D:/Nsurg/Vol. 13, No. 2, Jul. - Dec. 2009/Nsurg-10.doc (A) P. 111 – 114

CASE REPORT

Isolated Sacral Metastasis Mimicking a Chordoma Presenting as a First Manifestation of Thyroid Malignancy: Case Report

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ABSTRACT:

Fifty-nine years old female presented with the clinical manifestations of lumbosacral plexopathy. MR imaging revealed a large destructive pelvic mass of sacral origin, mimicking a sacral chordoma. Histopathological findings are suggestive of follicular variant of papillary carcinoma of thyroid origin. There was no clinically palpable thyroid lesion or any clinical feature suggestive of thyroid dysfunction. This report describes an isolated sacral metastasis of thyroid origin without prior clinical features of thyroid malignancy.

Keywords: *Sacral metastasis, Thyroid metastasis, sacral chordoma, spinal metastasis, sacral tumor, pelvic tumors.*

INTRODUCTION

Thyroid metastasis to the spine is extremely rare with few reports of spread to cervical and thoracic spine.[1-3] The most frequent bony destructive tumor of the sacrococcygeal region in the late adult life is chordoma, which has a very slow clinical progression, with gradually worsening lumbosacral plexopathy.[4,5] Clinically, patient with sacrocyccygeal chordoma presents with chronic low back pain and slowly progressive weakness of both lower limbs with subsequent involvement of bladder/bowel functions.[4-6] We describe a case of large sacral tumor with clinical and radiological manifestations mimicking the sacral chordoma while turned out to be a metastasis from thyroid on histopathology after surgical intervention. Patient was having no preoperative clinical manifestations suggestive of any malignancy including thyroid carcinoma. To our knowledge, this is the first case report of an isolated sacral metastasis of thyroid origin without prior clinical manifestations of thyroid malignancy.

CASE REPORT

Fifty-nine years old female presented in the emergency room with complaints of severe low back pain for the last 2 months. There was weakness of both lower limbs with complaints of both constipation and difficulty in passing urine for the last two weeks. Five days back, low back pain also started radiating to both lower limbs. The patient had a past history of mild to moderate low backache.

On neurological examination, she had a straight-leg raising restricted to 10 degree on the right side and 50 degree on the left side. Power in left lower limb was 5/5 (MRC scale) and it was in all groups of muscles of right foot. All reflexes were normal and plantar responses were flexor bilaterally. There was decreased pinprick sensation in dermatomal distribution from L5 to S4 (including peri-anal region). Abdominal examination revealed that the urinary bladder was palpable up to the umbilicus.

Plain X-ray films of the lumbosacral spine and pelvis revealed an extensive destructive lesion involving the sacrum and the right sacroiliac joint (Figure-1). MRI of the lumbosacral spine showed a large (16 × 13 × 9 cm) lobulated heterogenous mass arising from the body of the sacrum. The mass had a central necrotic area appearing hyperintense on T_2-weighted images. Post-gadolinium imaging exhibited moderate contrast enhancement in the peripheral region. The mass lesion was extending into the spinal canal and there was complete effacement of thecal sac within the

sacrum. The pelvic visceras including uterus, urinary bladder, and distal gut were significantly displaced with no infiltration (Figure-2-4).

