Case Report

Anaplastic Thyroid Carcinoma with Osteoclast-like Giant Cells

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Abstract

A case of anaplastic thyroid carcinoma with osteoclast-like giant cells is reported. This is an unusual malignant thyroid neoplasm with morphologic resemblance to giant cell tumor of bone. Light microscopy disclosed an undifferentiated carcinoma. Pleomorphic cells and tumour giant cells were accompanied by numerous osteoclast-like multinucleated giant cells. ©

Introduction

Anaplastic carcinoma of the thyroid (ATC) is an aggressive tumor, comprising 10% of all primary thyroid malignancies.[1] However, the association of multinucleated giant cells is very rare. For a long time, the histogenesis of anaplastic thyroid carcinoma has been controversial. Some authors have indicated that many of these tumours represent thyroid sarcomas, whereas others have demonstrated that they are carcinomas. Some have suggested that they originate from C cells and are therefore, medullary carcinomas. Currently, most pathologists agree that anaplastic thyroid carcinomas arise from follicular epithelial cells.[2] Coexisting well differentiated follicular or papillary carcinomas in many of these cases support origin from preexisting differentiated carcinomas of the thyroid.

Case Report

A 65 year old woman presented with swelling in the midline of neck since one month along with stridor and dysphagia since 7 days. The neck swelling had gradually increased in size and was associated with increasing breathlessness. Physical examination revealed a midline. 3 cm x 4 cm, hard non-tender mass, not moving with deglutition or protrusion of tongue. Emergency tracheostomy was carried out for stridor, and in the tracheostomy tube, a bit of tissue was found during suction, which was sent for histopathology. A clinical diagnosis of metastases or thyroid carcinoma was made. Histopathology of the tissue bit found during suction revealed a pleomorphic tumor with tumor cells arranged in sheets. The cells were round to polygonal and were characterized by large hyperchromatic nuclei with a high N : C ratio and prominent nucleoli. Cytoplasm was fairly abundant and eosinophilic (Fig. 1). Also seen were multinucleate osteoclast-like giant cells (Fig. 2) having upto 10-15 round nuclei of uniform size along with multiple tumour giant cells. Areas of necrosis were present.

Subsequently, the patient was investigated. A fine needle aspiration of the neck swelling was reported as squamous carcinoma. Histopathology of the sub-glottic growth showed a sarcomatoid carcinoma with osteoclast-like giant cells probably a sarcomatoid carcinoma from the thyroid. X-ray barium swallow showed no obstruction in the oesophagus. CT scan of the neck and upper thorax showed a heterogenously enhancing mass involving the right lobe of the thyroid and isthmus, pushing upper half of trachea to the left side with significant luminal compromise. Tumour marker study revealed markedly increased thyroglobulin levels but calcitonin levels were within normal limits. Immunohistochemical studies performed on formalin fixed paraffin embedded tissue showed strong reactivity for vimentin (Fig. 3) and focal positivity with epithelial membrane antigen. Cytokeratin was, however, negative.

As the mass was inoperable clinically, radiotherapy was given. However the patient was lost for follow-up after 2 months.

Discussion

Anaplastic giant cell carcinomas of the thyroid gland are rapidly growing and highly malignant tumours. Death occurs within 6 months to 1 year.[3] Poor prognosis of the disease is due to compression and invasion of the adjacent vital structures of the neck. Peak incidence is in late adulthood. Preexisting well-differentiated thyroid carcinoma[4] and goiter[3] are usually associated with it. They show a slight female predominance.

Before 1930, giant cell tumors of the thyroid were classified as sarcomas, until Smith proposed an epithelial origin. Most authors have investigated the origin for these tumours. Cibull

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Fig. 1 : Pleomorphic tumour cells with abundant eosinophilic cytoplasm, hyperchromatic nuclei and prominent nucleoli (H and E, X 400)

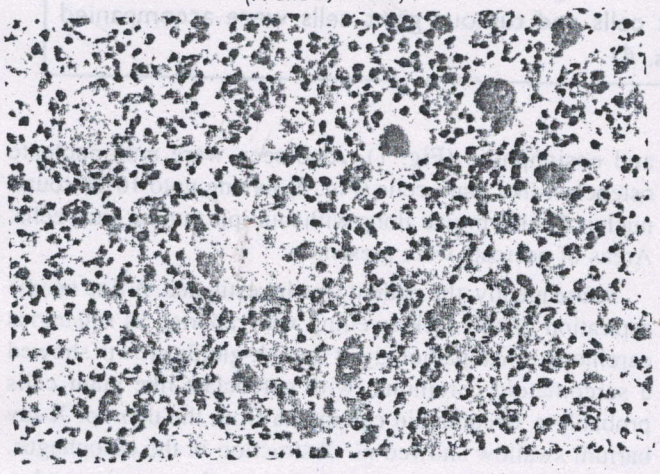

Fig. 2 : Numerous osteoclast-like multinucleated giant cells along with tumour giant cells and pleomorphic cells (H and E, X 100).

