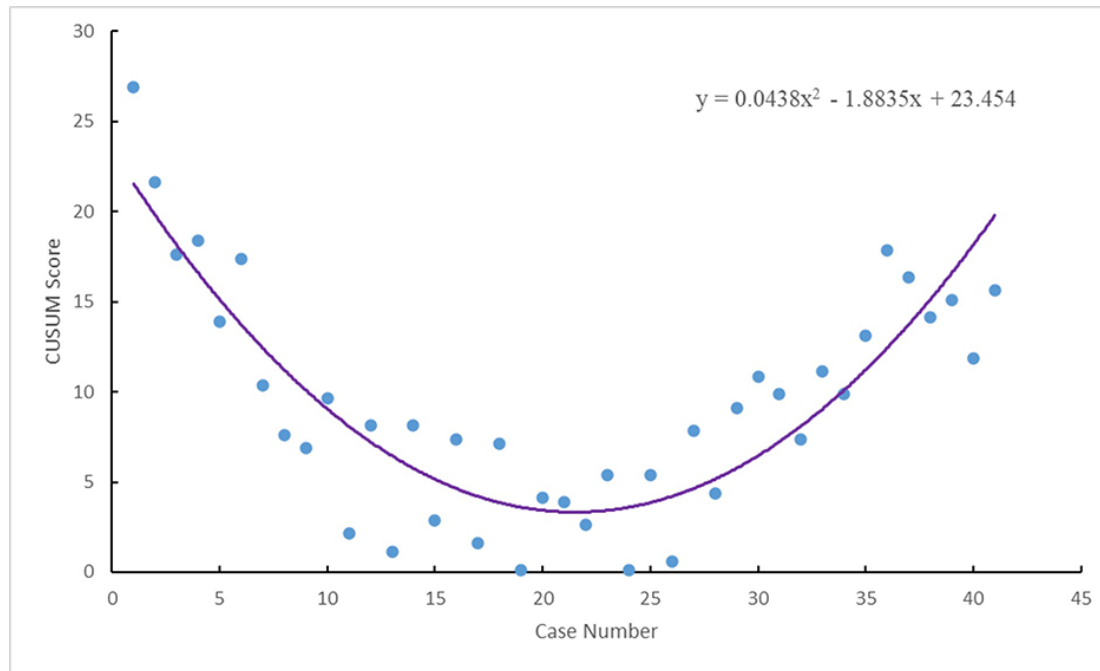




Supplementary Figure 1 Learning curve. Learning curve analysis for operator experience. The cumulative summation (CUSUM) method identified more than 20 procedures as the threshold for achieving stabilized operational efficiency.

Supplementary Table S1: Technical Success and Complication Rates Stratified by Attempt Sequence

Attempt Sequence	Cases (n)	Success Rate per Attempt, % (n/N)	Cumulative Case Success, % (n/263)	Overall Complication Rate, % (n/N)	Severe Complication Rate, % (n/N)
First	263	72.6 (191/263)	72.6 (191/263)	9.7 (19/196)	3.6 (7/196)
Second	69	62.3 (43/69)	89.0 (234/263)	11.1 (5/45)	6.7 (3/45)
Third or More	23	60.9 (14/23)	94.3 (248/263)	18.2 (4/22)	9.1 (2/22)

Note: Data are presented as percentages with absolute numbers in parentheses. Cumulative case success is calculated based on the total cohort of 263 initial procedures. Complication rates (overall and severe) are calculated per attempt as the number of complicated procedures over the number of procedures performed at that attempt sequence. The denominator for complication rates differs from the 'Cases' column because not all procedures at a given attempt sequence resulted in a complication being recorded for that specific attempt.

Severe complications were defined as Clavien-Dindo grade $\geq$ III.