# Tonsillar Carcinoma in the Contralateral Tonsil

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## Abstract

Objective: We report a series of patients treated for carcinoma of the tonsil who either presented with bilateral carcinomas or later developed a second primary carcinoma of the contralateral tonsil. This report raises awareness of this occurrence.

Study Design: Case series

Methods: Four cases have been identified of either concomitant or subsequent carcinoma of the contralateral tonsil in patients treated for tonsillar carcinoma from the practices of 3 head and neck surgeons in a single demographic area over a 35 year span.

Results: Four patients were identified who were treated for tonsillar carcinoma with concomitant or subsequent carcinoma of the contralateral tonsil: One patient with bilateral metastatic carcinoma in cervical lymph nodes was found to have bilateral occult tonsillar primaries. Three patients who were treated for tonsillar primary carcinomas subsequently developed carcinoma of the contralateral tonsil.

Conclusions: A small population of patients with unilateral tonsillar carcinoma will develop a second in the contralateral tonsil. This raises the question of whether removal of the contralateral tonsil at the time of initial treatment might have spared the morbidity/mortality of the subsequent contralateral tonsil cancer.

## Cases

### Case 1, Metachronous Carcinoma

**First Tonsillar Primary**
- Age at diagnosis - 59 years
- Risk Factors - 40 pack year smoking history
- Stage T2N2bM0, IVA
- Treatment – bilateral tonsillotomy, excision nodes, XRT - 34 Gy; holitic medicine (IV H2O2 & diet)
- Follow-up – NED

**Second Tonsillar Primary**
- Age at Diagnosis - 48 years, interval 7 years
- Risk Factors – RT, smoking
- Stage T2N2bM0, IVA
- Treatment – composite resection, RT – 50.4 Gy, free flap reconstruction required
- Follow-up – NED

**Third Carcinoma – Maxillary Alveolus**
- Age at Diagnosis - 48 years, interval 2 years
- Stage T4N0M0, IVA
- Treatment – Subtotal maxillectomy
- Current Status: Alive

### Case 2, Metachronous Carcinoma

**First Tonsillar Primary**
- Age at diagnosis - 67 years, interval 16 years
- Risk Factors – RT, smoking
- Stage T2N0M0, IVA
- Treatment – Refused conventional treatment, again pursued holistic medical tx
- Current Status: Died of Disease – 11 months post diagnosis

### Case 3, Metachronous Carcinoma

**First Tonsillar Primary**
- Age at diagnosis - 48 years
- Risk Factors – Priors XRT for Lymphoma at age 20, non-smoker, minimal alcohol
- Stage T1N2bM0, IVA
- Treatment – unilateral tonsillectomy, level 1 neck dissection, RT-66 Gy
- Follow-up – NED

**Second Tonsillar Primary**
- Age at Diagnosis - 48 years, interval 3 years
- Risk Factors – unchanged
- Stage T2N2bM0, IVA
- Treatment – radical tonsillar resection, modified radical neck dissection, RT – 50 Gy
- Follow-up – NED

**Third Carcinoma – Base of Tongue**
- Age at Diagnosis - 56 years, interval 5 years
- Treatment – palliative chemotherapy
- Current Status: DOD 2 months after diagnosis carcinoma BOT

### Case 4, Simultaneous Tonsillar Carcinoma

**Age at diagnosis** – 42 years
- Risk Factors – 30 pack year history smoking, minimal alcohol intake
- Stage: Right - T1N2cM0, IVA; Left – T1N2cM0, IVA
- Treatment – bilateral tonsillectomy, XRT - 60 Gy each tonsillar fossa, staged neck dissections for persistent neck disease.
- Pathology of Neck
  - Left – 11/27 nodes positive
  - Right – 6/13 nodes positive
- Follow-up – Patient was NED at 18 month follow-up examination
- Patient died 31 months after completion of therapy

Including our case, we have found 12 cases of bilateral synchronous tonsillar primary carcinomas.

## Discussion

The incidence of multiple primary head and neck carcinomas varies from 7.5 to 20%. The incidence of metachronous or synchronous tonsillar carcinomas associated with oropharyngeal cancer is 9 to 14%. Second primary tumors often affect younger patients and those with lower stage tumors. Survival for five years after diagnosis of a second primary varies from 16 to 28%; and the fifteen year survival is dramatically decreased when a second carcinoma is diagnosed. This is attributed primarily to treatment limitations imposed by previous therapy, and patients with synchronous cancers also show decreased survival because of the problems associated with two or more separate tumors. Therefore, prevention of new primaries has received increased attention over the past several decades. Smoking, excessive alcohol intake, or a combination of the two are implicated in the majority of cases of patients with multiple primary tumors with the most commonly accepted mechanism being the field effect model described by Slaughter et al. They hypothesized that new cancers arose in damaged mucosa with dysplastic epithelium. As the incidence of smoking has decreased the incidence of upper aerodigestive tract carcinomas has likewise abated with the exception of oropharyngeal carcinoma which has increased. Ample evidence has been reported to support the association of human papilloma virus (HPV) with oropharyngeal carcinoma and in particular with tonsillar cancer. McGovern et al have recently published a case report of a patient with three synchronous HPV-associated squamous cell carcinomas of Waldeyer’s ring including bilateral tonsillar cancers. They noted that their case and other reported HPV-associated cancers did not fit the field effect model and that other mechanisms must be considered.

## Conclusions

1. While uncommon, metachronous contralateral tonsil carcinomas do occur in patient treated for unilateral tonsil cancer.
2. The role of HPV status in tonsil cancer is emerging; with regards to the contralateral tonsil:
   a) Removal of the contralateral tonsil in HPV (-) tumors may be an effective preventative measure in a few patients.
   b) If the incidence of carcinoma in the contralateral tonsil in HPV (+) tonsillar carcinomas increases, removal of the contralateral tonsil should be an effective preventative measure.
3. Our case of bilateral simultaneous tonsillar carcinomas and others support the recommendation of bilateral tonsillectomy prevention of new primaries has received increasing attention in recent decades. Smoking, excessive alcohol intake, or a combination of the two are implicated in the majority of cases of patients with multiple primary tumors with the most commonly accepted mechanism being the field effect model described by Slaughter et al. They hypothesized that new cancers arose in damaged mucosa with dysplastic epithelium. As the incidence of smoking has decreased the incidence of upper aerodigestive tract carcinomas has likewise abated with the exception of oropharyngeal carcinoma which has increased. Ample evidence has been reported to support the association of human papilloma virus (HPV) with oropharyngeal carcinoma and in particular with tonsillar cancer. McGovern et al have recently published a case report of a patient with three synchronous HPV-associated squamous cell carcinomas of Waldeyer’s ring including bilateral tonsillar cancers. They noted that their case and other reported HPV-associated cancers did not fit the field effect model and that other mechanisms must be considered.

## References