

# An unusual cause of progressive quadriparesis

Vimal Upreti, M. S. Sridhar<sup>1</sup>, Pawan Dhull<sup>2</sup>, Arijit Sen<sup>3</sup>

Departments of Endocrinology, <sup>1</sup>Neurosurgery, <sup>2</sup>Neurology, and <sup>3</sup>Histopathology, Command Hospital (Air Force), Bangalore, Karnataka, India

### ABSTRACT

Thyroid carcinoma is a rare cause of compressive myelopathy. Quadriparesis as the presenting manifestation of follicular carcinoma of thyroid without any preceding features of malignancy is quite uncommon. We describe a case of a 55-year-old woman who presented with progressive quadriparesis of 2 months duration, on evaluation was found to have a large tumor destroying C1, C2 vertebrae and occupying craniovertebral junction. Histopathological examination of excised tumor was follicular thyroid carcinoma. She was successfully managed with surgical excision, stabilization of spine followed by radiotherapy.

**Key words:** Follicular thyroid cancer, metastasis, quadriparesis

## INTRODUCTION

Metastatic cancers commonly associated with cord compression include breast, lung and prostate. Thyroid carcinoma as a cause of compressive myelopathy is extremely rare and described as isolated case reports in the literature. Quadriparesis as the presenting manifestation of follicular carcinoma of thyroid without any preceding features of malignancy is quite uncommon.<sup>[1]</sup> we describe one such case of a 55 years old lady who presented with progressive quadriparesis, was later diagnosed as metastatic follicular thyroid carcinoma and managed successfully with combination of surgery followed by radiotherapy.

## CASE REPORT

A 55-year-old lady presented with complaints of neck pain for past 1 year and progressive quadriparesis of 2 months duration and was bed ridden at presentation. There was no history suggestive of lower cranial palsies

or sphincteric abnormalities. She underwent surgery for multinodular goiter 15 years ago. Clinically, her vital signs were stable and general physical examination was non-contributory. Neurologically she was conscious, alert with involvement of lower cranial nerves (absent gag reflex and wasting of sternocleidomastoid and trapezius). However, there was no facial sensory loss or Horner's syndrome. Motor examination revealed spasticity of all four limbs. Power was grade 2/5 power proximally and 1/5 distally in left upper limb; whereas, it was grade 0/5 in all other limbs and there was weakness of neck and trunk muscles. Graded loss of all modalities of sensation was noted from C3 dermatome downward without sacral sparing. Examination of neck showed a pulsatile swelling in the right retromastoid region, well-healed scar of previous surgery and solitary nodule in the right lobe of the thyroid. Investigations revealed normal hemogram, biochemistry, normal thyroid function with 2.5 cm × 1 cm nodule in the right lobe of thyroid on ultrasonography. Computed tomography of neck revealed a large tumor destroying C1 and part of C2 vertebrae, occupying craniovertebral junction and encroaching into the cervical canal causing severe compromise [Figure 1a and b]. Through posterolateral approach to the craniovertebral junction, decompression with occipito C3 and C4 vertebrae fusion using Magerl's technique was carried out [Figure 2]. Histopathologically, biopsied tissue showed thyroid follicles filled with colloid within skeletal muscle and connective tissue. There were

