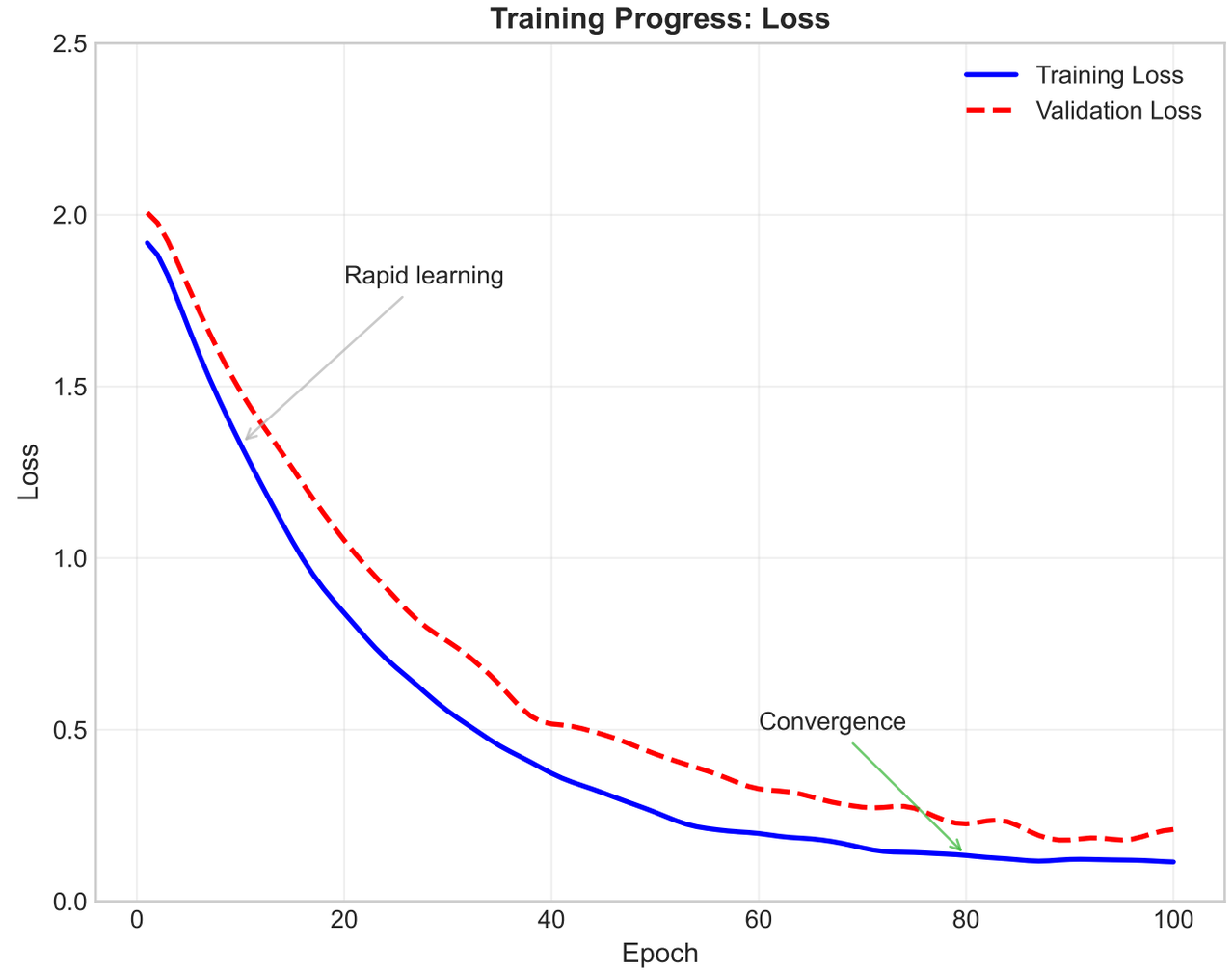