INTRODUCTION

Nodules in the thyroid have always commanded a great deal of attention because they are sometimes visible, are often palpable by the patient and always raised the question of cancer (Klonoff and Green Span, 1982). The prevalence of nodules in thyroid in children has been reported to vary between 0.22 and 1.5% depending on the series studied; it increases linearly at a rate of 0.08% per year, beginning at an early age and extending to the eight decade (Rajiski and Gharib, 1985).

The prevalence of thyroid nodules of all types is increased five fold in individuals exposed to ionizing radiations. Only few clinically palpable nodules are cancers. Reports from surgical clinics, however, point to a much higher incidence of cancer in nodular glands, with estimates ranging up to 20 to 30%. It can reasonably be concluded that thyroid nodules are very common but thyroid cancer is very uncommon.

Despite all the epidemiologic data, the patients is not a statistic, and so every nodule demands careful appraisal. Short of anatomic study, there are no certain methods of differentiating non-tumorous nodules from benign or malignant neoplasms. Approximately 50% of clinically
apparent single nodules prove to be dominant nodules of multinodular goiters on pathologic examination (Rojiski and Gharib, 1985).

Of the true solitary nodules, 70 to 80% prove to be adenomas, while 10 to 20% are carcinomas. A variety of other lesions, including foci of thyroiditis, cysts and areas of fibrosis, account for most of the remainder of other "Solitary" nodules. It is evident from these findings that many lesions of the thyroid may present as nodules, and indeed, in 10% of the cases no thyroid abnormality is present.

In general women are affected more frequently than men in a ratio of 3 : 1. Fine needle aspiration biopsy represent a highly reliable approach for the diagnosis and classification of thyroid nodules and is of particular value as a screening procedure for patients before surgery (Colacchio et al, 1980). The F.N.A.C. procedure is relatively painless and results are often available while the patient is still in the office.

Fine needle aspiration cytology is a study of cells obtained by fine needle under vacuum. The specimen consists of minute quantity of tissue or fluid. Any area of the body can be a suitable target for aspiration biopsy without any danger.
In cases of malignancies particularly diagnosed on clinical examination, the diagnosis obtained by 'Fine needle aspiration' may substitute for conventional biopsy procedures.

Fine needle aspiration biopsy has emerged slowly since Martin and Ellis (1930) conducted their study and has been refined over 25 years by various authors (Coranillim et al, 1955; Craver and Binkley, 1938; and Kline, 1980).

The term aspiration biopsy cytology (ABC) was used by Zajicek (1974) and Lowhagen (1979). It was chosen to clearly distinguish aspiration from exfoliative cytology and to emphasize its simplicity.

Nodular enlargement of the thyroid gland is frequent and constitutes the commonest indication for thyroidectomy. The thyroid nodule can be cystic or solid. Most of the cystic nodules are benign in nature, except few cases of papillary carcinoma. Among the solid nodules also only about three percent are malignant in nature. However, thyroid carcinomas closely resembles its benign counterpart in physical characteristics measurable physiological parameters such as serum T4/T3 levels and ultrasonic characteristics. Therefore, the surgical excision of the nodule and its histologic examination is the only way to differentiate between the more frequent benign and much less frequent
malignant nodules. Since most of the nodules are benign, symptomless and small in size, they do not require surgical excision.

Fine needle aspiration (FNA) cytology of thyroid is a valuable adjunct to preoperative screening in the diagnosis of thyroid nodules. In its interpretation however it has its own peculiar problems, some of which are inherent to the needle aspiration technique while others extend even to the terrain of histopathologist.

A study of the preoperative aspiration cytologies in consecutive patients with primary malignant tumours or benign thyroid tumours showed a sensitivity of 0.57 and specificity of 0.98. The sensitivity of FNA cytology in medullary and undifferentiated carcinomas was 0.82 and 0.84, respectively. The sensitivity was only 0.58 for papillary carcinomas (excluding occult carcinoma) and 0.42 for follicular carcinoma.

The specificity of FNA cytology of thyroid tumours are found to be high enough to permit surgical intervention after a cytodiagnosis of malignancy. There has been increasing interest in including this method as a routine preoperative diagnostic tool for the diagnosis of thyroid tumours.

According to H. Ruben Harach, 1989, thyroid FNA should be instituted as a reliable diagnostic method, even
since (1) it permits a rather accurate histologic approach as demonstrated by cytohistologic correlation, thus allowing physicians and surgeons to indicate further laboratory studies needed and to plan appropriate medical treatment and/or surgery.

(2) It avoids unnecessary surgery for patients with benign lesions. The latter point is emphasized by the significant increase of surgically resected malignant tumours during the diagnostic period (44%) as compared with the learning period (14%). Thus helping to reduce the costs of health care in public health institutions.

Results of ultrasonography, radionuclide perfusion studies along with xero-radiography have been compared with FNAC of cold thyroid nodule. FNAC has been advocated as the method of choice as regards accurate diagnosis, their typing, higher sensitivity, and cost effectiveness (Jayaram and Aggarwal, 1989).

It was therefore proposed to take up study of thyroid neoplasms by FNAC technique as an early diagnostic tool and to have histopathologic correlation.