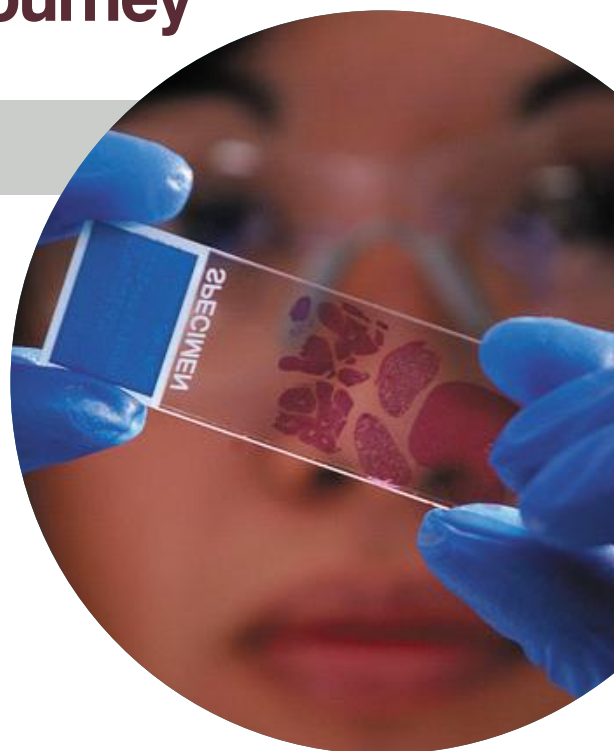




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Hidden Figures: The role of a Pathologist in a head and neck cancer patient journey



What is pathology?

Pathology is a branch of medical science that involves study of diseases. There are numerous branches of the specialty involving examination of micro-organisms and viruses, autopsy and bodily fluids. Histopathology is the branch of pathology which deals with examination of biopsy/tissue specimens under a microscope and these are the people involved in your diagnosis and treatment.

You may not be aware of the fact that Pathologists not only play a play role in improving understanding of diseases and research but are also at the forefront of developing and using cutting edge technologies to identify patterns in the tissue to aid patient treatment.

What role does a Pathologist play in a patient's journey?

The role of a pathologist in a patient's journey is multifold with involvement every step of the way.

a. Prior to treatment

When you are sent to a hospital to have an initial biopsy, that is the first stage when a pathologist gets involved. The piece of tissue that is removed, undergoes a series of steps to preserve it in a life-like state and thin slices are cut and coloured followed by

placement on a glass slide which can then be viewed under the microscope by a pathologist.

The light shining under the slide on the microscope allows the pathologist (with the help of magnifying lenses) to meticulously analyse features within the tissue including presence of abnormal, pre-cancerous or cancerous cells.

These microscopic findings are then shared with the surgeons and oncologists and form the foundation of your future treatment.

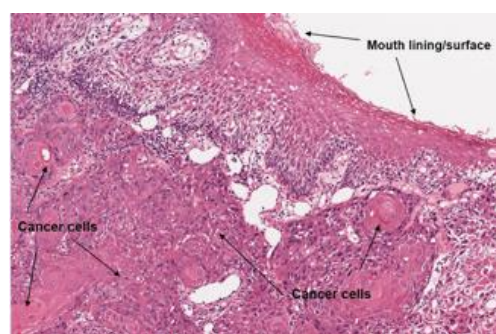


Figure 1 - Left image showing stained/coloured tissue on a glass slide. Right image shows the slide placed on a microscope with a light shining through.

Figure 2 - A stained image as it appears under the microscope showing presence of oral/mouth cancer cells.



b. During treatment

A pathologist's role during your treatment is absolutely critical. If the surgeons decide to remove the cancer, the tissue is sent to the lab where it is appropriately sampled by a pathologist. In some instances, lymph nodes of the neck may also be removed along with the cancer which are also all analysed by the pathologist along with the cancer. A wide range of features are assessed to determine the aggressiveness of the cancer and whether the surgical margins are clear. This information is then presented to all the patient care team to decide the need for further surgery or adjuvant radio- or chemotherapy.

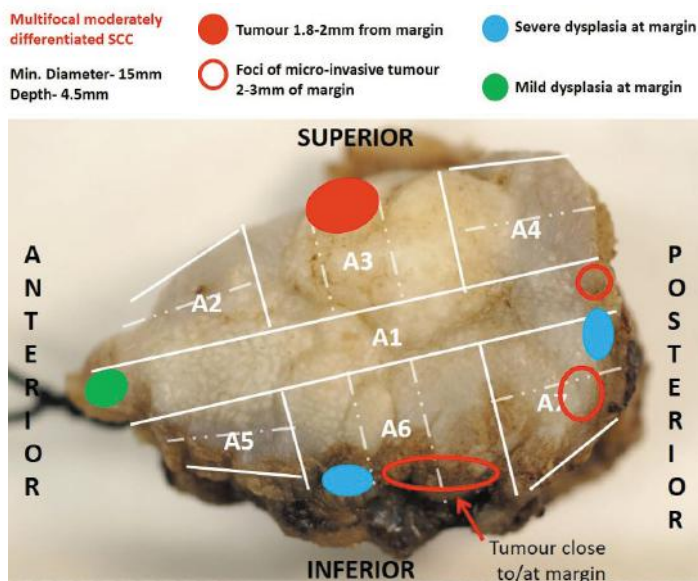


Figure 3 - An oral/mouth cancer resection specimen and how information may be shared by a pathologist.

c. After treatment

Even after your treatment, if there are any suspicious areas or the surgeons/oncologists want to determine the response to treatment, repeat biopsies may be performed which are assessed by the pathologist and compared with the features seen previously. This may necessitate further surgical or oncological treatment.

Identification of pre-cancer (dysplasia)

In addition to diagnosing head neck cancer, pathologists also play a key role in identification of the presence of pre-cancer (or dysplasia). This is crucial as early detection of such lesions can prevent development into cancer reducing the need for extensive surgery and improving the quality of life and prognosis for patients. For this purpose, a pathologist examines the tissue for the presence of a number of features including the shape, size and colour of the cells as well as the shape of the mouth or throat lining to establish the grade/risk of a pre-cancer.

Special techniques and methods

Pathology is a technologically advanced specialty and the reporting pathologist will also undertake any further relevant tests (e.g. for HPV or molecular or genetic testing) vital to your diagnosis and treatment plan (i.e. HPV positive cancers may not always require surgery as the first line of treatment). Other related information such as clinical photographs or radiological imaging may also be assessed by the Pathologist to obtain contextual information.

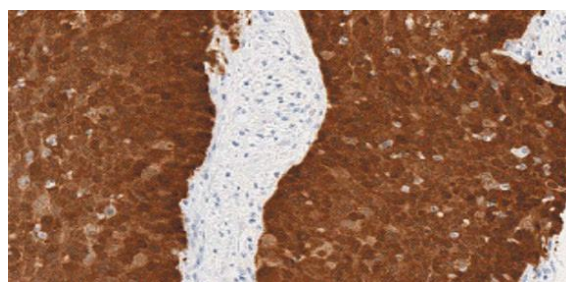


Figure 4 - p16 positivity (brown colour) in a tonsillar cancer to determine HPV presence.



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