

ABSTRACT

TITLE OF THE ABSTRACT: To evaluate the accurate clinical predictors of cartilage invasion and extra laryngeal spread and thyroid gland involvement in patients with laryngeal and hypo pharyngeal cancers (stage 3 and stage 4)

DEPARTMENT: ENT

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DEGREE AND SUBJECT: MS ENT

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OBJECTIVES:

1. To evaluate the accuracy of contrast enhanced Computed tomography(CECT and 3 Tesla Magnetic resonance imaging MRI, STIR sequence axial cuts done through larynx)in predicting cartilage invasion and extra laryngeal spread in patients with advanced laryngeal and hypo pharyngeal cancer(Stage 3 and 4) undergoing total laryngectomy.

2. To evaluate involvement of thyroid gland in patients undergoing total laryngectomy.

METHODS:

All patients presenting to the ENT outpatient department in Christian medical college with symptoms of hoarseness of voice, dysphagia, breathing difficulty and neck swelling and fulfilling inclusion and exclusion criteria had complete ENT and head and neck examination, indirect laryngoscopy, Nasopharyngo-laryngoscopy (NPL scopy) using flexible laryngoscope (Karl Storz, Germany), and were routinely subjected to do High resolution contrast enhanced Computed tomography of neck from skull base to mediastinum and were subjected to do 3 TESLA MRI limited STIR(short tau inversion recovery) axial cuts were done through larynx, if there is doubtful cartilage invasion in CT scan and they were planned for microlaryngoscopic examination and biopsy surgery under general anaesthesia. Patients with histopathologically proved cancer were subjected to Total laryngectomy and specimen were finally analyzed and compared with imaging.

RESULTS AND CONCLUSIONS

In the case arm male to female ratio was 97% in males and only 3% in females. Laryngeal cancer were seen in the age group between 40-70 years of age(84%), 8% were found to be less than forty years of age and 8% were found to be more than 70 years of age. Glottic carcinoma (42%) is most common laryngeal cancer than other laryngeal cancers. The second most common site is hypopharynx (25%).Thyroid cartilage (64%) is most commonly involved laryngeal cartilage than any other laryngeal cartilages.

Contrast enhanced Computed tomography scan helped in identification of thyroid cartilage invasion accurately in 91.3 % (positive predictive value) of cases and this has immensely contributed in the staging and treatment planning of Stage 3 and Stage 4 laryngeal cancers. The sensitivity of detecting extra laryngeal spread on CT scan was only 60%. The addition of a 3tesla MRI scan STIR sequence axial cuts through the larynx in our study improved the accuracy and aided in detecting cartilage erosion in these cases. We therefore conclude that 3 Tesla MRI limited high resolution axial section shows a positive predictive value of 100% and were proved to be more sensitivity than CT scan . Hence MRI should be considered as routine protocol for all patients in whom there is doubtful cartilage invasion on contrast enhanced CT scan. Since only limited cuts are done both the costs involved and time factors are kept to a minimum.

In our study we looked at the indications for ipsilateral thyroidectomy in patients undergoing total laryngectomy. We conclude that thyroid gland involvement on histopathology were both transglottic tumours with extra laryngeal spread. Hence an ipsilateral hemithyroidectomy is probably still indicated in transglottic cancer with cartilage invasion and/or extra laryngeal spread.