Example 9 Find the value of $\sec\left(\tan^{-1}\dfrac{y}{2}\right)$.

Solution Let $\tan^{-1}\dfrac{y}{2}=\theta$, where $\theta\in\left(-\dfrac{\pi}{2},\dfrac{\pi}{2}\right)$. So, $\tan\theta=\dfrac{y}{2}$,

which gives $\sec\theta=\dfrac{\sqrt{4\ y^2}}{2}$.

Therefore, $\sec\left(\tan^{-1}\dfrac{y}{2}\right)=\sec\theta=\dfrac{\sqrt{4+y^2}}{2}$.