CASE REPORT **PROF-711**

TUBERCULOSIS WITH MEDULLARY CARCINOMA OF THYROID;
A CLINICAL ASSOCIATION, STRANGE STRANGERS

***DR. GHULAM ASGHAR CHANNA**

***DR. AZMAT SIDDIQUI**

***DR. SALEEM SADIQ**
*Department of Surgery Ward-26, Jinnah Postgraduate Medical Centre Karachi

A B S T R A C T

18 years old girl presented with right dominant lobe thyroid gland in euthyyroid state. Radioisotope scanning revealed cold nodule and fine needle aspiration cytology reported follicular neoplasm. Subsequent histopathological examination revealed medullary carcinoma with tuberculosis. The medical literature abounds with evident association between chronic inflammatory process and neoplasia, considering chronic inflammation as risk factor for later. We searched the local and international medical literature in English language to find any association between neuro endocrine tumors and granulomatous inflammation. However to our knowledge no such association has so far been described, even in the form of clinical case report in any core medical journal.

Key words: Medullary carcinoma, tuberculosis, chronic inflammation

INTRODUCTION

Medullary carcinoma is a neuro endocrine tumor of para follicular C cells seen in thyroid gland. This tumor may manifest as sporadic or as one constituent of three autosomal dominant cancer syndromes namely, MEN II, MEN IIB and familial MTC.

Once diagnosed pre symptomatic near relative of the patient are required to undergo screening. The biochemical screening consists of basal and stimulated serum calcitonin evaluation, where as genetic screening consists of DNA analysis using linked DNA markers[1].The gene of MEN HA for example is in the pericentromeric region of chromosome 10: DNA dependent screening is reliable not only in pre symptomatic but even in the prenatal stages[2].

Tuberculosis is a common condition in our part of world with occasionally involving thyroid gland with protein manifestations. The objective of reporting this case was to review related medical literature to find any clinical or pathological association or existing evidence of correlation between these two disorders effecting one target organ simultaneously.

The involvement or association of medullary carcinoma with tuberculosis has not been reported.

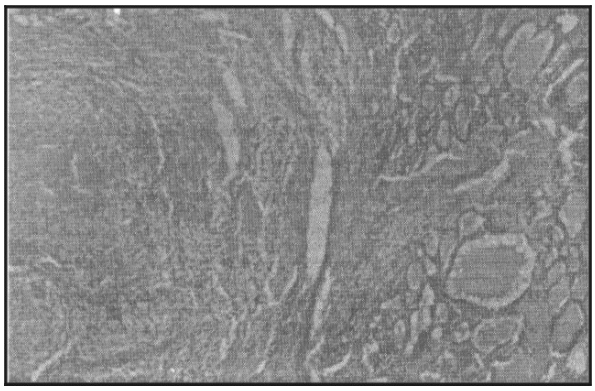
PATIENTS & METHODS

18-year-old unmarried female patient presented with right dominant lobe, examination and investigation revealed cold nodule Rt. Lobe on cytological examination possible follicular neoplasia was reported. Rt. Side total lobectomy and left subtotal lobectomy was performed. Postoperative recovery was smooth. Specimen labeled as such was sent in separate jars with reference to cytology report to same pathologist.

Histological examination revealed medullary carcinoma with tuberculosis. Postoperatively patient's serum Calcitonin was borderline high, siblings and 1st cousins tested normal for serum Calcitonin levels.

Augmented Caicitonin assays and linked DNA markers could not be undertaken due to non-availability of these in our setup. On the basis of above and absence of clinical features suggestive of phaechromocytoma we diagnosed this patient as suffering from sporadic medullary carcinoma.

Some authors have shown doubts about the screening reliability of basal S. Calcitonin level compared to DNA linked assessment[3]. The test is so accurate on the basis of RET mutation in gene carriers of MEN 2 syndrome-8, even prophylactic thyriodectomy has been advised[3].

