

ROMANIAN
NEUROSURGERY

Vol. XXXIV | No. 4 December 2020

Cervical extradural metastasis from
follicular carcinoma thyroid after 14
years post-thyroidectomy with Elsberg
phenomenon

Vijayan Peettakkandy,
Shanavas Cholakkal,
Subrat Kumar Soren,
Harikrishnan S.



Cervical extradural metastasis from follicular carcinoma thyroid after 14 years post-thyroidectomy with Elsberg phenomenon

Vijayan Peettakkandy, Shanavas Cholakkal,
Subrat Kumar Soren, Harikrishnan S.

Department of Neurosurgery, Government Medical College,
Kozhikode, Kerala, INDIA

ABSTRACT

Background. Follicular carcinoma thyroid usually metastasises to bone. Common sites of bone metastasis include skull and spine. Spinal metastasis are more common in the cervical region followed by dorsolumbar spine. Cervical extradural lesions present with progressive quadriparesis, sensory loss, dysautonomia, and respiratory distress. Typical Elsberg phenomenon in a cervical extradural lesion is rare. Elsberg phenomenon involves the involvement of ipsilateral upper limb, ipsilateral lower limb followed by contralateral lower limb and contralateral upper limb.

Case presentation. We are reporting a case of 47-year-old lady presented with progressive quadriparesis of 1-month duration. Her weakness started in left upper limb followed by left lower limb, right lower limb and right upper limb weakness. She also had sensory loss below the level of C7. She had undergone near-total thyroidectomy for solitary thyroid nodule 14 years back and was on thyroid supplementation since then. Histopathology at that time was reported as follicular adenoma with Hashimoto thyroiditis. Her right upper limb power was grade 4- Left upper limb grade 1 right lower limb Grade 3, left lower limb grade 2 with hypertonia of both upper and lower limbs. She was evaluated with MRI Spine which showed a dumb bell-shaped extramedullary lesion involving the C5-C6 vertebra with significant cord compression and encasement of the left vertebral artery. USG neck showed left supraclavicular lymph node enlargement and small residual thyroid tissue in the left side of the thyroid. USG guided FNAC from the thyroid tissue and neck nodes were inconclusive. The patient underwent C4 and C5 laminectomy and subtotal excision from the cervical lesion. Histopathology was reported as metastasis from follicular carcinoma thyroid. Postoperatively patient limb power improved to grade 3 left upper and lower limbs and was discharged and later referred for radioiodine ablation

Conclusion. Cervical extradural metastasis from follicular carcinoma thyroid can present with Elsberg syndrome even without any neck swelling even after decades of post thyroidectomy status for a benign aetiology. Laminectomy and decompression may lead to clinical improvement.

INTRODUCTION

Carcinoma thyroid is the fifth common malignancy in women and can be broadly classified in to papillary, follicular, medullary and anaplastic.

Keywords
thyroid,
follicular carcinoma,
cervical extradural,
Elsberg phenomenon



Corresponding author:
Shanavas Cholakkal

Department of Neurosurgery,
Government Medical College,
Kozhikode, Kerala, India

shanavascholakkal@gmail.com

Copyright and usage. This is an Open Access article, distributed under the terms of the Creative Commons Attribution Non-Commercial No Derivatives License (<https://creativecommons.org/licenses/by-nc-nd/4.0/>) which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is unaltered and is properly cited.

The written permission of the Romanian Society of Neurosurgery must be obtained for commercial re-use or in order to create a derivative work.

ISSN online 2344-4959
© Romanian Society of
Neurosurgery



First published
December 2020 by
London Academic Publishing
www.lapub.co.uk

(1) Papillary carcinoma thyroid is the most common variety, which usually metastasise to neck nodes via lymphatic system. Whereas the follicular carcinoma thyroid spreads hematogenously to lungs and bones. 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. (1)Clinically, they present with bone pains, pathological fractures or signs of cord compression. Progressive Quadriplegia with typical Elsberg phenomenon as the presenting manifestation of follicular carcinoma of thyroid in a post near- total thyroidectomy for a benign etiology after several years of thyroidectomy is quite uncommon in medical literature related to this (2).

