**DR. S P SRIVASTAVA ONCOLOGY ORATION**

# Thyroid Cancer in India: Are We Looking at Different disease?

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## INTRODUCTION

Thyroid cancer and particularly differentiated thyroid cancer (DTC) are perceived to have unique features in India. Papillary carcinoma (PTC) is the more prevalent type, but the proportional incidence of follicular thyroid carcinoma (FTC) remains high as compared to other developed nations.[1-3] Patients present at a relatively younger age with advanced stage resulting in an overall poor outcome. Some studies also suggest that DTC in our country, particularly in iodine-deficient areas, tend to be more virulent.[4,5] These observations force one to think if we are dealing with a different kind of thyroid cancer in India? The basic questions to address are- regarding lower incidence/prevalence of DTC in India, the difference in histology types, (PTC Vs FTC), presentation and outcome, the possible difference at the molecular level and last but not least if we need to follow the ever-changing guidelines for the management of these tumors. Based on own experience and publications from India, I would like to provide some thoughts.

### Incidence and Demography

It is estimated that 1.2–2.6 men and 2.0–3.8 women/100,000 individuals are affected by thyroid cancer worldwide. The incidence of thyroid cancer is increasing worldwide. In some nations like the United States of America and Australia, the reported incidence per WHO reports is as high as 400 cases per 100,000 population.[6,7] The increased incidence could be real increase or increased detection rate due to frequent use of high-frequency ultrasonography (USG), resulting in "over-diagnosis" of small cancers that would otherwise have remained occult. But, the incidence of thyroid cancer still remains low in India.[8,9] Though exact incidence and prevalence is not known, according to national cancer registry, it is important cancer in females.[10] Routine USG screening is not recommended in our country and patients generally seek help late (Figure 1). This result in an advanced presentation in terms of large tumor size, increased incidence of extra-thyroidal invasion, lymph node involvement and distant metastases contributing to the high-risk disease and poor outcome.[11-14] The median DTC presentation age remains a couple of decades less in India than in the West. The simple reason is that the median age of our population is 25 years, leading to a decrease in median age of presentation of not only DTC but all cancers.[5,15]

### The Difference in Histology Sub-type

One significant observation has been that the incidence of FTC and poorly differentiated carcinoma (PDTC) is higher in India.[1-3,16,17] PTC constitutes 90–95% and FTC 5–7% of DTC in developed nations. In general, FTC incidence is decreasing and PTC is increasing worldwide, whereas in India FTC constitutes 20–30% or even more in some reports. The increase incidence of FTC has often been attributed to the iodine deficiency status of our population. Southern regions such as Banglore and Chennai report proportionately low FTC prevalence (10-15%) compared to Northern iodine-deficient regions of India.[1-5,10] But if we look at the evidence carefully, we know that, apart from iodine nutrition, socioeconomic status also contributes to this phenomenon. Majority of PTC in developed nations are very small or detected on USG screening, contributing to increased disease burden. In our country like many other developing nations, the patients report to the physician late thus resulting in advanced presentation and poor outcomes.[18-20] Hence, small PTC remain undetected contributing to the relatively high proportion of FTC in India.

All the molecular evidence from our country also points to the fact that there is hardly any difference at molecular levels. The incidence of RET, BRAF, TERT, RAS mutation, NIS symporter and other molecular expression in thyroid cancers India is at par with other nations.[21-25] Going by data available from India, it can be presumed that we are looking at one extreme of the same disease spectrum. The argument of inherent aggressiveness is also negated by the evidence that stage wise outcome of DTC in India is at par with others reports.[5]

### Outcome

Globally the annual mortality rate of thyroid cancers has remained same or slightly improved. Disease free survival

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(DFS) and overall survival (OS) in India remain inferior to that reported in developed nations. Delayed presentation and suboptimal care, probably contributed by poor socioeconomic status seem to be the main factors responsible for this observation. The high proportion of FTC and PDTC also contributes to some extent. Thus, it seems that the overall increase incidence of high-risk DTC contributes to the overall poor outcome. As mentioned above, the inherent aggressiveness of DTC is suggested but yet to be a decisively proven prognostic factor in affecting outcome.[26-28]

**Management**

Keeping in view all the above- mentioned facts the management strategy needs to be customized. While current international guidelines could easily be replicated, there is need for improvisation. It is very important to balance patient safety with intended outcomes i.e. DFS in low-risk cases and OS in high-risk. Thus, decision regarding extent of surgery, TSH suppression, indication of post-operative radioiodine scanning should be tailored to patients' need and access to the expertise.[29-44]

## CONCLUSIONS AND FUTURE ISSUES

In conclusion, one could state that in India we are looking at the worse extreme of the same spectrum of thyroid cancer. As we progress forward, we will likely face the same issues encountered elsewhere, such as incidental thyroid cancers and/ or microcarcinomas. But at present, it seems important that we should form our own India-specific guidelines keeping in view of socioeconomic reality and health care infrastructure.

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