

# Cancer Association of South Africa (CANSA)



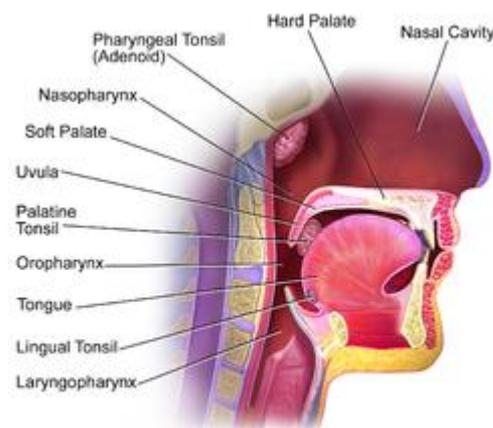
## Fact Sheet on Cancer of the Tonsils

### Introduction

Tonsils are collections of lymphoid tissue facing into the aerodigestive tract. The set of lymphatic tissue known as Waldeyer's tonsillar ring includes the adenoid tonsil, two tubal tonsils, two palatine tonsils, and the lingual tonsil.

[Picture Credit: Tonsils and Throat]

When used unqualified, the term most commonly refers specifically to the palatine tonsils, which are masses of lymphatic material situated at either side at the back of the human throat. The palatine tonsils and the nasopharyngeal tonsil are lymphoepithelial tissues located near the oropharynx and nasopharynx (parts of the throat).



Tonsils and Throat

Tonsils are part of the lymphatic system and protect the body from harmful germs and contaminants. They lie strategically, just behind the mouth and nose, and form the first station of defense against all ingested and inhaled pollutants. The loose pieces of hanging tissue located on either side of the throat are called palatine tonsils. Those that lie within the throat, near the posterior opening of the nasal cavity are the adenoids, or pharyngeal tonsils. The paired structures that lie at the base of the tongue are called lingual tonsils.

Provide Immunity - tonsils function to trap bacteria and antigens and allow the body to produce antibodies against them. The primary function of the tonsils is to provide local immunity. They trap viruses, bacteria and other infectious contaminants and hold on to them before the immune system goes in for the kill.

Process Lymphatic Fluid - tonsils process lymphatic or lymph fluid in unison with other lymphoid tissue. Lymph fluid is circulated in the tissues of the lymphatic system. The lymphatic system functions to remove interstitial fluid from tissues and adjacent organs, to absorb fatty acids and transport them into the circulatory system, and to transport immune cells to and from lymph nodes. Lymph fluid contains fats, proteins and lymphocytes, which are a type of white blood cells. It plays a primary role in filtering and destroying germs and toxins.

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Produce Antibodies - tonsils produce antibodies that neutralise respiratory infections (e.g. pneumonia, bronchitis, ear infections, laryngitis, sinusitis and rhinitis) that enter through the throat, mouth or nose. Antibodies (or immunoglobulins) are proteins that are found in the blood and other bodily fluids. They are produced by various components of the body's immune system and provide protection against chemicals, viruses, parasites, fungi and bacteria. They produce specific antibodies against staphylococcus aureus, haemophilus influenzae, streptococcus pneumoniae, poliovirus and diphtheria toxoid.

### **Cancer of the Tonsils**

Cancer of the Tonsils occurs when there is uncontrolled division of the tonsillar cells. Cancer of the tonsils usually involves the palatine tonsils on the sides of the throat. [Picture Credit: Cancer of the Tonsils]

Most tonsil cancers are squamous cell carcinomas but some are lymphomas.



### **Incidence of Cancer of the Tonsils in South Africa**

The National Cancer Registry (2014) does not provide any information regarding the incidence of cancer of the tonsils.

### **Signs and Symptoms of Cancer of the Tonsils**

Patients with cancer of the tonsils may have one or more of the following symptoms:

- A sore in the back of the mouth that will not heal
- One tonsil is larger on one side
- Blood in the saliva
- Mouth pain
- Difficulty chewing, swallowing or speaking
- Persistent sore throat
- Intolerance to eating or drinking citrus foods
- Severe ear pain
- A lump in the neck
- A pain in the neck
- Pain when swallowing (dysphagia)

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- Bad breath

### **Causes and Risk Factors for Cancer of the Tonsils**

Men are diagnosed with tonsil cancer three to four times more often than women. Cancer of the tonsils are diagnosed at age 50 or older, although it can develop at any age. The most significant risk factors for tonsil cancers are:

- Tobacco use
- Smokeless tobacco (snuff and betel nut) use
- Alcohol consumption

