Silverman proved that, if one assumes the abc conjecture, then there are $\gg \log x$ non-Wieferich primes for base $a$ for all $a \geq 2$. We show that for any $a \geq 2$ and any fixed $k \geq 2$, there are $\gg \frac{\log x}{\log \log x}$ primes $p \leq x$ such that $a^{p-1} \not\equiv 1 \pmod{p^2}$ and $p \equiv 1 \pmod{k}$, under the assumption of the abc conjecture. MSC 11A41, 11B25. (Received August 14, 2012)