A dichotomy for CLT in total variation

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Let $\eta_i, i \geq 1$, be a sequence of independent and identically distributed random variables with finite third moment, and let $\Delta_n$ be the total variation distance between the distribution of $S_n := \sum_{i=1}^{n} \eta_i$ and the normal distribution with the same mean and variance. We establish the dichotomy that either $\Delta_n = 1$ for all $n$ or $\Delta_n = O\left(n^{-1/2}\right)$. 