**Marur, S. & Forasstiere, A.A.** 2016.

“Squamous cell carcinoma arises from multiple anatomic subsites in the head and neck region. The risk factors for development of cancers of the oral cavity, oropharynx, hypopharynx, and larynx include tobacco exposure and alcohol dependence, and infection with oncogenic viruses is associated with cancers developing in the nasopharynx, palatine, and lingual tonsils of the oropharynx. The incidence of human papillomavirus-associated oropharyngeal cancer is increasing in developed countries, and by 2020, the annual incidence could surpass that of cervical cancer. The treatment for early-stage squamous cell cancers of the head and neck is generally single modality, either surgery or radiotherapy. The treatment for locally advanced head and neck cancers is multimodal, with either surgery followed by adjuvant radiation or chemoradiation as indicated by pathologic features or definitive chemoradiation. For recurrent disease that is not amenable to a salvage local or regional approach and for metastatic disease, chemotherapy with or without a biological agent is indicated. To date, molecular testing has not influenced treatment selection in head and neck cancer. This review will focus on the changing epidemiology, advances in diagnosis, and treatment options for squamous cell cancers of the head and neck, along with data on risk stratification specific to oropharyngeal cancer, and will highlight the direction of current trials.”

Other potential causes include people with certain infections or decreased immunity such as:

- Exposure to human papilloma virus (HPV), especially strains 16 and 18
- Organ transplant recipients
- People with Human Immunodeficiency Virus (HIV) disease

**Hong, A.M., Vilain, R.E., Romanes, S., Yangn J., Smith, E., Jones, D., Scolyer, R.A., Lee, C.S., Zhang, M. & Rose, B.** 2016.

“In this study, we examined PD-L1 expression by immunohistochemistry in 99 patients with tonsillar cancer and known human papillomavirus (HPV) status to assess its clinical significance. We showed that the pattern of PD-L1 expression is strongly related to HPV status. The PD-L1 positivity rate was 83.3% in HPV-positive cases and 56.9% in HPV-negative cases ( $p < 0.05$ ). Patients with HPV-positive/PD-L1-positive cancer had significantly better event free survival and overall survival compared with patients with HPV-negative/PD-L1-negative cancer. Relative to those patients with HPV-negative/PD-L1-negative disease who had the highest risk of death, patients with HPV-positive/PD-L1-positive cancers had a 2.85 fold lower risk of developing an event (HR 0.35, 95% CI: 0.16-0.79) and a 4.5 fold lower risk of death (HR =0.22, 95% CI: 0.09-0.53). Our findings will help to guide future clinical trial design in immunotherapy based on PD-L1 expression in tonsillar cancer.”

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**Wittekindt, C., Wagner, S., Bushnak, A., Prigge, E.S., von Knebel Doeberitz, M., Würdemann, N., Bernhardt, K., Pons-Kühnemann, J., Maulbecker-Armstrong, C. & Klussmann, J.P. 2019.**

“Increasing incidences of head and neck cancers and rising proportions of these associated with human papillomavirus (HPV), especially in the oropharynx, have been reported in international studies. So far, the trends and contribution of HPV to the number of newly diagnosed cases of oropharyngeal squamous cell carcinomas (OPSCC) in Germany are uncertain. We investigated HPV association and incidence rates in a cohort of consecutively included patients with OPSCC in Giessen 2000-2017, and compared our results with regional (Giessen and the federal state of Hesse), national (Germany), and international (United States) databases. Regional data show a significant increase in the overall incidence rates of oropharyngeal cancers and in the incidence of HPV-associated cancers of the subsites tonsils and oropharynx, whereas other oropharyngeal subsites show no significant change. Analysis of national databases shows a significant incidence increase in Germany and in the United States. The rise in incidence is predominantly attributable to male patients in the US population, whereas in Germany rising OPSCC incidence is more associated with females. There is a significant elevation of OPSCC incidence rates in Germany, which corresponds to the recognized incidence increase of HPV-related oropharyngeal cancers based on experimental data from consecutively included patients of our cohort. Our investigation shows different patterns of this increase in Germany and in the United States, which demonstrates spatial heterogeneity and the need for population-based investigations regarding the role of HPV in oropharyngeal cancer.”

### **Treatment of Cancer of the Tonsils**

Patients may have either surgery or radiotherapy to treat early tonsil cancer. Early means a small tumour that is still contained within the tonsil. If one has a cancer that is larger, has grown throughout the tonsil, or has started to grow outside it, one may have surgery followed by radiotherapy. More advanced cancers that have grown outside the tonsil may need shrinking before they can be removed. One may have chemotherapy or radiotherapy or both to try to shrink the cancer. This is called down staging. If the cancer does shrink, one may then be able to have an operation to remove it.

Advanced cancers cause symptoms such as pain, bleeding and difficulty swallowing. Patients are given radiotherapy or chemotherapy or both to help control symptoms.

