A uniform cylinder of outer radius $R$ and mass $M$ with moment of inertia about the center of mass $I_{cm} = (1/2)M R^2$ starts from rest and moves down an incline tilted at an angle $\beta$ from the horizontal. The center of mass of the cylinder has dropped a vertical distance $h$ when it reaches the bottom of the incline. Let $g$ denote the gravitational constant. The coefficient of static friction between the cylinder and the surface is $\mu_s$. The cylinder rolls without slipping down the incline. Using the torque method about the center of mass, calculate the velocity of the center of mass of the cylinder when it reaches the bottom of the incline.