Balloon Sweeping for Suspected Bile Duct Stones With Normal Cholangiography

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Background: Endoscopic retrograde cholangiography is often used to diagnose and treat bile duct stones; however stones may not be visualized by cholangiography. The aim of this study was to evaluate biliary balloon exploration in the setting of suspected cholecodolithiasis and a normal cholangiogram.


Results: Stones, fragments, and/or sludge were extracted in 40/169 (24%) cases. The sweep yield rate was 3/26 (12%) when performed through an intact papilla, compared to 25/103 (24%) when sphincterotomy was employed during the procedure (p = 0.192). The sweep yield rate was 12/40 (30%) when sphincterotomy had been performed previously, compared to an intact papilla (p = 0.152). Complications occurred in 22/169 (13%) cases including 1/26 (4%) with an intact papilla, 17/103 (17%) when sphincterotomy was performed at time of procedure and 4/40 (10%) when sphincterotomy had been performed previously (p = 0.396).

Advanced age and the presence of an indwelling stent were associated with a positive sweep by multivariate analysis (p = 0.008 and 0.038 respectively).

Conclusions: Balloon exploration of the bile duct with a normal cholangiogram is safe and effective when there is a clinical suspicion of cholecodolithiasis. The presence of advanced age and/or an indwelling stent are associated with positive results.

Several numerical trends were observed in this study (sweep yield rate was higher if sphincterotomy was employed during procedure vs. native papilla, and complication rate was higher when sphincterotomy was employed during procedure vs. native papilla). However due to error resulting from insufficient sample size of the current study, further research is needed in order to confirm observed trends as statistically significant.

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