There are other experimental treatments being investigated, for example, photodynamic therapy (PDT). For this treatment, patients have to take a drug that concentrates in the cancer cells. The drug is harmless until a bright light is shone onto the cancer cells. This then kills the cells.

Treatment depends on how far the cancer has grown.

The first step is to find out:

- How far the cancer has grown into local tissues
- Whether it has spread to nearby lymph glands
- Whether it has spread to any other part of the body

This is called staging the cancer. The doctor will be able to tell which treatment is best once the cancer has been staged.

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**Song, S., Wu, H.G., Lee, C.G., Keum, K.C., Kim, M.S., Ahn, Y.C., Oh, D., Park, H.J., Lee, S.W., Park, G., Moon, S.H., Cho, K.H., Kim, Y.S., Won, Y., OH, Y.T., Kim, W.T. & Jeong, J.U. 2017.**

**BACKGROUND:**Treatment of tonsil cancer, a subset of oropharyngeal cancer, varies between surgery and radiotherapy. Well-designed studies in tonsil cancer have been rare and it is still controversial which treatment is optimal. This study aimed to assess the outcome and failure patterns in tonsil cancer patients treated with either approaches.

**METHODS:**We retrospectively reviewed medical records of 586 patients with tonsil cancer, treated between 1998 and 2010 at 16 hospitals in Korea. Two hundred and one patients received radiotherapy and chemotherapy (CRT), while 385 patients received surgery followed by radiotherapy and/or chemotherapy (SRT). Compared with the SRT group, patients receiving CRT were older, with more advanced T stage and received higher radiotherapy dose given by intensity modulation techniques. Overall survival (OS), disease-free survival (DFS), locoregional recurrence-free survival (LRRFS), distant metastasis-free survival (DMFS), and clinicopathologic factors were analyzed.

**RESULTS:**At follow-up, the 5-year OS, DFS, LRRFS and DMFS rates in the CRT group were 82, 78, 89, and 94%, respectively, and in the SRT group were 81, 73, 87, and 89%, respectively. Old age, current smoking, poor performance status, advanced T stage, nodal involvement, and induction chemotherapy were associated with poor OS. Induction chemotherapy had a negative prognostic impact on OS in both treatment groups ( $p = 0.001$  and  $p = 0.033$  in the CRT and SRT groups, respectively).

**CONCLUSIONS:**In our multicenter, retrospective study of tonsil cancer patients, the combined use of radiotherapy and chemotherapy resulted in comparable oncologic outcome to surgery followed by postoperative radiotherapy, despite higher-risk patients having been treated with the definitive radiotherapy. Induction chemotherapy approaches combined with either surgery or definitive radiotherapy were associated with unfavorable outcomes.

**Roden, D.F., Schreiber, D. & Givi, B. 2017.**

**Objective:** Compare survival outcomes between unimodality and multimodality treatments for early-stage tonsil squamous cell carcinoma (SCC).

**Study Design and Setting:** Review of the National Cancer Database.

**Subjects and Methods:** Patients were selected if they were <70 years old with clinical stage I-II SCC of the tonsil, as documented in the National Cancer Database from 1998 to 2011. Palliative and nonstandard treatments were excluded. Propensity score matching was performed, controlling for tumor stage, age, race, comorbidity, insurance status, and year of diagnosis. Overall survival (OS) was compared with the Kaplan-Meier method and log-rank test. Results We identified 3247 patients. Radiotherapy (RT) was delivered in 1295 patients (39.9%), surgery in 824 (25.4%), and surgery + RT in 1128 (34.7%). Patients treated with surgery + RT had the highest 5-year OS (81.1%), followed by surgery (67.4%) and RT (63.4%;  $P < .001$ ). In a propensity score-matched subpopulation of 2378 patients, the 5-year OS was 78.8% for surgery + RT, 66.7% for surgery, and 64.5% for RT ( $P < .001$ ). Among patients who underwent surgical tonsillectomy plus elective neck dissection and/or adjuvant RT, the 5-year OS was equal ( $P = .29$ ), and all were superior to RT alone ( $P < .001$ ).

**Conclusion:** Multimodality treatment is associated with the greatest survival in early-stage tonsil cancer. The addition of tonsillectomy to RT confers a 20% increase in survival. The current guidelines might not offer the most effective treatment. An up-front surgical approach, followed by appropriately selected adjuvant therapy, may result in improved survival for early-stage tonsil SCC. These findings merit investigation in a prospective clinical trial.

A common treatment for tonsil cancer involves using radiation therapy in combination with chemotherapy.

**Surgery** – the patient may be able to have an operation to remove the part of the throat that contains the cancer. There are different types of operation. The part of the throat removed depends on the exact site of the tumour. If the cancer is very small, the patient may only need a very simple operation. This can be done using local anaesthetic or with laser surgery, and overnight stay in the hospital.

