached with increasing use of computed tomography (CT) and/or magnetic resonance image (Mn) of the head and neck region. The postcricoid region was subdivided into the upper margin of the cricoid at the cricoarytenoid joint level, middle portion of the cricoid cartilage and inferior margin of the cricoid cartilage. While the cervical oesophagus was subdivided into the oesophageal verge (Oesophageal inlet), the area 1 cm. and 2 cm. below the oesophageal verge (Schmalfuss et al., 2000).

With fluroscopy and/or endoscopy with biopsy, small or submucosal infiltrating tumors might be missed, and only CT and/or MR imaging might enable the diagno-