CASE PRESENTATION

A 47-year-old lady presented with complaints of neck pain of 4 months duration followed by progressive paraparesis of 1 month duration. Weakness initially started as left upper limb weakness 1 month back followed by weakness of left lower limb, right lower limb and right upper limb. At the time of presentation, she was bed ridden. She also complained of numbness over all the four limbs and chest and abdomen and had urinary retention and constipation. She had underwent near total thyroidectomy for Solitary thyroid nodule 14 years back and histopathology was reported as follicular adenoma with Hashimoto thyroiditis. She was under follow up for next 2 years and was on thyroid hormone replacement. On examination, she was conscious, alert, hemodynamically stable. No signs of hyperthyroidism or hypothyroidism. She had a healed thyroidectomy scar in the neck with Left supraclavicular lymphadenopathy and no other palpable swellings. Her right upper limb power was grade 4- Left upper limb grade 1 right lower limb Grade 3, left lower limb grade 2 with hypertonia of both upper and lower limbs. She had sensory loss below the C7 level. Triceps jerk, knee jerk and ankle jerk were exaggerated bilaterally and plantar was extensor bilaterally.

Her routine blood investigations were normal. ESR was slightly elevated (42 mm/hr). Mantoux test was negative. She was evaluated with MRI C-spine with screening of whole spine which showed an ill-defined lobulated heterogenous enhancing dumbbell shaped probably extradural soft tissue lesion of size 3.5x3.3x3 cm (TxAPxCC) in the C5 and

C6 vertebral level with infiltration in to the body of C6 vertebra. The lesion was extending intraspinally causing severe spinal canal compromise with compression over the spinal cord . The lesion was extending superiorly in to the posterior epidural space from C4 to C7 and was encasing the left vertebral artery at level of C5- C6 vertebra. USG abdomen and chest X ray were normal. Ultrasound neck showed thyroid tissue in the thyroid bed and left supraclavicular lymphadenopathy. FNAC from the left supraclavicular lymphnode and recurrent thyroid were inconclusive.

She underwent C5-C6 laminectomy and subtotal excision of the lesion. The intraoperative findings suggested an extradural lesion at C5-C6 level involving and destroying the C6 vertebra and compressing the spinal cord and encasing left vertebral artery. Histopathology was reported as metastasis from the follicular carcinoma thyroid with TTF-1 positivity. Patient improved clinically postoperatively. At the time of discharge, she had grade 3 power of left upper and lower limbs and grade 4 power of right upper and lower limbs. She underwent radio-iodine scanning followed by radioiodine ablation. She is presently on limb physiotherapy and rehabilitation.

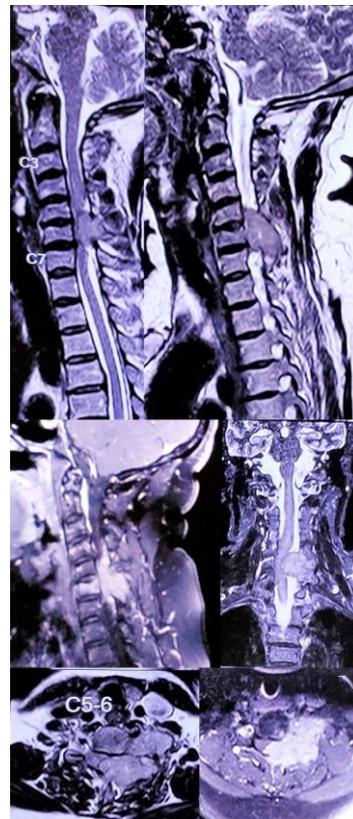


Figure 1. MRI C-spine showing an ill-defined lobulated heterogenous enhancing dumbbell shaped probably extradural soft tissue lesion