For larger more extensive cancers one may need a more complicated operation and need to stay in hospital for a while. For the most complicated surgery, one may have to have part of the soft palate or the back of the tongue removed. The surgeon will rebuild this with tissue taken from another part of the body.

All types of treatments have side effects. Sometimes surgery to the throat causes a lot of swelling in the area and makes it difficult to breathe normally. If this is the case then the surgeon may need to make a hole in the patient's windpipe, at the base of the neck. This hole is called a tracheostomy and will allow the patient to breathe while the swelling is there. It is usually only temporary and will be removed once the wound has healed.

Some operations on the throat can affect speech. We take it for granted that it is easy to speak, but it is actually a very complicated process. To produce sound humans use their throat, soft palate, lips, nose, mouth and tongue. If one has surgery to any of these, speech may change. This may not be very noticeable and may only be temporary. But sometimes the change is permanent. If a patient has any speech difficulties at all, a speech and language therapist can help you manage.

**Meccariello, G., Montevecchi, F., D'Agostino, G., Iannella, G., Calpona, S., Parisi, E., Costantini, M., Cammaroto, G., Gobbi, R., Firinu, E., Sgarzani, R., Nestola, D., Bellini, C., De Vito, A., Amadori, E. & Vicini, C. 2019.**

**PLAIN-LANGUAGE-SUMMARY:** "Trans-oral robotic surgery (TORS) has changed surgical management of patients with oropharyngeal squamous cell carcinomas (OPSCC). In this study we present surgical and oncologic outcomes of patients with oropharyngeal squamous cell carcinomas, treated using TORS, with and without an adjuvant therapy. Sixty patients with oropharyngeal squamous cell carcinomas treated with TORS between January 2008 and December 2017 have been retrospectively evaluated considering clinicopathologic features, disease characteristics, adjuvant treatments and oncological outcomes. TORS was performed for OPSCC to the base of tongue in 41.7%, tonsils in 46.7%, soft palate and posterior pharyngeal wall in 3.3% and 5%, respectively. Neck dissection was performed in 43.3% of patients. Management strategies included surgery alone in 30%, TORS and adjuvant radiotherapy in 33.3%, and TORS plus adjuvant chemotherapy in 36.7%. The 5-year overall survival of the total group was 77.6%, the 5-year disease-free survival rate was 85.2%, and the 5-year local recurrence-free survival rate was 90.6%. Finally, in selected patients TORS appears to yield similar oncologic outcomes and functional outcomes to traditional techniques and non-operative treatment with a possible benefit on long-term quality of life. The future offers exciting opportunities to combine TORS and radiotherapy in unique ways. However, further research is urgently needed to clarify the indications for adjuvant therapy following TORS resections."

Radiotherapy – patients may have radiotherapy:

- On its own to treat a small tonsil cancer
- Either before or after surgery to treat a larger cancer
- To help relieve the symptoms of advanced tonsil cancer

Doctors may use both external radiotherapy and internal radiotherapy (brachytherapy) to treat tonsil cancer. External radiotherapy treatment is usually given once a day for a few weeks. Brachytherapy is most likely to be used for small cancers. Patients may have brachytherapy if the cancer has come back after earlier treatment with external beam radiotherapy.

There are several types of radiation used in radiation therapy such as:

- High-energy X-rays
- Electron beams
- Radioactive isotopes

Chemotherapy - chemotherapy uses anti-cancer (cytotoxic) drugs to destroy cancer. Chemotherapy has not always been a treatment of choice for tonsil cancer. But recent research has suggested that combining chemotherapy with radiotherapy may help as much as surgery for large cancers of the head and neck, including tonsil cancer. Further research is needed in this area.

If one has tonsil cancer, one may have chemotherapy before the main treatment to help shrink the cancer. This is called neo adjuvant treatment. When a cancer is shrunk before further treatment, this is called down staging.

### **About Clinical Trials**

Clinical trials are research studies that involve people. They are conducted under controlled conditions. Only about 10% of all drugs started in human clinical trials become an approved drug.

Clinical trials include:

- Trials to test effectiveness of new treatments
- Trials to test new ways of using current treatments
- Tests new interventions that may lower the risk of developing certain types of cancers
- Tests to find new ways of screening for cancer

The South African National Clinical Trials Register provides the public with updated information on clinical trials on human participants being conducted in South Africa. The Register provides information on the purpose of the clinical trial; who can participate, where the trial is located, and contact details.

For additional information, please visit: [www.sanctr.gov.za/](http://www.sanctr.gov.za/)

## Medical Disclaimer

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#### **Tonsils and Throat**

<https://en.wikipedia.org/wiki/Tonsil>

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