Abstract
Periampullary duodenal diverticula are thought to be associated with bile duct stones. However, studies to date have not taken into account factors such as size of the diverticula, number of stones, and age of the patient. Our study analyzed the relationship between size of the periampullary diverticulum and the presence of bile duct stones while taking into account the influence of age.

We analyzed 970 consecutive patients who underwent endoscopic retrograde cholangiopancreatography (ERCP). Patients who had undergone previous biliary instrumentation were excluded. 196 of these patients were then subdivided into three groups based on their findings at ERCP: the first group (group I; n=142) had bile duct stones without evidence of periampullary diverticula, the second group (group II; n=35) had bile duct stones and evidence of a periampullary diverticula, and the third group (group III; n=19) had periampullary diverticula without stones. Size of the diverticulum and number of stone(s) were then analyzed for each group. Additionally, age analysis of each of the patient groups was performed. The ANOVA and chi-squared test were used to analyze the results.

Of a total of 177 patients with biliary stone disease, 35 (20%) had periampullary diverticula. Common duct stones were associated with the presence of a diverticulum in 35/54 patients (65%). Patients with periampullary diverticula and biliary stones were also more likely to have multiple stones, 20/35 (57%), as compared to patients without evidence of periampullary diverticula, 61/142 (43%) (p<0.01). Large (>1 cm) periampullary diverticula were more commonly associated with bile duct stones, 23/28 (82%), as compared to small (<1 cm) periampullary diverticula, 11/25 (44%) (p<0.01). Age was also a factor, as patients with bile duct stones and periampullary diverticula were older (mean age-72) as compared to patients with bile duct stones without periampullary diverticula (mean age-50) (ANOVA analysis, p<0.01).

Periampullary diverticula occur more commonly in older patients and are associated with an increased incidence of multiple bile duct stones. Larger size (>1 cm) of the diverticula was also found to correlate directly with the presence of bile duct stones. These findings may be beneficial to endoscopists in planning their treatment of choledocholithiasis.

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Methods
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Conclusion
* Periampullary diverticula occur more commonly in older patients and are associated with an increased incidence of multiple bile duct stones.
* Larger size (>1 cm) of the diverticula was also found to correlate directly with the presence of bile duct stones.
* These findings may be beneficial to endoscopists in planning their treatment of choledocholithiasis.