FLT: IIMXMM.

Let p be an odd prime and let x, y, z be relatively prime integers such that $p|z$ and $x^p+y^p+z^p=0$.

Let $k \geq 1$ be integral such that $p^k | z$ but $p^{(k+1)} \nmid z$. Let $x+y = cp^{p(k-1)}$, $z = -\zeta c p^k$, some c, ζ.

Consider $x^{pp}-y^{pp}$

$$x^{pp}-y^{pp} = (-y^p - z^p)^p - (-x^p - z^p)^p$$

$$= (x^p+z^p)^p - (y^p+z^p)^p$$

$$= (x^{pp}-y^{pp}) + \binom{p}{1} z^p \left(x^{p(p-1)} - y^{p(p-1)}\right)$$

$$+ \binom{p}{2} z^{2p} \left(x^{p(p-2)} - y^{p(p-2)}\right)$$

So

$$0 = p z^p \left(x^{p(p-1)} - y^{p(p-1)}\right) + \frac{p(p-1)}{2} z^{2p} \left(x^{p(p-2)} - y^{p(p-2)}\right)$$

$$+ \cdots$$

$$0 = p(x+y) z^p \left[(x+y)(---) - p(p-1) y^{\{p(p-1)-1\}} \right]$$

$$+ \frac{p(p-1)}{2} z^{2p} \left[\{(x+y) - y\}^{p(p-2)} - y^{p(p-2)} \right]$$

$$+ ---$$

$\times \zeta^p$;

$$0 \equiv -z^{2p}\left[(x+y)(---) - p(p-1)y^{\{p(p-1)-1\}}\right]$$

$$+ z^{2p}\zeta^p \frac{p(p-1)}{2}\left[(x+y)(---) - 2y^{p(p-2)}\right]$$

$$+ ---$$

Modulo $c^{3p}p^{(3pk-1)}$

$$0 \equiv + z^{2p}p(p-1)y^{\{p(p-1)-1\}}$$

$$- z^{2p}p(p-1)\zeta^p y^{p(p-2)}$$

$\div\, p z^{2p}(p-1)y^{p(p-2)}$

$$0 \equiv y^{(p-1)} + \zeta^p \pmod{c^p p^{(k-2)}}$$

$$\zeta^p \equiv y^{(p-1)} \pmod{c^p p^{(k-2)}}$$

This disagrees with $\zeta^p \equiv y^{(p-1)} \pmod{(x+y)}$

$$\equiv y^{(p-1)} \pmod{c^p p^{(k-1)}}$$

Go backwards and get a contradiction?