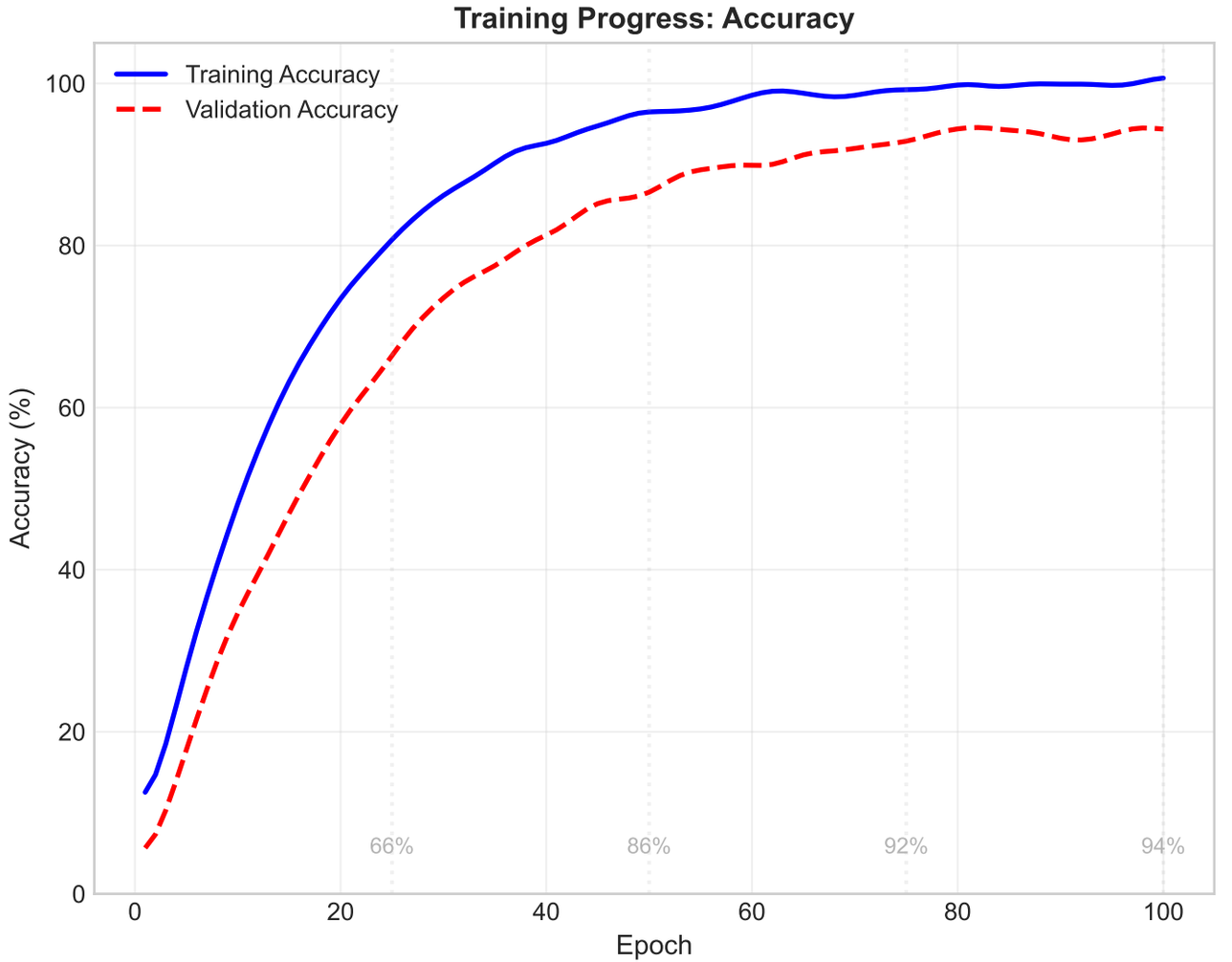From Random Guessing to High Accuracy