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Importance of CT and Timed Barium Esophagogram in the Contemporary Treatment of Patients with Achalasia

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Abstract : Introduction: Achalasia is an idiopathic primary esophageal motility disorder characterized by esophageal peristalsis and impaired swallow-induced relaxation of the lower esophageal sphincter (LES). It is a rare disease that affects both genders with an incidence of 1/100.000 and a prevalence rate of 10/100,000 per year. Objective: Laparoscopic Heller myotomy (LHM) represents a therapy of choice for patients with achalasia, providing excellent outcomes. The aim of this study was to evaluate the significance of computed tomography (CT) in analyzing achalasia subtypes and timed barium esophagogram (TBE) in evaluation of LHM success, as a part of standardized diagnostic protocol. Method: Fifty-one patients with achalasia, confirmed by manometric studies, in addition to standardized diagnostic methods, underwent CT and TBE. CT was done with multiplanar reconstruction, measuring the wall thickness above the esophago-gastric junction in the axial plane. TBE was performed preoperatively and two days postoperatively swallowing low-density barium sulfate, and plane upright frontal films were performed 1, 2 and 5 minutes after the ingestion. In all patients, LHM was done, and pre and postoperative height and weight of the barium column were compared. Results: According to CT findings we divided patients into 3 subtypes of achalasia according to wall thickness: < 4mm as subtype one, between 4 - 9mm as II, and > 10 mm as subtype 3. Correlation of manometric results, as a reference values, and CT findings indicated CT sensitivity of 90% and specificity of 70 % in establishing subtypes of achalasia. The preoperative values of TBE at 1, 2 and 5 minutes were: median barium column height 17.4 ± 7.4, 15.9 ± 6.2 and 13.9 ± 6.2 cm; median column width 5 ± 1.5, 4.7 ± 1.6 and 4.5 ± 1.8 cm respectively. LHM significantly reduced these values (height 7 ± 4.6, 5.8 ± 4.2, 3.7 ± 3.4 cm; width 2.9 ± 1.3, 2.6 ± 1.3 and 2.4 ± 1.4 cm), indicating the quantitative estimates of emptying as excellent (p value < 0.01). Conclusion: CT has high sensitivity and specificity in evaluation of achalasia subtypes, and can be introduced as an additional method for standardized evaluation of these patients. The quantitative assessment of TBE based on measurements of the barium column is an accurate and beneficial method, which adequately estimates esophageal emptying success of LHM.

Keywords : achalasia, computed tomography, esophagography, myotomy
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