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Symbolic power of some classes of algebras. Preliminary report.

Let (R, m) be a regular local ring, $p \in \text{Spec}(R)$, with R/p Cohen-Macaulay. Assume either R/p is stretched, or $e(R/p) \leq c + 3$, where $c = \text{ecodim}(R/p)$, or R/p is a short algebra. If R/p is not Gorenstein, then $p^{(2)} \neq p^2$. As a corollary, we have that if p/p^2 is Cohen-Macaulay, then R/p is Gorenstein. This answers Vasconcelos conjecture for some classes of algebras. (Received August 30, 2010)