

## CASE REPORT

### PLASMACYTOMA OF THE THYROID GLAND

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Among the clinical presentation of plasma cell proliferative disorders the extramedullary plasmacytomas are the most infrequent after multiple myeloma and plasma cell tumours of the bones. The plasmacytoma of the thyroid gland to our knowledge has never been reported from Pakistan so far. We present the clinical picture and clinical challenges posed in diagnosis and treatment by this unusual proliferative disorder.

**Keywords:** Plasmacytoma; Thyroid gland.

## INTRODUCTION

Plasma cell tumours have been divided into three main types, i.e., multiple myeloma, solitary marrow plasmacytoma, and extra-medullary plasmacytoma. Multiple myeloma, which is the disseminated form, is the most frequent, and has poor prognosis.

Extra-medullary plasmacytoma and solitary plasmacytoma of bone are usually localised and exhibit more locally aggressive characteristics and does not exhibit multifocality, although both of them may evolve into classical wide spread multiple myeloma months to years after initial diagnosis. As in multiple myeloma, soft tissue may be involved in plasmacytoma.<sup>1</sup>

When plasmacytomas involve soft tissue the disease is usually more aggressive compared to the marrow involvement proliferation and the most common sites of invasion are soft tissues of the upper aero-digestive tract.<sup>1,2</sup> The imaging modalities like Computed Tomography (CT) scan and Magnetic Resonance Imaging (MRI) will show the extent of the disease process but often the images are not specific for the disease process and biopsy remains the mainstay of the diagnosis.<sup>2,3</sup>

## CASE REPORT

A 69-year-old lady with a 3 year history of a soft swelling in the anterior neck presented with a discharging sinus in the left side of the midline, while the swelling was to the right of it. She was planned for surgical exploration and prior to the surgical intervention baseline biochemical, haematological and imaging investigations were carried out. The biochemical routine biochemical profile like renal function tests, liver function tests and thyroid hormone profile were all within normal limits along with routine haematological investigations. Ultrasound (U/S) of the neck showed a large nodule measuring 3×2 Cm involving the right lobe of the thyroid with hypoechoic core and thick, irregular calcification of the margins, while the left lobe of thyroid showed normal shape size and echo-texture. The final comments were 'large complex cyst right

lobe of thyroid gland'. Fine needle aspiration of the nodule was performed under U/S guidance and about 5 ml of yellowish white fluid was aspirated and slides were fixed in alcohol after proper smearing on clean glass slides. These pre-fixed slides were sent to cytopathologist of opinion. The microscopic description of the aspirated pus-like material showed sheets of pus cells, neutrophils and foamy histiocytes, the background contained necrotic debris and mononuclear chronic inflammatory cells, predominantly lymphocytes, and inference was consistent with an abscess. The patient underwent surgery for goitre with non-healing ulcer and pustular discharge, the procedure was labelled as excision of fistula tract with sub-total thyroidectomy. On gross examination the surgically removed specimen was a single greyish nodular fragment of tissue measuring 6×4.5×1.5 Cm filled with viscous yellowish white material. The cyst wall thickness measured about 0.5 Cm. The solid areas encountered were greyish white in colour. Two other irregular brown fragments of thyroid collectively measuring 7×2×2 Cm were also part of the specimen. The microscopic description showed fragment of thyroid tissue infiltrated by dense population of plasma cells along with lymphocytes. Bi-nucleated plasma cells were also seen. Focal area showed fibrosis with hyalinisation. Scattered epithelioid cells granuloma and Langhans giant cells were also seen. The final opinion of the histopathology was consistent with plasmacytoma.

After this description a search for more extensive disease of plasma cell proliferation was made to exclude multiple myeloma. The urinary Bence Jones's proteins were not detected and plasma protein electrophoresis was almost normal except for a mild polyclonal increase in gamma globulin fraction which may be encountered in chronic inflammation, Chronic Liver Disease, or any autoimmune response. Serum immuno-fixation also showed no evidence of monoclonal gammopathy. Her skeletal survey was unremarkable, CT scan of the neck and upper mediastinum did not reveal any adenopathy and bone marrow examination did not show any increase in plasma cells, thus excluding

multiple myeloma. Her 4-week post-surgery thyroid function test showed a sub-clinical hypothyroid state with a serum TSH 7.2 mIU/ml.

## DISCUSSION

Plasma cell dyscrasias are a group of disorders that are characterised by expansion of a single clone of immunoglobulin-secreting plasma cells, with resultant increase in serum levels of single complete or partial immunoglobulin. The homogenous immunoglobulin identified in the blood is often referred to as an "M" component.<sup>4</sup> Plasma cell dyscrasias are further subdivided into six major variants<sup>4,5</sup>, i.e., multiple myeloma, localised plasmacytoma, lymphoplasmacytic lymphoma, heavy-chain disease, primary or immunocyte-associated amyloidosis, monoclonal gammopathy of undetermined significance.

Localised plasmacytoma are further sub-classified into two groups: a) Solitary skeletal plasmacytoma, mainly affecting the bones of spine, pelvis, and femur, which it may finally evolve into multiple myeloma, and b) extramedullary plasmacytoma that involves soft tissues.<sup>4-6</sup>

Extra-medullary plasmacytoma represents less than 5% of all plasma cell neoplasms. It affects males 2–3 times more than females and typically occurs between the 4<sup>th</sup> and 7<sup>th</sup> decades of life. The most common location of extra-medullary plasmacytoma is upper respiratory tract and oral cavity. Although, it may involve many sites in the head and neck, including minor salivary gland, parotid gland, tongue, temporal bone, and thyroid gland. Extra-medullary plasmacytoma has also been reported outside the head and neck including, pleurae, mediastinum, spermatic cord, ovary, intestine, kidneys, pancreas, breast, and skin.<sup>7</sup>

Thyroid gland is one of the rarest sites to be involved by plasmacytoma. Very few cases of solitary plasmacytoma of the thyroid gland have been reported.<sup>8,9</sup> Extra-medullary plasmacytoma of the thyroid gland usually present with painless, non-tender, mobile, multinodular or diffuse thyroid mass

with no associated cervical lymphadenopathy and is usually misinterpreted as goiter.<sup>7-9</sup>

One of the challenging issues in the diagnosis of solitary thyroid plasmacytoma is to rule out the possibility of disseminated multiple myeloma. Evidence of normal bone marrow on histological examination, absence of lytic bone lesions on skeletal survey, together with low para-protein levels is confirmatory of solitary thyroid plasmacytoma.<sup>10</sup>

In view of the age of the patient, localised disease, adequate surgical excision and no evidence of multiple myeloma the patient's surgical management was considered to be the optimum treatment and as patient had sub-clinical hypothyroidism. She was started on thyroxin replacement therapy. She is in close follow-up and is advised to come after ever 6–8 weeks for clinical examination and thyroid hormone profile.

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