



Time to Surgery and Survival in Head and Neck Cancer

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The coronavirus 2019 (COVID-19) pandemic has brought the question of timeliness in the treatment of cancer patients to the forefront of many clinicians' minds. The need to conserve hospital resources during the pandemic has resulted in delays in many aspects of healthcare. As operating rooms utilize immense resources, there have been greater delays in surgical procedures. The treatment of head and neck cancer during the COVID-19 era has posed a particular challenge as, in addition to resource allocation concerns, there is a high risk of aerosolization during surgical procedures of the aerodigestive tract.¹ Furthermore, initial reports from China suggested that cancer patients were at increased risk of morbidity and mortality secondary to COVID-19, citing that these patients were more likely to require ventilators (a precious resource during the peak of the pandemic).^{2,3} These challenges led to heightened concern about delay in the treatment of head and neck cancer and resulted in publication of consensus guidelines for triaging treatment of these patients.^{4,5} These guidelines sought to balance use of resources with risk of disease progression and recommended for close observation of early-stage disease, while later-stage cases required in-depth evaluation due to not only the risk of progression but also the risk of utilizing significant resources such as intensive care unit (ICU) beds and blood products. Under resource restrictions, policies for acceptable surgical delays in the treatment of head and neck cancers were developed based on consensus expert opinion and limited retrospective data on the impact of total treatment package delays, which were then

extrapolated to establish guidelines on appropriate surgical delays. Acceptable delays ranged from 4 to 8 weeks based on tumor stage and subsite, with recommendations to consider alternate modalities of treatment should surgical delays beyond these guidelines be anticipated.⁶ The timely work published here in *Annals of Surgical Oncology* by Rygalski et al.⁷ examines the impact of surgical delays distinct from generalized treatment delays, addressing an important knowledge gap that will help guide future clinical practice and improve care for head and neck cancer patients.

The trend toward increased time to treatment for head and neck cancer preceded the COVID-19 pandemic.⁸ Murphy et al. demonstrated a gradual increase in time to treatment initiation from 19 days in 1998 to 30 days in 2011. They posited that these delays may be driven by a combination of increasingly complex multimodal therapies, increased care transitions to tertiary healthcare facilities, and increased pretreatment work-up, including radiographic and pathologic testing. In light of these often-necessary alterations, an improved understanding of the impact of surgical treatment delay, distinct from the growing information on the impact of treatment package delay, is becoming increasingly important. In their article, Rygalski et al. utilize the National Cancer Database (NCDB) to evaluate the association between time to surgery (TTS) and survival outcomes in a cohort of previously untreated head and neck cancer patients undergoing primary surgical therapy. In this pre-COVID-19 era study, the majority (87%) of patients initiated cancer treatment within 60 days of diagnosis, with 45% of patients undergoing surgery within 30 days of diagnosis and 45% between 30 and 60 days. Only 14% of patients experienced a delay > 60 days from diagnosis to initiation of treatment. Survival analysis revealed that, controlling for age, sex, race, income level, insurance, distance to hospital, Charlson–Deyo score, pathologic stage, surgical margins, adjuvant treatment, and primary site, TTS was a significant

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predictor of worse overall survival. For all subsites (oral cavity, oropharynx, larynx/hypopharynx), there was not a significant increase in mortality when patients initiated treatment within 30 days; however, for each additional 30-day delay, there was a 4.6% increase in the overall survival hazard ratio. Further analysis identified 67 days as the time point at which the greatest shift in survival was seen. Interestingly, previous studies using NCDB to evaluate time to treatment in all head and neck cancer patients (not just those undergoing surgical therapy) also identified 67 days as the cut-off at which survival was maximally impacted.⁹ Furthermore, the current study also revealed that oropharyngeal tumors were the subsite most affected by treatment delays (irrespective of human papillomavirus [HPV] status), a finding that also supports previous reports.¹⁰

Together, these data offer valuable insight into the risk of delaying surgical treatment for head and neck cancer beyond 30 days and may help to adjust current algorithms for treatment paradigms during this unprecedented pandemic. While subject to the inherent biases of retrospective review, this is the largest series that examines the impact of TTS delays as opposed to broader time to treatment packages. This work highlights the importance for surgical care teams to evaluate and intervene on TTS as a modifiable risk factor which can improve survival outcomes for patients with head and neck cancer.

DISCLOSURES Molly E. Heft Neal, Katie K. Spielbauer, Matthew E. Spector declare they have no conflicts of interest.

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