

Follicular Variant of Papillary Thyroid Carcinoma Presenting with Thoracic Vertebral Metastasis: A Rare Phenomenon

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ABSTRACT

Follicular variant of papillary thyroid carcinoma (FV-PTC) often follows nodal spread; and hematogenous spread is rare.

A 77-year male presented to the Neurosurgery Outpatient Clinic with complaints and examination findings of spinal cord compression (SCC) by a mass at the 11th thoracic vertebra (T11). Subtotal mass excision, thoracic corpectomy with cage reconstruction, laminectomy, and posterior spinal stabilisation were performed. The patient, whose pathology result suggested follicular carcinoma metastasis, underwent total thyroidectomy two months after spinal surgery. The pathology of the thyroid was compatible with FV-PTC. Even four years after the total thyroidectomy, the neurological status of the patient was still stable and neither tumoral recurrence nor a new metastasis was detected.

In the literature, the number of cases with FV-PTC presenting with SCC due to spinal metastasis is limited.

Key Words: Thoracic vertebrae, Metastasis, Papillary thyroid carcinoma, Spinal cord compression.

How to cite this article: Ozger O, Kaplan N. Follicular Variant of Papillary Thyroid Carcinoma Presenting with Thoracic Vertebral Metastasis: A Rare Phenomenon. *J Coll Physicians Surg Pak* 2022; **32(03)**:395-397.

INTRODUCTION

Thyroid carcinomas account for more than 90% of all endocrine cancers. More than 70% of cancers affecting the thyroid gland are papillary thyroid carcinomas (PTCs). Follicular, papillary microcarcinoma, tall cell, oncocyctic and columnar cell variants are histological variants of PTC. The incidence of distant metastasis has been reported to be 2.3% in PTC. Bone metastases represent 25% of these metastases. Lymph nodal spread is more common in the follicular variant of PTC (FV-PTC). Clinical conditions, such as fractures and spinal cord compression (SCC) may occur due to bone metastasis. In such cases, the five-year and 10-year survival rates have been reported to be 41% and 15%, respectively.^{1,2}

In many cases of thyroid cancer, SCC is not the first manifestation for presentation to the hospital. The first PTC case, resulting in cervical SCC, was reported by Selvakumar *et al.* in 2016.³

This study aimed to present a rare case of FV-PTC presenting with SCC-related clinical findings due to the distal thoracic vertebral metastasis in the light of available literature.

CASE REPORT

A 77-year male, suffering from back pain for three months, was admitted to our hospital with complaints of weakness and numbness in both legs, which had been increasing for the last 20 days. He had no known diseases other than hypertension in his medical history. Neurologically, he had 4/5 graded power in the L2-S1 myotomes, bilaterally. The 11th thoracic vertebra (T11) and lower were hypoesthetic. However, there was no sphincter involvement. The bilateral Babinski reflex was positive. There was clonus in the left foot. Except for his neurological examination, other physical examination findings were normal. There was no cancer history in his family.

Magnetic resonance imaging (MRI) of the cervical and thoracic spine was taken. There was a mass with a size of 94×60×55 mm that was causing spinal canal stenosis at T11. The X-ray showed a large osteolytic lesion on the left side of T11 vertebral body (Figure 1). He underwent operation under general anesthesia. Subtotal tumor resection, laminectomy, thoracic corpectomy with cage reconstruction, and posterior spinal stabilisation were performed (Figure 2). The patient's neurological status was completely improved during the Outpatient Clinic follow-up, performed one month after surgery.

The patient's pathology was suggestive of thyroid follicular carcinoma metastasis. Pathologists recommended examining the thyroid tissue. Therefore, the patient underwent total thyroidectomy at another centre two months after spinal surgery. His pathology was found to be compatible with FV-PTC.

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Received: May 12, 2020; Revised: June 20, 2020;

Accepted: July 28, 2020

DOI: <https://doi.org/10.29271/jcpsp.2022.03.395>

Diffuse capsular, lymphatic and blood vessel invasion were detected. The patient underwent iodine-131 ablation and palliative radiation therapy. Neither any recurrence nor any new metastases were observed four years after total thyroidectomy surgery. There was no disturbance in his neurological status.