and Gray[5] studied the ultrastructure in 1978 and failed to detect cell junctions or identifiable intermediate cells of epithelial type Therefore, a mesenchymal cell origin was proposed by them. In 1974, ultrastructural studies done by Jao and Gould[6] demonstrated intercellular junctions, complex intercellular interdigitations, basal lamina and other features of follicular epithelium. They concluded that anaplastic components retain their epithelial characters and show signs of de-differentiation such as decreased desmosomes and loss of ability to form basal lamina. Esmaili[7] *et al* proposed an epithelial origin based on immunohistochemical and electron microscopic observation.

Co-expression of keratin and vimentin has been reported in normal thyroid cells. It is also seen in many other carcinomas originating in different sites especially tumours with sacromatoid features.[13] Only small number of tumours react with EMA and CEA.[8]

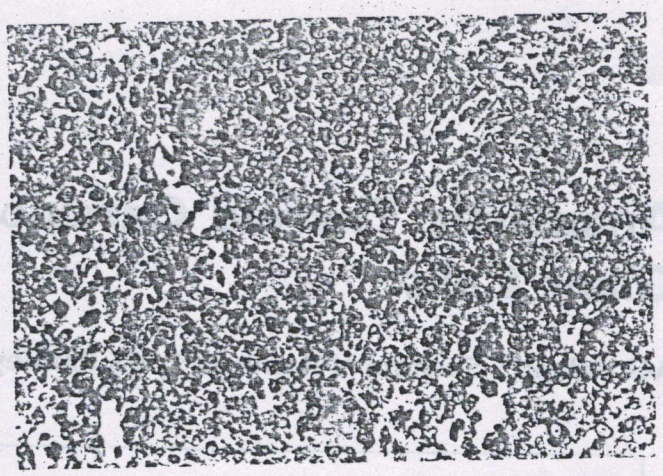

Fig. 3 : Immunohistochemistry showing positivity for vimentin (X 200)

Role of thyroglobulin in diagnosing ATC is controversial. Some authors have reported 70% of ATCs express this marker.[9] Others were unable to find thyroglobulin expression in any cases. The cause of this discrepancy is not clear.

In summary, immuno-histochemistry represents an extremely helpful ancillary method in the histopathological diagnosis of ATC.

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Gravid adult filarial worm in fine needle breast aspirate masquerading as carcinoma

Respected Sir,

Filariasis is endemic in southern Asia, with *Wuchereria bancrofti* accounting for over 90% of infections[1]. Breast is an unusual site of affectation in filariasis and presence of this infection in fine needle aspirate (FNA) has been documented in the form of case reports only[2,3]. The gravid adult worm has been described even on fewer occasions in FNA[3]. We describe one such interesting case that clinically masqueraded as carcinoma. A 30year old female presented with two nodules felt in her left breast. Examination revealed two firm, non-tender, mobile nodules in the left breast, measuring 1.5 cm and 2 cm in diameter respectively. There was no axillary lymphadenopathy and her general physical examination was normal. The clinical impression was that of carcinoma breast. Fine-needle aspirate of the swellings was performed under negative suction using 23-G needle and 20 ml disposable syringe. The material aspirated was smeared onto slides and stained with May-Grunwald-Giemsa and haematoxylin- eosin stains. FNA smears from both the breast nodules revealed numerous sheathed microfilariae and parts of two adult female worms. The microfilariae lacked terminal and subterminal nuclei at the caudal end, thus confirming them to be *Wuchereria bancrofti*. A large number of coiled larvae and microfilariae were seen within the gravid adult female worm. The cuticle was breached in one of these and many microfilariae were seen to come out of the adult worm (Fig.1). The organism incited a florid mixed inflammatory reaction along with foreign body type of giant cells. There was no peripheral eosinophila or microfilaremia. The pathogenesis of breast involvement remains conjectural[4]. It is likely that retrograde lymphatic spread would have occured to the breast from the axillary lymphnodes.This case is a pointer to the unusual modes of presentation in a common parasitic disease. Fine needle aspiration can effectively provide a quick diagnosis, thus allaying patient's anxiety and preventing an unnecessary surgical procedure in a medically treatable condition. This patient was successfully treated with diethylcarbamazine.