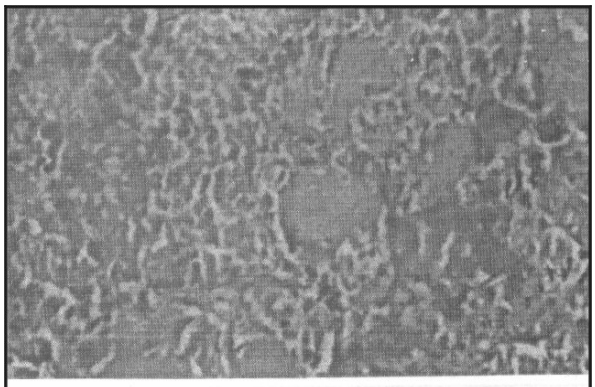


Photomicropraph showing thyroid tissue with epithelial cell granuloma one of which shows central caeseation necrosis as well (H&E*40)

In the light of revised Histopathology report (Fig 1&2) patient was re-operated and total lobectomy was done on left side. Postoperative scanning of neck both by ultrasound and Radio Isotope, revealed no residual thyroid neck mass. Lyryngoscopic examination was normal. In literature substantial evidence exists to establish the relationship between chronic inflammation and neoplasia. In order to ascertain any relation between the tuberculosis and medullary carcinoma we searched the medical literature through internet and MEDLIP.

RESULTS

Postoperative recovery of patient was smooth she was treated with four drug anti tuberculosis therapy for initial three months and later three drugs for 6 months thyroxin department. She revealed no evidence or recurrence of disorder related to both conditions. We considered the patient has been cured.



Photomicrograph showing medullary carcinoma with tumor cell possessing regular nuclei and deposits of amyloid in between (Congo Red *200)

DISCUSSION

Tuberculosis commonly targets almost every organ of the body including thyroid gland, though relatively infrequently, but with myriad clinical manifestations[4,5,6]. Chronic inflammation with its known irritant ability to destasblise the cell has long been considered an

etiological factor in carcinogenesis. Marjolines Ulcer, chimney sweeps cancer etc are considered. Reflux has been proved to cause Barrete's esophagitis predisposing it to adenocarcinoma.

In this multi factorial, multi step process Cyclooxygenese (cox)-2 has also been implicated [9,10,11]. Pylori infection in the antra' part of the stomach is also known to destabilize the cell to cause carcinoma through this multi step process. Eradication of H. pylori has been considered to reverse the changes like epithelial cell proliferation[12] it is also considered to reverse the changes like epithelial cell proliferation^ it is also considered true in eradication of hepatitis B virus predisposing to HCC of liver. The role of oncogens bringing malignant transformation of the cell by virus was 1st proved in 1911, which led to explosive development in this field. Inducible nitricoxide synthatase is expressed in inflammatory macrophages in areas of chronic inflammation leading to oxidative damage of DNA, which must repair before the next cell cycle, keep suppressed by p53-tumour suppressor gene, failing which cell division ir, presence of damaged DNA leads to genesis of bile duct cancer[13.]

This expression is also known to cause nitrosation of urinary amides and carcinogens14 chronic inflammations causing DNA damage in presence of mutant or inactive p53 plays a risk factor for malignancy. There have been few case reports where papillary micro carcinoma has been reported in association with tuberculosis with and without involvement of any other part of body[15]. In one case abscess formation in the bed of excised medullary carcinoma confounded the recurrence, which was later diagnosed to be tuberculosis[16]. Tuberculosis of lymph node adjacent to the papillary carcinoma has also been described. There is substantial evidence for the destabilzation of the cell to become malignant clone leading to cancerous growth by multiple environmental molecular biological and genetic mechanism; early eradication of irritant factor has halted the process[17].

In the sporadic medullary carcinoma of thyroid, tuberculosis is rare phenomenon and so far no such case has been reported to show the association of these pathological processes.

CONCLUSION

The role of chronic inflammation in causation of carcinoma has been suspected for quite a long time; recently this has been elucidated even further along with genetic basis and other environmental factors. Tuberculosis of medullary carcinoma may be considered co-incidental, so far only single case is being reported by us. On other hand considering the role of chronic inflammation in certain neoplastic condition and strong genetic predisposition of medullary carcinoma, the formers role in sporadic medullary carcinoma cannot be ruled out and may require further evaluation of this association.

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There is no failure except in no longer trying

Shuja Tahir