Abstract: Cancer has become a major public health problem in US and the whole world. The emergence of immunotherapy has changed the landscape of treatment and clinical outcome for cancer patients by utilizing patient's immune system and find and destroy cancer cells. However, not all the patients have the positive response to the treatment and some patients even experience serious adverse effects. Although immune related Response Evaluation Criteria in Solid Tumors (irRECIST) has been developed, it always relies on a single imaging parameter to determine response and can't predict pseudo-progression sufficiently. Delta radiomics which considers the difference between pre- and post- treatment imaging can contain tumor changes that reflect the progression of treatment and offer abundant information to identify, quantify and potentially predict therapy-induced changes over the course of treatment. As such, it is a potential strategy to predict response in cancer immunotherapy. In this talk, the significance and ratio of delta radiomics in immunotherapy response prediction will be reviewed. Then a new developed delta radiomics model will be presented and the future study on delta radiomics based immunotherapy response prediction will be conducted.