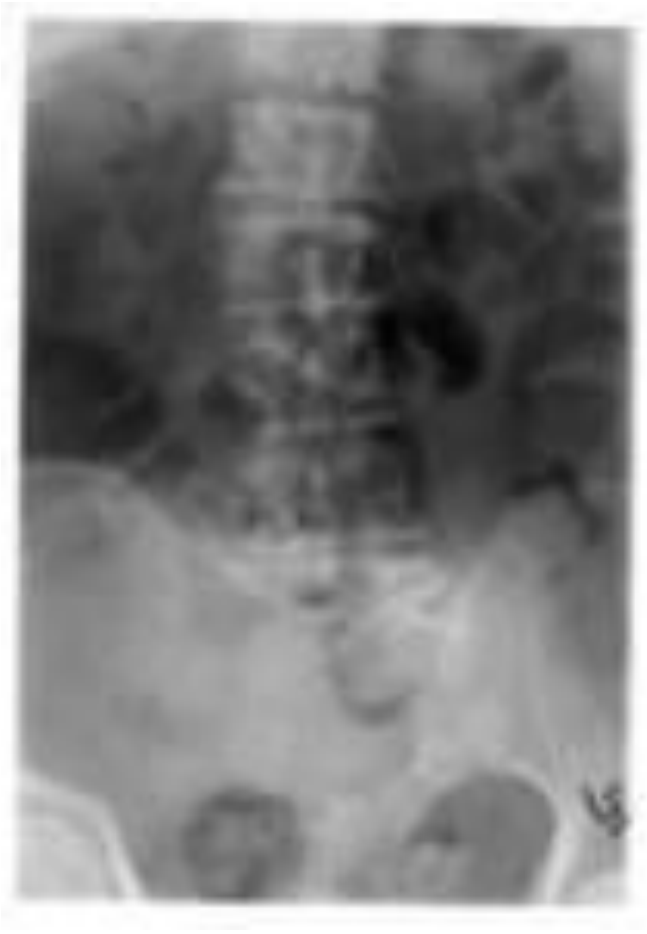

Fig. 1: *Plain X-ray of lumboscaral spine (anteroposterior view) shows destruction of sacrum with involvement of right sacroiliac joint.*

Surgical procedure was done in prone position with incision placed on right buttocks where the mass was approaching subcutaneously. The capsule of the mass was opened and tissue sent for fresh frozen analysis peroperatively, which revealed a metastatic adenocarcinoma. Further intracapsular decompression was done but the tumor was extremely vascular and patient required multiple blood transfusions. Partial tumor debulking was done. Postoperatively, patient remained stable hemodynamically.

Serum tumor markers workup revealed thyroglobulin > 300 ng/ml (1.7-55.6), alph-fetoprotein 1.30 IU/ml (0.5-5.5), beta-hCG < 2.0 mIU/ml (0-5.0), LDH 1203 IU/L (220-541), Ca-125 50.19 IU/ml (<35).

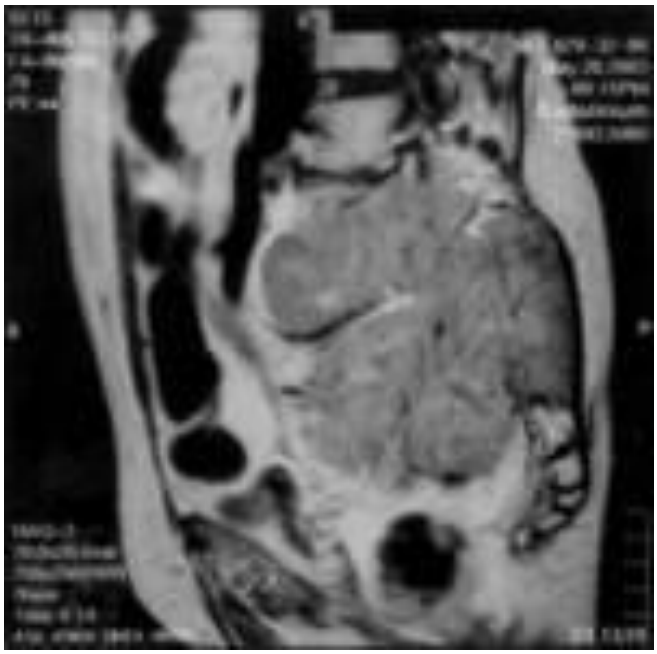

Fig. 2: *T-1 weighted post-gadolinium imaging (sagittal view) showing a lobulated mass replacing the bony sacrum extending anteriorly into the pelvic cavity and encroaching the subcutaneous tissues posteriorly.*