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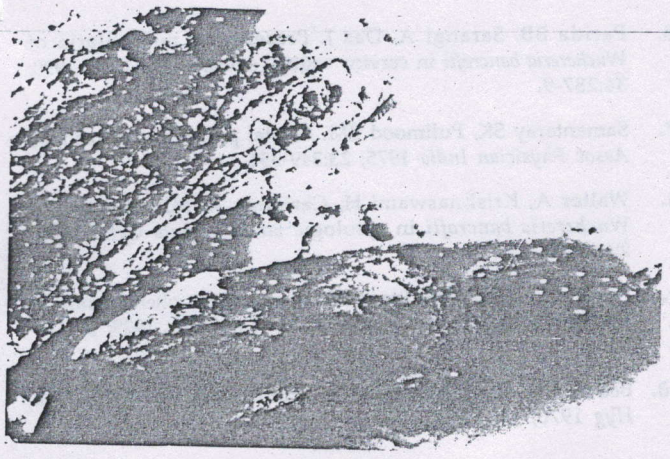

Fig. 1. Photomicrograph showing adult filarial worm with many microfilariae (MGG, x140).

Microfilaria of *Wuchereria bancrofti* in cervicovaginal smear

Sir,

Lymphatic filariasis is a major health problem in tropical countries especially in India, China, Indonesia and parts of Africa[1]. In spite of effective control measures, the disease is reported to be increasing, mainly as a result of the human population explosion in endemic areas of the world[2]. Despite the large number

of people affected, it is unusual to find microfilariae in routine cytologic smears. There have been reports of single or small number of cases of microfilariae at various sites e.g. bone marrow[3], breast[4], bronchial aspirate[5], pleural fluid[5], cervico-vaginal smears[6] and pericardial fluid[7].

Walter et al suggested that microfilariae appear in tissue fluids and exfoliated surface material due to lymphatic or vascular obstruction and subsequent extravasation[8]. Aberrant migration is probably determined by local factors, such as lymphatic blockage by scars or tumors and damage to vessel walls by inflammation, trauma or stasis. The phenomenon of cell adherence is interesting because it reflects some part of the immune status of the patient. Cell adherence to microfilariae of *W. Bancrofti* was first described by Pandit et al[9] who noted that leukocytes did not adhere to dead microfilariae. They concluded that cell adherence is probably due to presence of filarial antibodies in the sera of these patients.

Here we report a case of a 35 years old female who attended the Gynaecology O.P.D for II degree prolapse. There was history of irregular bleeding with bloodstained discharge for the last 2 months. Pap smear was done as a routine procedure. Cytological examination revealed many superficial and intermediate cells with abundant RBCs and also polymorphs in the background. The most remarkable finding, however, was the presence of microfilariae . One or more microfilariae present in the smear showed a significant adherence of inflammatory cells (Fig. 1). Further investigations in the form of peripheral blood smear revealed 15 % eosinophilia and wet mount of blood revealed moving single microfilaria respectively. The case reported by us did not have clinical filariasis and the disease was not suspected prior to the cytology report. It was an incidental finding. The patient was subsequently investigated and was found to have microfilariemia. This finding may be consistent with the observation that in endemic areas, filariasis can exist without microfilaremia, or microfilaraemia may be extremely transient and therefore overlooked[10].

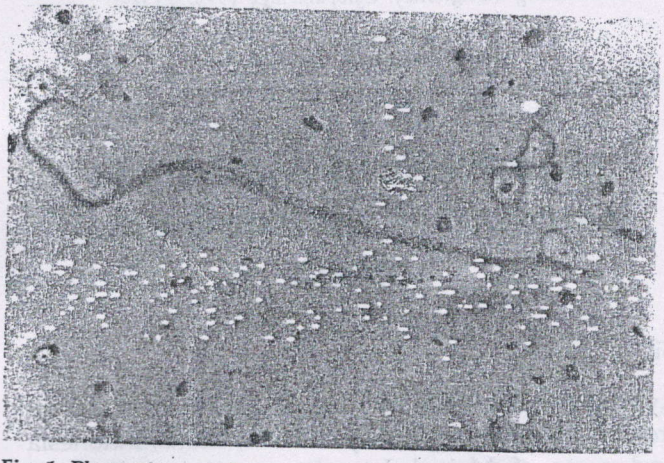

Fig. 1. Photomicrograph showing adult filarial worm with many microfilariae (MGG, x140).

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