Tit-for-tat no SPNE?

Let $0 < \delta < 1, T \geq 0$:

$$
\begin{aligned}
1 &\geq (1-\delta)\cdot\left(\sum_{t=0} 1\,\delta^t + \sum_{t=0} 1\,\delta^{T+2t} - \sum_{t=0} 2\,\delta^{T+2t+1}\right) \\
&= (1-\delta)\cdot\left(\frac{1}{1-\delta} + \delta^T\cdot\left(\sum_{t=0}\delta^{2t} - 2\sum_{t=0}\delta^{2t+1}\right)\right) \\
&= (1-\delta)\cdot\left(\frac{1}{1-\delta} + \delta^T\cdot\left(\sum_{t=0}\delta^{2t} - 2\sum_{t=0}\delta^{2t+1}\right)\right) \\
&= (1-\delta)\cdot\left(\frac{1}{1-\delta} + \delta^T\cdot\left(\sum_{t=0}\left(\delta^2\right)^t - 2\sum_{t=0}\left(\delta^2\right)^{t+\frac{1}{2}}\right)\right) \\
&\geq (1-\delta)\cdot\left(\frac{1}{1-\delta} + \delta^T\cdot\left(\sum_{t=0}\left(\delta^2\right)^t - 2\sum_{t=0}\left(\delta^2\right)^{t}\right)\right) \\
&= (1-\delta)\cdot\left(\frac{1}{1-\delta} - \delta^T\cdot\frac{1}{1-\delta^2}\right) \\
&= (1-\delta)\cdot\left(\frac{1+\delta}{1-\delta^2} - \delta^T\cdot\frac{1}{1-\delta^2}\right) \\
&= (1-\delta)\cdot\left(\frac{1+\delta-\delta^T}{1-\delta^2}\right) \\
&= \frac{1+\delta-\delta^T}{1+\delta} \\
&= 1-\frac{\delta^T}{1+\delta} \\
0 &\leq \frac{\delta^T}{1+\delta} \\
1+\delta &\leq \delta^T \\
&\ \text{nicht möglich}
\end{aligned}
$$