The semicircle shown at left has center X and diameter $\overline{WZ}$. The radius $\overline{XY}$ of the semicircle has length 2. The chord $\overline{YZ}$ has length 2. What is the area of the shaded sector formed by obtuse angle WXY?

A) $\dfrac{2}{3}\pi$

B) $\dfrac{4}{3}\pi$

C) 2π

D) $\dfrac{8}{3}\pi$