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Case Report

Anaplastic Carcinoma of Thyroid - A Rare Case Report

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Abstract

Anaplastic carcinoma of thyroid is a rare high grade neoplasm with unfavourable prognosis, accounting for less than 5% of all thyroid malignancies. It is responsible for high mortality and morbidity rate due to aggressive nature of carcinoma. Anaplastic carcinoma of thyroid is infrequently reported in the literature. Here we present a rare case of anaplastic carcinoma of thyroid in a 77 year old female who presented with large neck swelling.

Keywords: Thyroid cancers, Anaplastic carcinoma, uncommon.

INTRODUCTION

Anaplastic thyroid carcinoma (ACT) is highly aggressive uncommon tumour amongst all human malignant diseases. Papillary and follicular thyroid carcinoma account for 80-90% thyroid cancers where as anaplastic thyroid cancer accounts for less than 5% [1]. It is the 3rd most common thyroid cancer, occurring at a rate of 1.6% per year after papillary and follicular carcinoma [2]. Anaplastic carcinoma of thyroid develops in patients who have long standing cases of nodular goitres or incompletely treated papillary or follicular cancers [3]. Few anaplastic carcinomas present with metastasis in cervical lymphnode lung, bone, liver or brain [4]. Most of the anaplastic thyroid cancers patients have local symptoms such as dysphagia, stridor and neck pain. Here we report a rare case of anaplastic thyroid carcinoma in 77year female patient who presented with swelling infront of neck.

Case Report

A 77 year old female presented with complaints of swelling infront of neck since 20 years and associated with pain since 2 months. Patient had no history of pressure symptoms. Basic haematological investigations and renal function tests were normal. On examination butterfly shaped swelling of size 10x6 cm present in front of neck and swelling which was moving with deglutition. Clinical diagnosis was made multinodular goitre with abscess. Ultrasound examination revealed multinodular goitre involving both lobes of thyroid. A fine needle aspiration of the thyroid mass was performed. Cytology revealed abundant necrotic debris and neutrophilic collection. Cytology was consistent with abscess of thyroid swelling. Patient underwent total thyroidectomy with abscess drainage under general anaesthesia. Specimen was sent to department of pathology for histopathology examination. Macroscopic examination showed thyroidectomy specimen along with friable, soft tissue mass measuring 9x5x3cm.Right lobe measuring 3.5x1.5x0.5 cm and left lobe measuring 7x5x2 cm. Cut surface of left lobe showed circumscribed grey white lesion measuring 4x3 cm with focal grey brown areas (Fig-1). Cut section of right lobe showed colloid filled nodules of varying size measuring 1.5x1 cm. Microscopic examination from right lobe showed follicles of variable sizes filled with colloid which are lined by flattened to cuboidal epithelium (Fig-3). Microscopy from left lobe revealed colloid filled follicles of variable sizes lined by cuboidal epithelium with stroma showing lymphocytic infiltration. Focal areas showed sheets of pleomorphic cells having round to oval hyperchromatic pleomorphic nuclei, prominent nucleoli and moderate cytoplasm (Fig 2 & 3). Foci of multinucleated tumour giant cells were noted. Areas of abundant necrosis (Fig-2) and hyalinization are seen. Tumour cells infiltrated in to the adjacent stroma. A diagnosis of anaplastic carcinoma of thyroid was made based on histopathological examination.

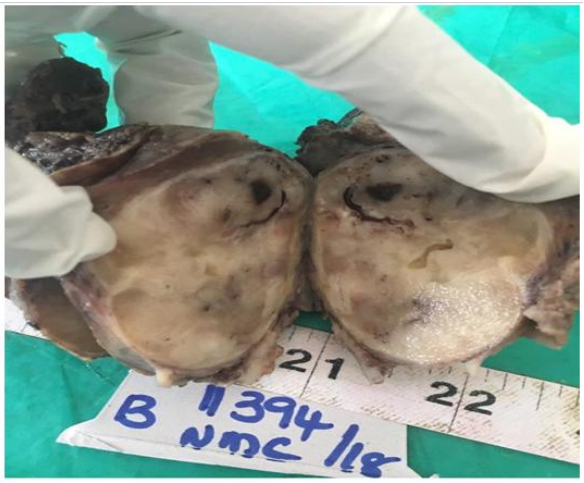

Fig-1: Gross specimen of left lobe of thyroid showing grey white circumscribed lesion with colloid filled nodules