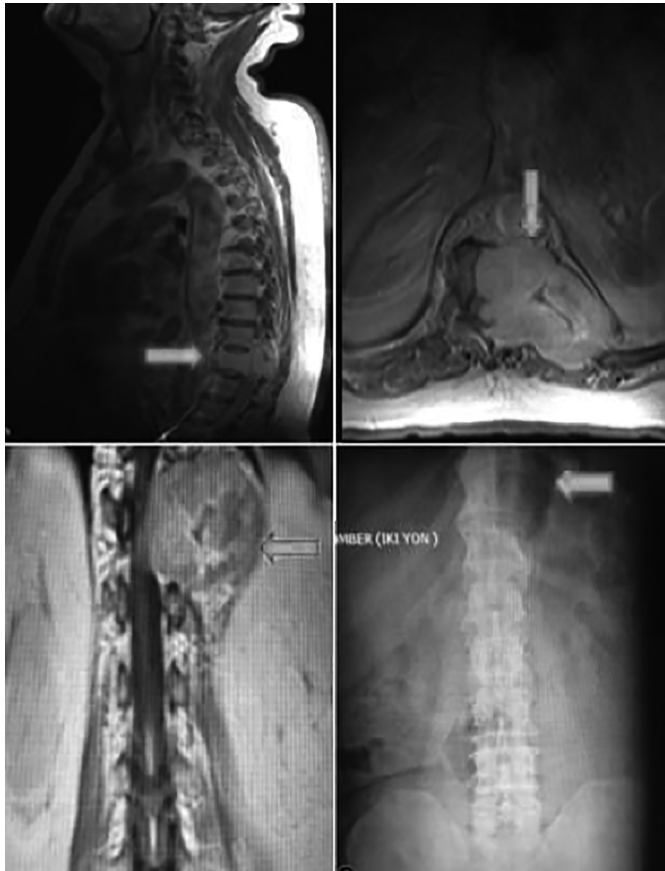


Figure 1: Preoperative sagittal and axial cervicothoracic MRI images (upper figures) and coronal thoracolumbar MRI and X-ray images (lower figures) of a 77-year male patient. The appearance of FVPTC before surgery (blue arrows).

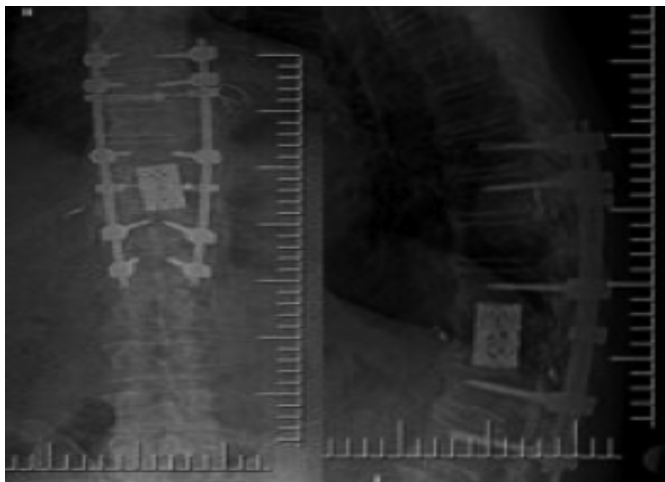


Figure 2: Postoperative X-ray image of a 77-year male patient.

DISCUSSION

The PTC is the most common form of well-differentiated thyroid carcinoma. It can be minimally or clearly invasive. The inci-

dence of metastasis, except for the neck and mediastinum is approximately 11% in patients with this type of cancer. The spinal metastasis is an unusual occurrence in PTC cases.⁴

Dablouk *et al.* presented a case of a 65-year female patient, who underwent thyroid surgery 10 years ago, and presented to the hospital with a complaint of movement disorder. Her examination revealed paraparesis. Following the examinations, PTC metastasis was detected at T7 level and radiotherapy was given after surgery (debulking and laminectomy).⁴ Similarly, Takayanagi *et al.* reported a case of a 52-year female patient with a history of hypertension, who presented to the hospital with complaints of back pain, ataxia, and urinary incontinence. Paraparesis and bilateral clonus were detected during her examination. A mass was also detected at the T7 level in this case and corpectomy of T7, expandable cage implantation, laminectomy and posterior thoracic stabilisation between T4-T10 were performed. Her pathology was compatible with PTC metastasis. Therefore, a radiation oncologist and otolaryngologist were consulted for the case.⁵ In the present case, radical surgery was performed and radiotherapy was applied to the operation site, as in both previous cases.

In the second patient, there was no history of thyroid surgery and the patient presented to the hospital primarily with thoracic SCC, as in our patient.

The follicular thyroid carcinoma (FTC) accounts for 15–30% of malignant thyroid neoplasms. FTC is less common than PTC, but is more aggressive and more likely to develop metastatic disease. For the past 15 years, patients with FTC presenting with spinal metastasis have been reported in the literature as case reports.⁶⁻⁸ As can be seen, the number of FTC cases reported in the literature is higher than PTC. However, both surgical and medical treatment approaches are very similar in both cases.

A 56-year male, who underwent total thyroidectomy due to PTC with follicular, trabecular and Hürthle cell (oncocyctic) characteristics, was reported by Daignault *et al.* In the imaging tests performed in the third postoperative month, a lesion with characteristic imaging findings of the Schmorl’s nodule was detected in the L5 vertebra. The biopsy result was reported as PTC metastasis.⁹ This case demonstrated that suspected Schmorl’s nodules can masquerade the emergence of metastatic disease.

The present case is one of the few cases reported in the literature, primarily presenting with the SCC and found to have spinal metastasis, caused by FV-PTC. Albeit rare, FV-PTC metastasis should be taken into consideration in the differential diagnosis in patients with spinal mass lesions.

PATIENT’S CONSENT:

Informed consent was taken from the patient’s parents for publication of this case report and related images.

CONFLICT OF INTEREST:

The authors declared no conflict of interest.

AUTHORS' CONTRIBUTION:

OO: Interpretation, operating surgeon, data acquisition, literature review, manuscript drafting, supervision, critical revision, final approval.

NK: Interpretation, conception and design, manuscript review, editing, critical review, final approval.

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