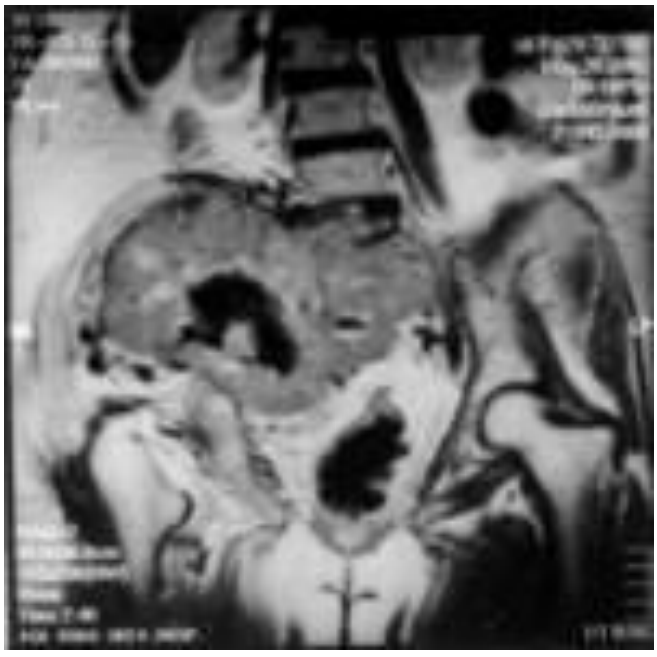

Fig. 3: *T-1 weighted post-gadolinium imaging (coronal view) showing heterogeneously enhanced mass lesion destroying the sacrum, right sacroiliac joint and iliac bone. The mass is well demarcated with central area of necrosis and displacing the pelvic structures.*

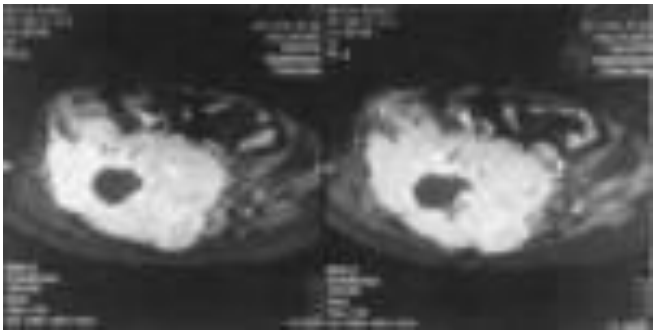

Fig. 4: *T-1 weighted post-gadolinium enhanced imaging (axial sections) showed mass lesion more towards the right side with central necrosis. The mass is lying just under the subcutaneous tissue.*

Local examination of thyroid gland was essentially normal with no systemic manifestations of thyroid hypo- or hyperfunctioning. Serum TSH was 0.064 uIU/ml, T3 3.03 nmol/L and T4 22.6 ug/ml. Thyroid ultrasound revealed a hyperechoic lesion measuring 21x 23x16 mm in the right lobe. In the left lobe, two heterogenous hypoechoic lesions present with largest one measuring 5x 3 mm. Thyroid scintigraphy with 110 MBq intravenous injection of Tc-99 m pertechnetate revealed no uptake of radiotracer in the region of thyroid bed. However, in view of thyroid harmone profile (showing state of toxicity); the scan findings were suggestive of thyroiditis.

Detailed histological features revealed fragments of neoplastic lesion exhibiting completely arranged small follicles. Final histological diagnosis reported was sacral metastasis from follicular variant of papillary carcinoma of thyroid origin. Immuno-staining of the neoplastic cells was strongly positive for thyroglobulin.

Postoperatively, patient got relief of low back pain but there was no improvement in the lower limb weakness at the time of discharge. Patient was given chemotherapy for the primary thyroid carcinoma and subjected to radiotherapy for the residual sacral metastasis. Patient is being followed up in clinics for palliative therapy with analgesics, physiotherapy and rehabilitation.

DISCUSSION

The vertebral column is commonly the site of metastatic disease, ranking behind only the lungs and liver in incidence of metastatic involvement[7]. Primary tumor arising in lungs, breast, prostate, and kidneys, as well as lymphomas; are the most frequently reported neoplasm that metastasize to the spine.[7,2] Both hematogenous spread from distant sites and an appropriate metabolic environment in the marrow suggest that most vertebral bodies are capable of supporting metabolic tumor growth.[1,2,7] Spinal metastases of thyroid origin producing distal cord compression and cauda equina syndrome is extremely rare.[6,8,9] This is the first MRI-detected case of isolated sacral metastasis without prior clinical manifestation of thyroid malignancy.

