Plasmodium oocysts develop on the abluminal side of the mosquito midgut in relatively small numbers. Oocysts possess an extracellular cell wall—the capsule—to protect them from the insect's haemolymph environment. To further maximise transmission, each oocyst generates hundreds of sporozoites through an asexual multiplication step called sporogony. Completion of transmission requires sporozoite egress from the capsule (excystation), but this process remains poorly understood. In this study, we fused the parasite-encoded capsule protein Cap380 with green fluorescent protein in a transgenic *P. berghei* line, allowing live fluorescence imaging of capsules throughout sporogony and sporozoite excystation. The results show that capsules progressively weaken during sporulation ultimately resulting in sporozoite exit through small holes. Prior to formation of the holes, local thinning of the capsule was observed. Our findings support an excystation model based on local, rather than global, weakening of the capsule likely facilitated by local re-orientation of sporozoites and apical secretion.