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Journal of Science Foundation, January 2016, Vol. 14, No.1 pISSN 1728-7855

Case Report

Chondrosarcoma of Dorsal Spine: A Case Study

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Abstract

Chondrosarcoma is a type of tumor originated from cartilage and bone. About 30% of skeletal system cancers are chondrosarcomas and less than 10% of all chondrosarcomas occur in the spine. It is resistant to chemotherapy and radiotherapy. Total resection ensures early recovery and prevents recurrence. This author presents a case of chondrosarcoma of spine diagnosed by MRI and histopathology. [Journal of Science Foundation, January 2016;14(1):30-33]

Keywords: Chondrosarcoma; dorsal spine; cancer

Introduction

Chondrosarcoma is a type of tumor originated from cartilage and bone. About 30% of skeletal system cancers are chondrosarcomas (Gelderblom et al., 2008). Less than 10% of all chondrosarcomas occur in the spine (Sundaresan et al., 2009). Chondrosarcoma is a type of primary bone tumor affecting children and adolescents. It can also present at any age. Men are affected more often than women (Tessitore et al., 2006). It is resistant to chemotherapy and radiotherapy (Knoeller et al., 2008). The most successful treatment for spinal chondrosarcoma is complete en bloc resection of the tumor (Bergh et al., 2001). When en-bloc resection is not possible, partial removal followed by radiotherapy may provide palliation of pain and improve neurological deficits (Boriani et al., 2000; Li et al., 2007). Grade 1 chondrosarcoma grows relatively slow and histological appearance is quite similar to cells of normal cartilage with less aggressive invasive, metastatic properties. Grades 2 and 3 are increasingly faster growing cancer cells show more anaplastic characters which are more invasive infiltrate surrounding tissues, lymph nodes, and organs. Some, but not all, authorities and medical facilities assign a "Grade 4" to the most anaplastic, undifferentiated cartilage-derived tumors (Prevedello et al., 2004).

Case Presentation

A 30 yrs old female patient was presented to the author with low back pain for three months gradual weakness of both lower limbs for same duration. Finally she was unable to walk. But her bowel, bladder

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function was normal. On neurological examination, muscle power of her right lower limb was 1/5 and left lower limb was 2/5 and upper motor type. There were no abnormalities on other systemic and general examination. There were no co morbid conditions. X-ray of dorsal spine shown shadow in the front and right lateral side of D9 to D11 region.