Sacral chordomas are the most frequent tumor arising in sacrococcygeal region in the adults with more than 50 percent presenting between the ages of 50 to 70 years.[10] The most common symptom is the pain localized to lower back but sciatic distribution of pain may also be present is in up to 30 percent of patients.[2,4,10] Later development of lower extremity paresis with bowel/bladder dysfunction are due to sacral plexopathy and direct compression of the pelvic organs.[2,10] Our case adopted the same course of clinical manifestation as that follows in a slow growing mass lesion like chordoma over a period of 4-5 years. The plausible explanation is capacity of the pelvic cavity to accommodate the large mass due to compressibility and displacement of pelvic organs. Usual short duration of disease process, which is a clue to malignant disease, was not present in our case. Rather the malignancy was traced in retrospect after histopathology of the sacral mass.

Bony destruction of sacrum on plain film and computed tomography is seen in 85 percent of cases in chordoma.[2] MRI in chordoma shows a tumor lobulation with frequent involvement of adjacent muscle and spinal canal but sparing the rectal wall.[5] It is relatively homogenous with long T_1 and T_2 relaxation time.[5] In our case, MRI also shows lobulation but contrast enhancement is heterogenous with central area of non-enhancement. The mass lesion was capsulated with displacement of pelvic organs but no invasion. So it was not possible to differentiate between chordoma and a metastatic lesion on radiological imaging.

Radical resection is aimed in the management of sacral chordomas as the tumor has minimal radiochemosensitivity.[2,4,10] Chordomas are usually approached from posterior and sometimes combined with anterior approach as well.[4,5] Radical sacrecectomy has been done to achieve complete resection of tumor.[2,10] But the sacral metastatic involvement signifies an advance stage of disease.[7] So the goal of treatment is usually palliative.[7] We directed our management toward the primary malignancy by giving chemotherapy

and radioiodine therapy combined with local radiotherapy of the sacral metastasis.

CONCLUSIONS

This case highlights the importance of a thorough work up for the metastatic spine tumors. Sacral metastasis from thyroid malignancy should be considered as a differential in the diagnosis of destructive mass involving the sacrum. Isolated sacral metastasis without prior clinical manifestation of thyroid malignancy is possible. Large sacral metastasis may adopt a slow insidious clinical course along with radiological imaging mimicking the more frequently occurring chordoma in this region, which has different management plan than the metastatic sacral tumors.

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REFERENCES

1. Fanchiang JK, Lin JD, Huang MJ, et al. Papillary and follicular thyroid carcinomas with bone metastases: a series of 39 cases during a period of 18 years. Changgeng Yi Xue Za Zhi 1998; 21: 377-82.
2. Post K D, McCormick PC. Surgical management of pelvic tumors with intraspinal extension, in Schmidek H (ed): Operative Neurosurgical Techniques, ed 4. Philadelphia, WB Saunders 2000; 1: 2303-21.
3. Scarrow AM, Colina JL, Levy EI, et al. Thyroid carcinoma with isolated spinal metastasis: case history and review of the literature. Clin Neurol Neurosurg 1999; 101: 245-8.
4. Dahlin DC, McCarty CS. Chordoma: A study of 59 cases. Cancer 1952; 5: 1170-8.
5. Rosenthal DI, Scott JA, Mankin IU, et al. Sacrococcygeal chordoma: Magnetic resonance imaging and tomography. Am J Roentgenol 1985; 145: 143-7.
6. Goldstein SI, Kaufman D, Abati AD. Metastatic thyroid carcinoma presenting as distal spinal cord compression. Ann Otol Rhinol Laryngol 1988; 97: 393-6.
7. Boland DJ, Lane JM, Sundaresan N. Metastatic disease of the spine. Clin Orthop 1982; 169: 95-102.
8. Halnan KE, Roberts PH. Paraplegia caused by spinal metastasis from thyroid cancer. Br Med J 1967; 26: 534-6.
9. Koot RW, Portegies P. [Pain in one leg in patients with cancer] Ned Tijdschr Geneeskd 1998; 142: 2129-32.
10. Gray SG, Singhabhandhu B, Smith RA. Sacrococcygeal chordoma: Report of a case and review of literature. Surgery 1975; 78: 573-82.