Second measurement gives $|$
with probability $|\langle A|a_i\rangle|^2$ (if the initial state is $|A\rangle$ (i.e. after the measurement of B, and $|\langle B|a_i\rangle|^2$ if the state is $|B\rangle$

So the total probability is

$$\frac{9}{25}\cdot\frac{9}{25}+\frac{16}{25}\frac{16}{25}=\frac{81+16^2}{625}=\frac{256+81}{625}=\frac{337}{625}.$$

— — —