



Retarded gastric emptying and abnormal antral myoelectric activities in patients with bile reflux gastritis

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Abstract

AIM: Several studies have domesticated that antroduodenal dysmotility is associated with bile reflux and chronic gastritis, but the pathophysiologic importance remain obscure. In this study, we investigated the patterns of gastric emptying for solid and liquid and antral myoelectric activities to explore the possible mechanism of gastric motility disorders in the pathogenesis of bile reflux gastritis.

METHODS: 59 patients with chronic gastritis diagnosed by endoscopy and histology examination. Concentration of bile salts $> 58 \mu\text{g/mL}$ and $\text{pH} \geq 3.0$ in gastric fluid, and a total scores of the histology of gastric mucosa > 9.0 were used as a standard of selection for pathogenic bile reflux. Thus, of them, 18 patients with bile reflux gastritis (BRG) and 17 patients with non reflux gastritis (NRG) were chose for measurement of gastric emptying, and 10 healthy volunteers were selected as controls (HC). Gastric emptying was measured by a standardized meal labeled with dual isotope by scintigraphy. Parameters of solid lag period (SLP), half solid emptying time (HSET) and half liquid emptying time (HLET) were obtained from gastric emptying curves based on a fixed isocount level relative to the maximum count value of each image from a free region of interest (ROI) of the stomach. 13 subjects from group BRG, 10 from group NRG and 10 from group HC were randomly selected for the examination of antral myoelectric activities during fasting

for at least 30 min by a peroral suction electrode sucked to antrum and the signal were transmitted to a type of RM 6000 eight channel electrogastrography. The electric signals were analyzed for mean slow wave frequencies (MSWF) and dysrhythmias (DRM).

RESULTS: The patients with bile reflux gastritis showed a significant prolongation of SLP (43.3 ± 17.0 min, *vs* group NRG 24.7 ± 12.3 min, $P < 0.01$; *vs* group HC 21.6 ± 8.1 min, $P < 0.01$), of HSET (103.9 ± 30.6 min, *vs* group NRG 80.5 ± 23.7 min, $P < 0.05$; *vs* group HC 58.2 ± 17.7 min, $P < 0.01$) and of HLET (43.0 ± 17.1 min, *vs* group NRG 31.0 ± 13.9 min, $P < 0.01$; *vs* group HC 23.5 ± 9.4 min, $P < 0.01$). Patients with non reflux gastritis also showed prolonged HSET when compared with group HC ($P < 0.05$), while parameters of SLP and HLET revealed no statistic difference between these two groups. The three groups showed no significant difference of MSWF, in group BRG (7/13), low in group NRG (3/10) and group HC (1/7). When these abnormal individuals were compared, dysrhythmias were severe in group BRG and in group NRG, but mild in group HC.

CONCLUSION: Patients with BRG have a notable delay in gastric emptying for both solid and liquid, and high occurrences of dysrhythmias in antrum, indicating that severe dysmotility in stomach, especially in antrum, as an important factor in the induction of pathologic bile reflux. Dysfunctional antrum fails to effectively evacuate the excessive reflux ates and incurred prolonged retention after meals, which may play a critical role in pathogenesis of bile reflux gastritis.

Key words: Retarded gastric emptying; Abnormal antral myoelectric activities; Bile reflux gastritis

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