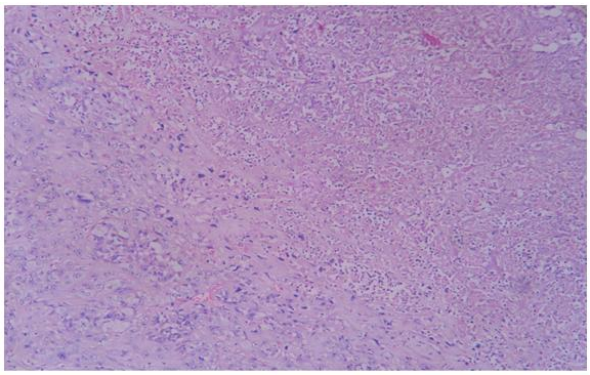

Fig-2: Microscopic Examination (H & E) (10X) Shows necrosis and pleomorphic tumour cells

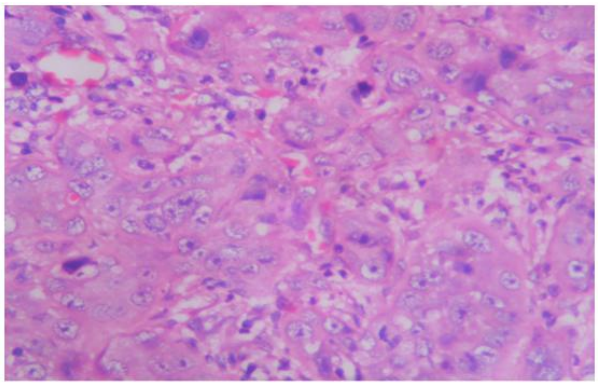

Fig-3: Microscopic Examination (H & E) (40X) Shows Tumour cells having round to oval hyperchromatic pleomorphic nuclei, prominent nuclei and moderate cytoplasm

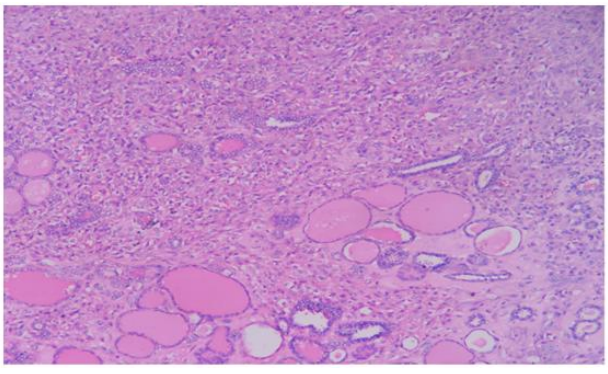

Fig-4: Microscopic Examination Shows Thyroid Follicles of variable sizes which are lined by

DISCUSSION

ACT is an aggressive form thyroid gland cancer. It represents less than 2% of all thyroid malignancy and its prognosis is worse in contrast to well differentiated thyroid cancer [1]. Clinically majority of the patients have dominant nodules in both lobes of thyroid. The major risk factor in anaplastic thyroid carcinoma cases have previous history of benign or malignant thyroid disease. Anaplastic carcinoma is an aggressive disease with increased survival rate seen only in young patients [1]. Most patients have localized symptoms such as dysphagia. Stridor and neck pain. Anaplastic carcinoma of thyroid is seen frequently in women in their 6th or 7th decades with female to male ratio 3:1 [1].

