

**Prevalence of thyroid cartilage calcification and analysis of calcification pattern
in a sub urban population of Southern India; A Radiographic study using
Orthopantomograph and Lateral cephalograph**

BACKGROUND OF THE STUDY

The larynx is composed of cartilages, ligaments and muscles. Laryngeal cartilage consists of thyroid, corniculate, cricoid and arytenoid cartilage among these cartilages thyroid cartilages is the major one. The main function of the cartilages is the protection of the air way. The laryngeal cartilages undergo calcification especially thyroid cartilage, cricoid cartilage and arytenoids in the end of adolescence age and progress further according to the age. During routine radiographic investigation we have noticed evident thyroid cartilage calcifications even during early adolescence. Serological investigation were done for thyroid profile, calcium, phosphorous and parathyroid hormone (PTH), results revealed thyroid hormone imbalance in subjects with calcification.

AIMS AND OBJECTIVES

- To assess the presence of thyroid cartilage calcification in the sample population.
- To assess the prevalence of thyroid cartilage calcification among genders and various age groups.
- To analyze the co-relation of thyroid cartilage calcification detected on routine radiographic with the thyroid profile.
- To analyze the level (pattern) of thyroid cartilage calcification and its correlation with age, sex, and thyroid profile.

MATERIALS AND METHOD

Radiographic investigations (orthopantomograph and lateral cephalogram), and thyroid profile was carried out among 780 out patients from the Department of Oral Medicine and Radiology, to check for the prevalence and pattern of thyroid calcification and the co-relation with thyroid hormone imbalance. The study population of 780 is divided into three group of 260 each (130 males, 130 females), Group 1 (age between 10 to 22) Group 2 (age between 22 to 40) Group 3 (age above 40). Digital radiographs were taken in the Planmeca Proline X C machine with the help of planmeca Romexis 2.6.0.R software, Exposure criteria (orthopantomograph)-62 -70 kv, 5-11 mA, 18 Sec, Exposure criteria (lateral cephalograph)-62-70 kv, 5-11 mA, 23 sec. All radiographs were evaluated in a desktop installed with planmeca Romexis software 2.6.0.R. And results are assessed by chi-square statistical test and other softwares (Microsoft excel+ spss 16.0 version).

RESULTS

Our study revealed that the prevalence of thyroid cartilage is more in females, and calcifications begin at the mean age of 16 years. In males, the calcification begins during late adolescence age. In both the genders the calcification begins in the thyroid lamina and by the third decade of life the calcification progresses to the inferior horn and in the fourth decade the calcification begin starts in the superior horn after calcification of the inferior horn. No significant correlation was noted between cartilage calcification and serum thyroid profile.

CONCLUSION

Thyroid cartilage calcifications are more prevalent in female and begin at around 16 years of age. These calcifications have an important role in age and sex determination, and clinical significance in terms of neurovascular compression, surgical approaches of the region and fracture risks due to trauma. Further research are required to evaluate the triggering and contributing factors of these calcification. Maxillofacial radiologists must be familiar with these calcification and their pattern during interpretation so as to generate a report with a comprehensive goal of accurate diagnosis and value added treatment planning.

Keywords : Cartilages, Ossification, Thyroid, Thyroxine.