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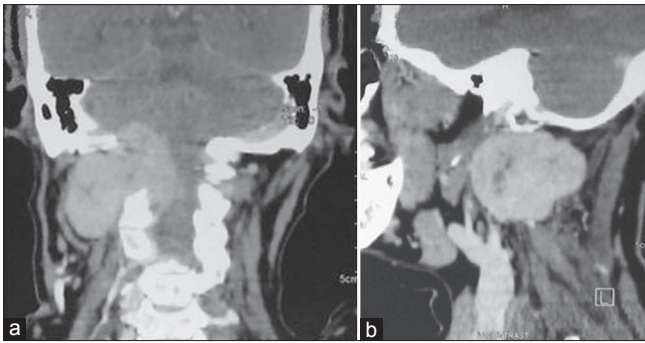
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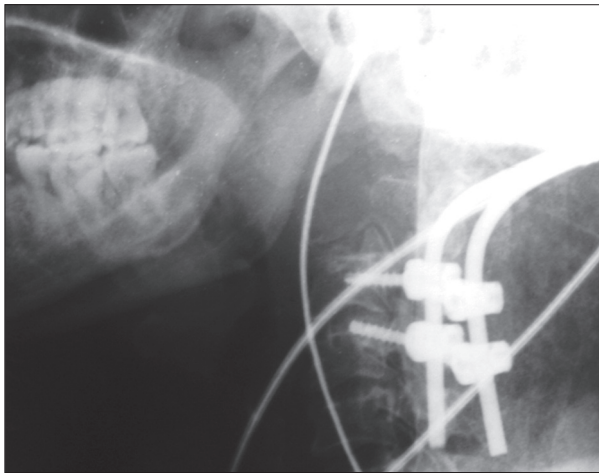
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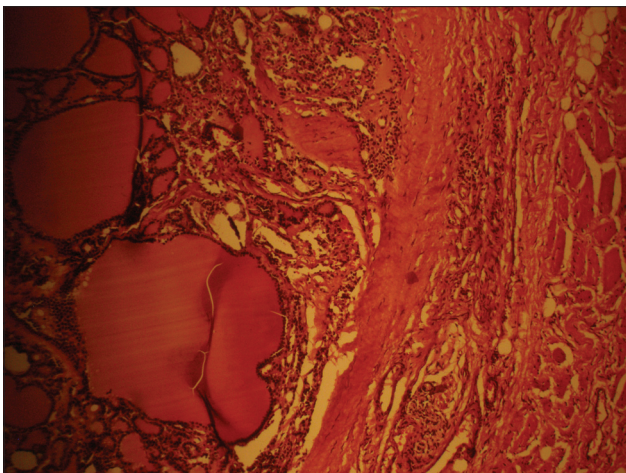
**Corresponding Author:** Dr. Vimal Upreti, Department of Endocrinology, Command Hospital (Air Force), Bangalore - 560 007, Karnataka, India.  
E-mail: v\_upreti123@rediffmail.com



**Figure 1:** (a and b) Computed tomography scan of neck (coronal and sagittal reconstruction) showing a large tumor destroying C1 and part of C2 vertebrae, occupying craniocervical junction and encroaching into the cervical canal causing severe compromise



**Figure 2:** Post-operative radiograph of the cervical canal showing occipito C3, C4 lateral mass screw fusion



**Figure 3:** H and E stained (x20) slides showing follicular carcinoma lying embedded in skeletal muscle

no papillae giving a diagnosis of metastatic follicular carcinoma of thyroid [Figure 3]. She later underwent completion total thyroidectomy and I<sup>131</sup> Radioiodine ablation along with external beam radiotherapy of residual neck mass. Histopathological examination of

thyroidectomy specimen also confirmed finding of follicular carcinoma of the thyroid in a solitary nodule. At follow-up after 3 months, her spastic quadriplegia still persisted though the power had improved to 4/5 power proximally and 2/5 power distally in all four limbs.

## DISCUSSION

Thyroid cancer is the fifth most common malignancy in women.<sup>[2]</sup> Osseous metastases occur in 2-44% of patients in differentiated thyroid cancer (DTC)<sup>[3,4]</sup> more frequently in follicular (7-28%) as compared to papillary cancer (1.4-7%). More than 80% of bone metastases from all tumors including DTC are located in the axial skeleton red marrow (vertebrae, ribs and hips) owing to high blood flow.<sup>[3]</sup> Clinically, they present with bone pains, pathological fractures or signs of cord compression<sup>[4]</sup> like our case. Most patients with DTC have predominantly osteolytic lesions, with secondary bone formation that accounts for increased radionuclide uptake on bone scan. Bone metastases from thyroid cancer are generally resistant to <sup>131</sup>I and may require other modalities. Indications for surgery include persistent pain refractory to medical therapy, tumors with poor radioactive uptake and spinal instability with or without neural compression.<sup>[4]</sup> Surgical debulking is associated with improved quality and longevity. External beam radiotherapy is another option to reduce tumor burden and pain. Our patient was treated along the same lines. Embolization of feeding vessel is a potent palliative modality for pain relief, further tumor growth and pre-operatively to reduce blood loss. Other potential modalities to reduce or prevent bone metastases include radio frequency ablation, bisphosphonates, denosumab, anti-angiogenic factors (bevacizumab) and gene therapy.<sup>[2,3]</sup>

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