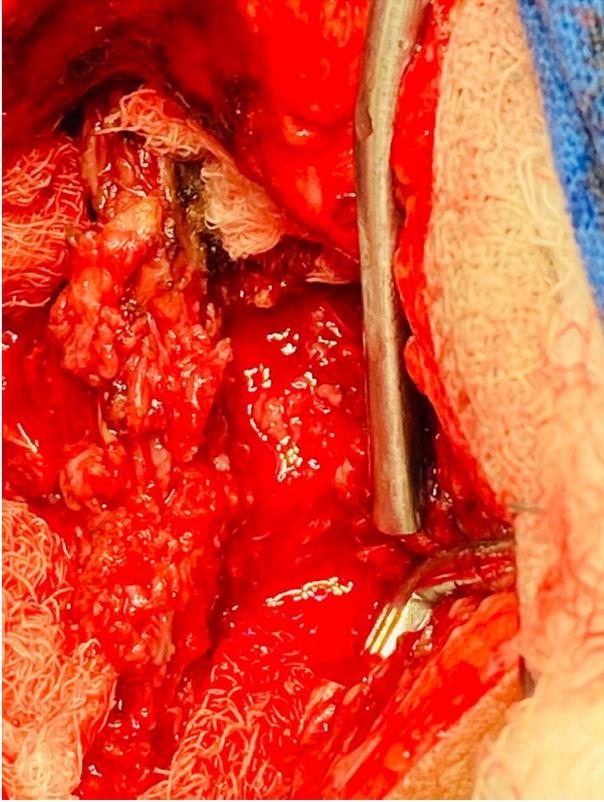


Figure 2a. Intraoperative image showing extradural lesion with destruction of C5 and C6 vertebral body with encasement of left vertebral artery.

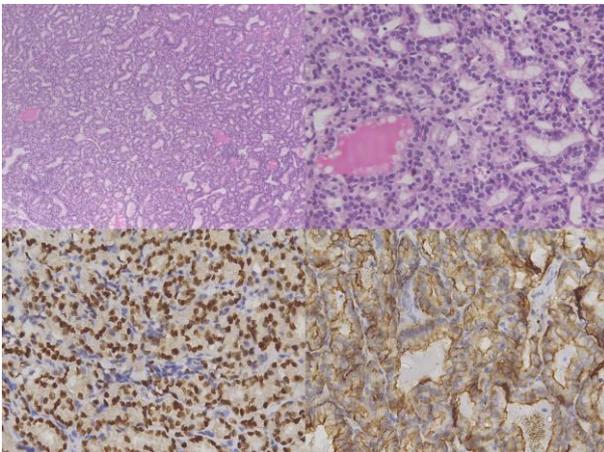


Figure 2b. Histopathology was reported as metastasis from the follicular carcinoma thyroid with TTF-1 positivity.

DISCUSSION

Follicular carcinoma usually forms osteolytic metastasis and are common in the skull and spine. Usual site of spinal metastasis in follicular carcinoma is thoracic > lumbar > cervical. (1) Presentation of follicular carcinoma thyroid spinal metastasis may

vary. Patient can present with destruction of the vertebral body, localised tenderness, radiculopathy and with features of myelopathy like quadriparesis or paraparesis, sensory deficits, sphincter disturbances, autonomic dysfunction and respiratory distress. In extradural lesions usually symptoms are progressive as the size of the lesion increases. (3,4)

Elsberg U phenomenon is the progressive quadriparesis with sequential involvement of ipsilateral upper limb, ipsilateral lower limb followed by contralateral lower limb and contralateral upper limb, often described as U-shaped or clockwise involvement of limbs. Elseberg U phenomenon is commonly seen in cervical myelopathy due to cervical extradural lesions or in Foramen magnum pathology and very rarely due to extradural metastasis from follicular carcinoma thyroid. (3,5,6,7)

