Let $h_a$, $h_b$, and $h_c$ denote the lengths of the altitudes of $\triangle ABC$ through the vertices $A$, $B$, and $C$, respectively, and let the magnitudes of the angles at the vertices $A$, $B$, and $C$ be $\alpha$, $\beta$, and $\gamma$, respectively. Suppose that

$$h_c = h_a + h_b.$$

Prove that

$$\frac{1}{\sin \gamma} = \frac{1}{\sin \alpha} + \frac{1}{\sin \beta}.$$

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