

## Signet ring cell carcinoma of the Esophagus: A SEER Database Analysis

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### ABSTRACT

**Background:** Signet ring cell carcinoma (SRC) is a rare histologic type of esophageal cancer, but there are few data to guide therapeutic strategies. Thus, we aim to investigate the clinicopathological characteristics and survival outcomes of SRC in the present study.

**Methods:** All patients diagnosed with esophageal cancer in the Surveillance, Epidemiology, and End Results (SEER) database between 1973 and 2012 were evaluated. Univariate and multivariate analyses were performed in patients with and without SRC to examine the relationship of signet ring cell histology, surgery, and other potential prognostic factors with overall survival.

**Results:** A total of 9863 esophageal cancer patients were identified after excluding those who had no information of AJCC TNM stage (7<sup>th</sup> edition). Two hundred and eighty seven patients (2.9%) had signet ring cell carcinoma. As compared with non-signet ring cell carcinoma histology, patients with SRC had a higher proportion of male patients ( $p=0.001$ ), had a higher proportion of white race ( $p=0.001$ ) and were more likely to occur in the lower esophagus ( $P<0.001$ ). Furthermore, patients with SRC were diagnosed at a later stage than others ( $P<0.001$ ). Multivariate predictors associated with poor survival in the overall cohort included race, tumor grade and stage. In patients treated with surgery, multivariate predictors associated with poor survival included age, race, tumor grade, stage and radiotherapy but not signet ring cell carcinoma histology. In patients with SRC, both stage and surgical resection were associated with poor survival. Overall survival was significantly better in SRC with surgical resection

compared to SRC without surgical resection.

**Conclusions:** SRC have unique clinicopathological characteristics, presents at an advanced stage and confers a poor prognosis. The survival benefit of surgery suggests that all esophageal signet ring cell carcinoma patients should be considered for surgery in a stage-appropriate fashion, but the role of preoperative radiotherapy are still controversial and further studies are required. Improved clinical and biological understanding of SRC might lead to more individualized and tailored therapy for esophageal cancer.