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Optimizing the prioritization of cholangioscopy-guided electrohydraulic lithotripsy: the role of stone characteristics and cost-efficacy

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I read with interest Kogias *et al*'s article regarding predictors for cholangioscopy-guided electrohydraulic lithotripsy (EHL) in managing difficult common bile duct stones (DBS) [1]. The authors are to be commended for developing a pragmatic classification tree that prioritizes EHL based on specific anatomical markers—namely, the presence of DBS, small papillae, and the absence of wedged stones. Given the expanding role of single-operator cholangioscopy (SOC), such structured approaches are invaluable for reducing futile attempts with conventional techniques.

However, I offer a complementary perspective regarding the preprocedural assessment. While the authors' model focuses on papillary anatomy and stone impaction, other stone characteristics remain critical variables. Garg *et al* showed that large stone diameter and impaction degree are well-established predictors of mechanical lithotripsy failure [2]. In cases where stones occupy the majority of the ductal lumen, or exhibit significant surface irregularities, conventional mechanical crushing often fails, potentially leading to ductal injury or "basket impaction." Integrating these morphological stone properties into the algorithm could further enhance its sensitivity, identifying patients who require first-line EHL to ensure definitive clearance in a single session.

Furthermore, economic implications warrant consideration. High-quality evidence, including systematic reviews and randomized trials, supports early-line EHL's superior stone clearance rates compared to conventional methods [3,4]. Although the single-use cholangioscope system involves significant upfront instrument costs, cost-utility analyses by Deprez *et al* suggest that early SOC can be cost-effective by reducing the number of repeat endoscopic retrograde cholangiopancreatography procedures [5]. It would be illuminating to know whether the authors observed reductions in total adverse events or length of hospital stay that specifically offset the higher costs of the EHL equipment in their cohort.

Validating this algorithm in a multicenter setting, incorporating broader stone characteristics and detailed cost-benefit analysis, would further solidify EHL's position in the therapeutic strategy for difficult biliary stones.

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