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VALIDATION OF A SCINTIGRAPHIC TECHNIQUE FOR THE EVALUATION OF PATIENTS WITH GASTRIC PULL-UP ESOPHAGECTOMY

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BACKGROUND-AIM

The aim of this study was to verify and validate our scintigraphic technique in the evaluation of the dynamics of swallowing and the time of gastric emptying in patients with gastric pull-up esophagectomy.

METHODS

The study included 10 esophagectomized patients with gastric pull-up reconstruction. All subjects studied, fasted (no food and drink) for 6 hours before the exam. We used a Gamma-camera Picker Prism 1500 with parallel holes LEHR collimator and a computer Odyssey Fx. A semisolid balanced meal (80g, protein 5.2%, carbohydrates 7.1%, fat 2.5%) was labeled with 40 MBq of ^{99m}Tc-nanocolloid.

Patients were positioned seated in vertical position close to gamma camera (FOV from the jugular notch to the upper abdomen, images matrix 128 x 128, zoom 1). To study the transit of esophageal remnant and gastric conduit we used a first phase with a dynamic acquisition of 400 frames per 0.5 sec/frame. These dynamic images were acquired during oral administration of 6 radioactive bolus of about 10 ml every 30 sec. To study gastric emptying first we acquired dynamic images of 60 sec/frame for 30 minutes with the patient seated, then we acquired a series of static images of 60 sec/frame every 10 min until 120 min post oral administration. During the intervals we invited the patients to stand-up and walk to mimic physiological situation of post-prandial phase. The compacted images were aligned and analyzed using ROIs placed on the gastric conduit and stomach. Parametric images and time/activity curves are created.

RESULTS

Two patients had swallowing difficulties. The study of the gastric emptying recognized two distinct groups of patients. The first group showed an early and fast emptying when the patient was seated. The second group showed a slow emptying in the first phase which was then accentuated by the deambulation. The time to half of gastric emptying was from 2 min to 145 min.

CONCLUSION

This method was well tolerated by the patients. Our scintigraphic procedure allowed us to evaluate swallowing and gastric emptying in patients with gastric pull-up esophagectomy, mimicking their physiological situation.