Tracheal tumors

Background

The trachea is the segment of airway that connects the larynx to the two main bronchi supplying air to the lungs. Tumors of the trachea can either arise from itself, known as primary tracheal tumors, or occur as a result of direct invasion from nearby structures, such as the lung, larynx, esophagus, or thyroid gland. Primary tracheal tumors can either be malignant or benign. Malignant primary tracheal tumors are more common, and include squamous cell carcinomas and adenoid cystic carcinomas. Benign primary tracheal tumors include endobronchial hamartomas and squamous cell papillomas. Smoking is a known risk factor for tracheal squamous cell carcinomas.

Sign and symptoms

Tracheal tumors often do not produce symptoms until they have grown to a size to cause significant airway obstruction. Therefore, there is a common delay in clinical presentation and diagnosis. Diagnosis may also be delayed due to presentation of non-specific symptoms such as cough, wheeze and shortness of breath that can occur in other conditions, such as asthma and chronic obstructive pulmonary disease. When symptoms do appear, they may vary depending on the tumor type and anatomical location. Squamous cell carcinomas may cause an individual to cough up blood given its ability to cause irritation and ulceration of the inner lining of the trachea. They may also cause weight loss, hoarseness or difficulty in swallowing. Adenoid cystic carcinomas tend to cause wheeze and shortness of breath on exertion due to airway narrowing, without irritation of the inner lining.

Investigations

For individuals presenting with new respiratory symptoms, a chest X-ray may be performed to identify a discrete narrowing of the trachea to suggest a tumor. However, chest X-rays are not very sensitive to pick up all tracheal tumors and other tests such as computed tomography (CT) of the chest may be required for detailed imaging. Furthermore, a bronchoscopy can be performed to directly visualize a tracheal tumor. This procedure can be performed with sedation, whereby a narrow tube with a camera located at its tip is inserted into the trachea, allowing direct visualization and biopsies to be taken for pathological diagnosis. Positron emission tomography (PET)/CT imaging may also be used to assess the extent of disease and suitability for surgical resection.

Management

The management of a tracheal tumor depends on its pathological type, its extent of disease, and comorbidities of the patient. Surgical resection may be performed for selected patients, with or without chemotherapy or radiotherapy. For tumors that are unresectable and have spread to other organs, chemotherapy or other immune-based systemic treatments may be considered. The benefits and risks of a management plan must be weighed against each other and tailored to the individual patient. This can be achieved with a thorough discussion with the surgeon and a multi-disciplinary oncology team.

For more information, please visit the following websites:
https://emedicine.medscape.com/article/425904-overview
http://www.mountsinai.org/patient-care/service-areas/ent/areas-of-care/head-and-neck-cancer/tracheal-cancer
https://radiopaedia.org/articles/tracheal-and-endobronchial-lesions

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