

# Prognostic Factors for Patients with Sinonasal Undifferentiated Carcinoma

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## Introduction

Originally described in 1986, sinonasal undifferentiated carcinoma (SNUC) is a rare and aggressive malignancy of the nasal cavity and paranasal sinuses. Although the majority of patients diagnosed with SNUC have a poor outcome, there are patients that, with treatment, do not develop recurrences and are essentially cured of their disease. Currently, there are no prognostic factors in the literature that can differentiate these two groups of patients.

## Objective

This study was designed to determine factors that affect disease-free and overall survival in patients diagnosed with SNUC.

## Methods

Retrospective review of 12 patients treated for SNUC from 1980 to 2006. Hospital charts were reviewed, collecting information regarding location and extent of tumor via radiographic and surgical findings, treatment modality, and follow-up. A pathologist also reviewed histologic slides from each patient to confirm the diagnosis of SNUC.

## Orbital Involvement

| Patient ID | Orbital Involvement | Orbital Exenteration | Disease-free survival (months) | Overall survival (months) | Outcome <sup>a</sup> |
|------------|---------------------|----------------------|--------------------------------|---------------------------|----------------------|
| 10         | no involvement      | no                   | 5                              | 20                        | DOC                  |
| 6          | no involvement      | no                   | 33                             | 33                        | NED                  |
| 4          | no involvement      | no                   | 55                             | 55                        | NED                  |
| 7          | no involvement      | no                   | 115                            | 115                       | NED                  |
| 9          | orbital invasion    | no                   | 0                              | 7                         | DOD                  |
| 12         | orbital invasion    | no                   | 6.5                            | 28.5                      | DOD                  |
| 2          | orbital invasion    | yes                  | 7.5                            | 19.5                      | DOD                  |
| 11         | orbital invasion    | no                   | 12                             | 15.5                      | DOD                  |
| 1          | orbital invasion    | no                   | 13                             | 35.5                      | DOD                  |
| 8          | orbital invasion    | yes                  | 15                             | 17                        | DDT                  |
| 5          | orbital invasion    | no                   | 26.5                           | 26.5                      | NED                  |
| 3          | orbital invasion    | no                   | 77                             | 77                        | NED                  |

<sup>a</sup> DOD: died of disease, NED: no evidence of diseases, DDT: died during treatment (secondary to complications), DOC: died of other cause

## Dural and Orbital Involvement

| Patient ID | Orbital Involvement | Dural Invasion | Disease-free survival (months) | Overall survival (months) | Outcome <sup>a</sup> |
|------------|---------------------|----------------|--------------------------------|---------------------------|----------------------|
| 6          | no                  | no             | 5                              | 33                        | NED                  |
| 4          | no                  | no             | 33                             | 55                        | NED                  |
| 7          | no                  | no             | 55                             | 115                       | NED                  |
| 9          | yes                 | no             | 0                              | 7                         | DOD                  |
| 10         | no                  | yes            | 5                              | 20                        | DOC                  |
| 11         | yes                 | no             | 12                             | 15.5                      | DOD                  |
| 8          | yes                 | no             | 15                             | 17                        | DDT                  |
| 3          | yes                 | no             | 77                             | 77                        | NED                  |
| 12         | yes                 | yes            | 6.5                            | 28.5                      | DOD                  |
| 2          | yes                 | yes            | 7.5                            | 19.5                      | DOD                  |
| 3          | yes                 | yes            | 13                             | 35.5                      | DOD                  |
| 5          | yes                 | yes            | 26.5                           | 26.5                      | NED                  |

<sup>a</sup> DOD: died of disease, NED: no evidence of diseases, DDT: died during treatment (secondary to complications), DOC: died of other cause

## Dural Invasion

| Patient ID | Dural Invasion | Disease-free survival (months) | Overall survival (months) | Outcome <sup>a</sup> |
|------------|----------------|--------------------------------|---------------------------|----------------------|
| 9          | no invasion    | 0                              | 7                         | DOD                  |
| 11         | no invasion    | 12                             | 15.5                      | DOD                  |
| 8          | no invasion    | 15                             | 17                        | DDT                  |
| 6          | no invasion    | 33                             | 33                        | NED                  |
| 4          | no invasion    | 55                             | 55                        | NED                  |
| 3          | no invasion    | 77                             | 77                        | NED                  |
| 7          | no invasion    | 115                            | 115                       | NED                  |
| 10         | invaded        | 5                              | 20                        | DOC                  |
| 12         | invaded        | 6.5                            | 28.5                      | DOD                  |
| 2          | invaded        | 7.5                            | 19.5                      | DOD                  |
| 1          | invaded        | 13                             | 35.5                      | DOD                  |
| 5          | invaded        | 26.5                           | 26.5                      | NED                  |

<sup>a</sup> DOD: died of disease, NED: no evidence of diseases, DDT: died during treatment (secondary to complications), DOC: died of other cause

## Results

Patients presenting with neither orbital nor dural involvement have a longer disease-free and overall survival when compared with patients presenting with orbital and/or dural involvement. There does not appear to be a difference in disease-free and overall survival for patients presenting with both orbital and dural involvement or either orbital or dural involvement. Both groups of patients have an equally poor prognosis. Cribriform plate involvement and intracranial invasion at the time of presentation do not affect disease-free or overall survival in this patient cohort (results not shown).

## Conclusion

Dural invasion and/or orbital involvement at the time of diagnosis indicates a poor prognosis for patients with SNUC. Cribriform plate involvement and intracranial invasion do not appear to predict prognosis in this patient cohort.