Suppose $A$ is a finite dimensional commutative non-associative algebra over the reals. It has long been known that $Z(t, P) \in A(P)$ for all $t$ in the domain of $Z(t, P)$ where $Z(t, P)$ is the solution to the vector differential equation $\frac{dZ}{dt} = Z^2$ with $Z(0, P) = P$, and $A(P)$ is the sub-algebra of $A$ generated by $P$. This is still true if all of the variables are complexified.

For any algebra generated by $Q$ in $A + iA$. Using Galois cohomology, I will show that if $P \in A, Q = Z(t_0, P)$ for some $t_0 \notin \mathbb{R}$, $\dim \mathbb{C} Q = \dim \mathbb{C} P$, the domain of $Z(t, P)$ is $\mathbb{C}$, and $Aut A(P)$ is a finite group, then $Z(t, P)$ is periodic with a non-real period. (Received July 28, 2009)