Consider the series $\sum_{n=1}^{\infty} \frac{10^n}{(n+1)4^{2n+1}}$
Evaluate the limit
$\lim_{n\to\infty} \left|\frac{a_{n+1}}{a_n}\right|$

$$\left|\frac{a_{n+1}}{a_n}\right| = \frac{\left(\frac{10^{n+1}}{(n+1+1)4^{2(n+1)+1}}\right)}{\left(\frac{10^n}{(n+1)4^{2n+1}}\right)}$$

$$= \left(\frac{10^{n+1}}{(n+2)4^{2n+3}}\right)\left(\frac{10^n}{(n+1)4^{2n+1}}\right)$$

$$= \frac{10(n+1)}{(n+2)4^2} = \frac{5(n+1)}{8(n+2)}$$

So $\lim_{n\to\infty} \left|\frac{a_{n+1}}{a_n}\right| = \lim_{n\to\infty} \frac{5(n+1)}{8(n+2)} = \frac{5}{8}$

Since $\frac{5}{8} < 1$, the series converges absolutely (and so also converges conditionally), by the Ratio Test.