Objective. Determination of the severity of appendicitis and differentiation between complicated and uncomplicated appendicitis are clinically important. We have investigated CT findings of retroperitoneal space (RPS) and pelvic extraperitoneal space (PEPS) in patients with appendicitis and various clinical factors to create a model for identification of complicated appendicitis. Using CT findings of retroperitoneal space (RPS) and pelvic extraperitoneal space (PEPS).

Materials and Method. CT images of 223 patients with pathologically proven appendicitis were reviewed. The segments in RPS and PEPS where inflammatory changes were located and the aggregated numbers of them (RPS count and PEPS count) were recorded for each patient as well as appendiceal diameter, fat stranding, appendicolithiasis, WBC count, and CRP level. Data were analyzed to identify factors indicating complicated appendicitis.

Results. Patients with complicated appendicitis were more likely to have higher PEPS count (P<0.007) and RPS count (P<0.001), as well as higher CRP level (P<0.001), and greater appendix diameter (P<0.001) than patients with uncomplicated appendicitis. The most commonly involved segment among appendicitis patients was combined fascial plane, followed by prevesical space. Logistic regression model was obtained.

Conclusion. Complicated appendicitis can be predicted by a combination of variables including RPS count, PEPS count, diameter of the appendix, appendicolithiasis, and CRP level. Inflammatory changes located in RPS and PEPS on CT images indicate the severity of acute appendicitis.