MRI spine is the investigation of choice for spinal tumours. MRI can help in differentiating the intramedullary tumours from extramedullary and extradural tumours. Bony structure can be properly evaluated by CT spine. (8) Contrast enhanced imaging helps in delineating the relationship of the cervical lesion with vertebral artery as well. If required vertebral artery reconstruction, along with bony reconstruction can help in perioperative planning. Extradural lesions are most commonly tuberculous, myelomatous or metastatic. Hence workup for primary is done routinely. Surgical decompression and biopsy can help in confirmation of diagnosis and clinical improvement

This case is reported in view of the rare clinical presentation of metastatic follicular carcinoma thyroid after 14 years post thyroidectomy without any neck swelling presenting with Elsberg phenomenon. It also suggests the need for more regular followup in cases of follicular adenoma and Hashimoto thyroiditis.

CONCLUSION

Cervical extradural metastasis from follicular carcinoma thyroid can present with Elsberg syndrome even without any neck swelling even after decades of post thyroidectomy status for a benign etiology. Laminectomy and decompression may lead to clinical improvement. Postoperative radioablation may be required in case of incomplete excision.

ABBREVIATIONS

MRI - Magnetic resonance imaging; CT - Computed Tomography; DTC - Differentiated thyroid cancer; FNAC - Fine needle aspiration cytology; ESR - Erythrocyte sedimentation rate.

DECLARATIONS

Ethics approval and consent to participate.

Informed written consent for participation obtained from the Patient and her caretakers.

Institutional Ethics committee approval not obtained as the study did not involve any human trials.

Consent for publication

Informed written Consent for publication obtained from the Patient and her caretakers

Availability of data and material

Data and material available in the Department of Neurosurgery, Govt Medical College, Kozhikode, Kerala, India.

Competing interests

Authors declare that there is no competing interests

Funding

Nil

Authors' contributions

All authors have contributed to the preparation of manuscript. All authors have read and approved the manuscript, and ensure that this is the case.

Acknowledgements

Nil

REFERENCES

1. Parameswaran R, Shulin Hu J, Min En N, Tan WB, Yuan NK. Patterns of metastasis in follicular thyroid carcinoma and the difference between early and delayed presentation. *Ann R Coll Surg Engl.* 2017;99(2):151–4.
2. Ríos A, Manuel Rodríguez J, Balsalobre MD, Febrero B, Tébar J, Parrilla P. [Distant metastases as the initial manifestation of follicular thyroid carcinoma]. *Endocrinol Nutr.* 2009 Apr;56(4):213–4.
3. Upreti V, Sridhar M, Dhull P, Sen A. An unusual cause of progressive quadriplegia. *Indian J Endocrinol Metab.* 2013 Oct 1;17(7):155.
4. Haghpanah V, Abbas SI, Mahmoodzadeh H, Shojaei A, Soleimani A, Larjani B, et al. Paraplegia as initial presentation of follicular thyroid carcinoma. *J Coll Physicians Surg Pak.* 2006 Mar;16(3):233–4.
5. Dong P, Chen N, Li L, Huang R. An upper cervical cord compression secondary to occult follicular thyroid carcinoma metastases successfully treated with multiple radioiodine therapies. *Med (United States).* 2017 Oct 1;96(41).
6. Goldstein SI, Kaufman D, Abati AD. Metastatic thyroid carcinoma presenting as distal spinal cord compression. *Ann Otol Rhinol Laryngol.* 1988;97(4):393–6.
7. Khan MN, Sharfuzzaman A, Mostafa MG. Spinal cord compression as initial presentation of metastatic occult follicular thyroid carcinoma. *J Neurosci Rural Pract.* 2014 Apr;5(2):155–9.
8. Çoban G, Yildirim E, Gemici K, Erinanç H. MRI findings of lumbosacral metastasis from occult follicular thyroid cancer: report of a case. *Surg Today.* 2014 Mar;44(3):553–7.