There are two main theories pertaining to the etiopathogenesis of ACT. First is the development due to anaplastic transformation of an accompanying well differentiated tumor and the second is the de novo development theory [5]. Another possible cause for this type of differentiation is post-operative radioactive iodine therapy. There is one more hypothesis of dedifferentiation of benign or malignant thyroid diseases for etiopathogenies of ACT [1]. Its increased incidence in the elderly and in long standing untreated tumors which supports the anaplastic transformation theory. The presence of concurrent well differentiated carcinoma or previous tumors accounts for 24 -89% of ACT [6]. According to Demeter *et al.*, [7] previous benign or malignant pathology was present in up to 76% of Anaplastic carcinoma and 46% of cases had previous papillary thyroid carcinoma. The dedifferentiation from well differentiated thyroid carcinoma in to anaplastic carcinoma is associated with P53 mutation. ACT cases show a higher incidence of p53 mutation when compared to differentiated thyroid carcinomas [8].

Anaplastic carcinoma usually presents in older age groups as a rapidly growing mass. It is associated with dyspnea, hoarseness of voice and dysphagia. It may account for 30-40% of cases in places when goitre is endemic. Anaplastic carcinoma of thyroid is more common in female and elderly people, in patients with long standing goitre. Macroscopically tumour shows extensive replacement of the thyroid parenchyma and invasion of adjacent soft tissue. Tumour grossly shows fleshy white tan with extensive necrosis and haemorrhage. Microscopically tumour shows cells are arranged in sheets, nests, fascicles and haphazardly. Nuclear atypia and mitotic figures are seen without papillary and follicular pattern. Extensive coagulative necrosis with ghost shadows of pre existing blood vessels, neutrophilic infiltration, multinucleated giant cells and haemorrhages are noted in the stroma.

Morphological variants include undifferentiated carcinoma, angiomatoid, osteoclastic, rhabdoid, lymphoepithelioma, paucicellular and carcinosarcoma. Anaplastic carcinoma of thyroid can be differentiated from other lesions like sarcoma, solid variant of papillary carcinoma of thyroid and poorly differentiated carcinoma, medullary carcinoma by histopathological examination. Poorly differentiated thyroid carcinoma histologically shows better columnar organization into islands with microfollicular and papillary pattern. Cells are relatively small, have fairly uniform nuclei; whereas anaplastic carcinoma of thyroid shows absence of microfollicular and papillary pattern. Solid variant of papillary carcinoma of thyroid histologically shows nuclear features of conventional papillary carcinoma and lacks features of bizarre nuclei and mitotic figure seen in anaplastic carcinoma of thyroid. Sarcomatoid anaplastic thyroid carcinoma closely simulates soft tissue sarcomas. Histologically the tumor shows spindle cells and osteoclast like multinucleated giant cells. Spindle cells arranged in storiform or fascicular pattern, hemagiopericytoma like pattern or form anastomosing channels lined by tumor cells resembling an angiosarcoma. Two characteristic histologic features are helpful to differentiate sarcomatoid anaplastic carcinoma from a true sarcoma. The presence of angulated necrotic foci with neoplastic cells palisading around them as seen in glioblastoma of central nervous system and the tendency of the spindle neoplastic cells to infiltrate the wall of large sized vein and arteries [9]. Medullary carcinoma of thyroid histologically shows round, plasmacytoid polygonal and spindle cells arranged in nests, cords and follicular pattern. Stroma shows amyloid deposition. Calcitonin marker helps to differentiate from anaplastic thyroid carcinoma. Anaplastic thyroid carcinoma show variable immune reactivity for cytokeratin. EMA and CEA are more expressed in epithelial cells where as vimentin in spindle cell component [2]. ATC are not immunoreactive p for thyroglobulin, calcitonin and TTF-1

The decreased incidence of ACT is due to patient being treated at an early stage with effective surgeon. Anaplastic carcinoma thyroid is a very aggressive malignancy. The prognosis is poor with survival of 3 months. The prognosis of anaplastic thyroid carcinoma depends on factors such as age, gender, tumour size and respectability. According to literature data, patients age and extent of disease at the time of diagnosis are the important prognostic factors [10].

CONCLUSION

Anaplastic carcinoma is an uncommon most aggressive thyroid neoplasm among all lethal human tumors. Surgery followed by adjuvant multimodality treatment (radiotherapy / chemotherapy) can improve local control and extend medium survival. Histopathological examination is helpful to confirm the diagnosis.

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