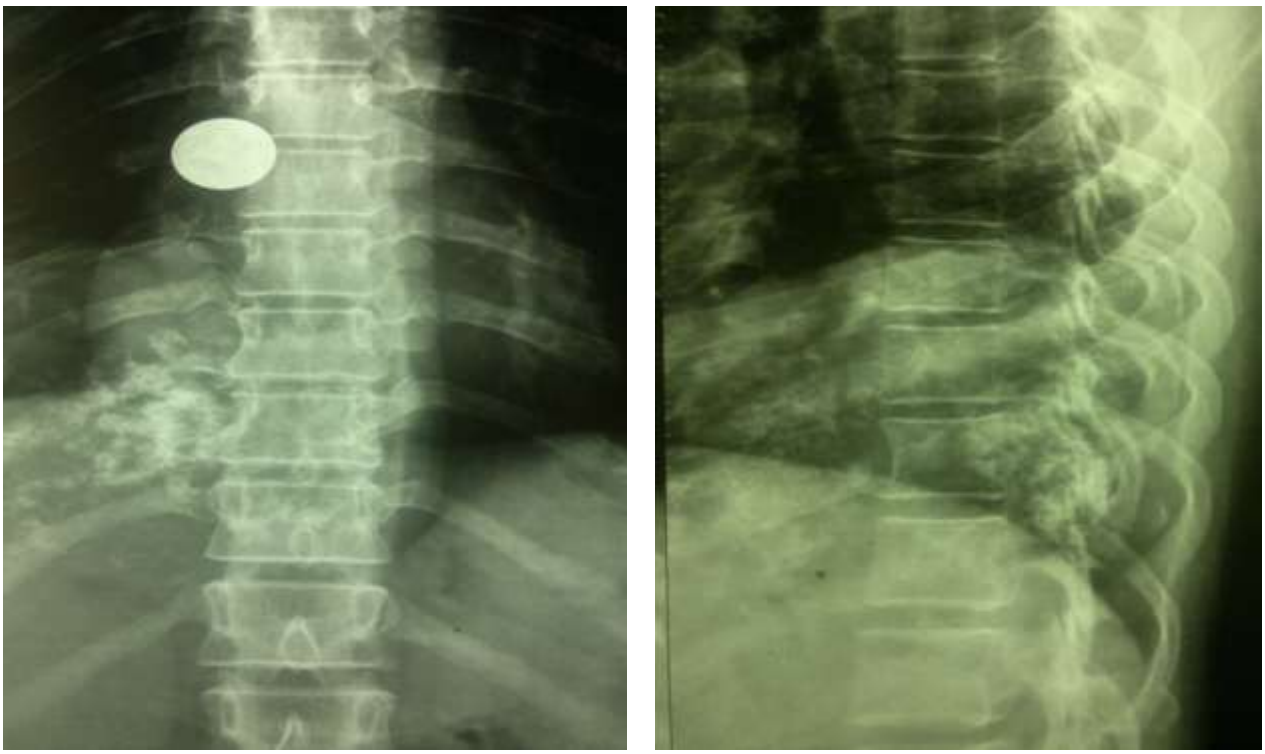

Figure 1: X ray Dorsal spine showing mass (Antero posterior & lateral view)

MRI of dorsal spine shown a large (10x 7cm) markedly heterogenous well capsulated, slightly lobulated right paraspinal lesion was seen in lower dorsal spine level (T9-T11) with a small epidural component extends through rt. neural foramina which were widened. The cord is compressed towards left. After I/V contrast marked heterogenous enhancement of the lesion is seen with multiple loculated non enhancing areas were seen suggestive of calcification. Vertebral body and marrow had shown normal signal characteristics. FNAC of right suprarenal mass (CT guided) exhibited no malignant cells, smears shown cartilaginous materials, histiocytes, small number of spindle cells and lymphocytes. The lesion was approached from posteriorly. Laminectomy and costo-transversectomy was done at D9-D11 on right side. Lobulated tumor mass was removed from intracanalicular, right and antero-posterior of vertebral bodies. Tumor was relatively less vascular and grand total resection was done. Histopathological examination was done in two specialized centres. One revealed hyaline cartilage with lobules with mild pleomorphism of chondrocytes, small foci of coagulative necrosis was also present. The findings were compatible with well differentiated chondrosarcoma. In other centre findings was chondrosarcoma of low grade.

Discussion

This is a case study. In this study a female patient of 30 years was observed. In one study, median age of the patients was 54.5 years (Rao et al., 2004). Chondrosarcoma is also common in male (Strike et al., 2011). Shives et al (1989) described 20 patients from Mayo Clinic shown that men were most commonly affected. Chondrosarcoma is a malignant cartilage-forming bone neoplasm that accounts for 10.0% of all primary bone tumors among adults (Lloret et al., 2006). Typically low grade neoplasm can arise from a pre-existing cartilage lesion such as an osteochondroma enchondroma (Smith et al., 1987).

Chondrosarcoma can develop in any part of the body but the most common sites are pelvis, rib cage, arms (upper arm or humerus), shoulder blades and legs proximal femur in the thigh and the tibia in the shin (York et al., 1999). Chondrosarcomas can also be found in the spine or skull but this is extremely rare. Most occur in the thoracic spine, and patients typically present in middle age with back pain and/or neurological symptoms (Panelos et al., 2006). A study on 16 case reports revealed four cases occurred in the cervical

spine alone and seven cases involved only the thoracic spine, while two cases involved the cervico-thoracic spine. Three cases involved the lumbar spine (Rao et al., 2004).

Chondrosarcoma of the spine may present diagnostic difficulties. Differential diagnosis includes chondroblastic osteosarcoma, chondromatosis, chordoma, ganlioneuroma, ganglioneuroblastoma, schwanoma (Lloret et al., 2006). Plain X-ray, CT guided FNAC, MRI failed to diagnosis the cases alone. For proper diagnosis several sections of tumor after total resection were done and different staining methods and microscopic study was done to understand the type and grading of tumor.

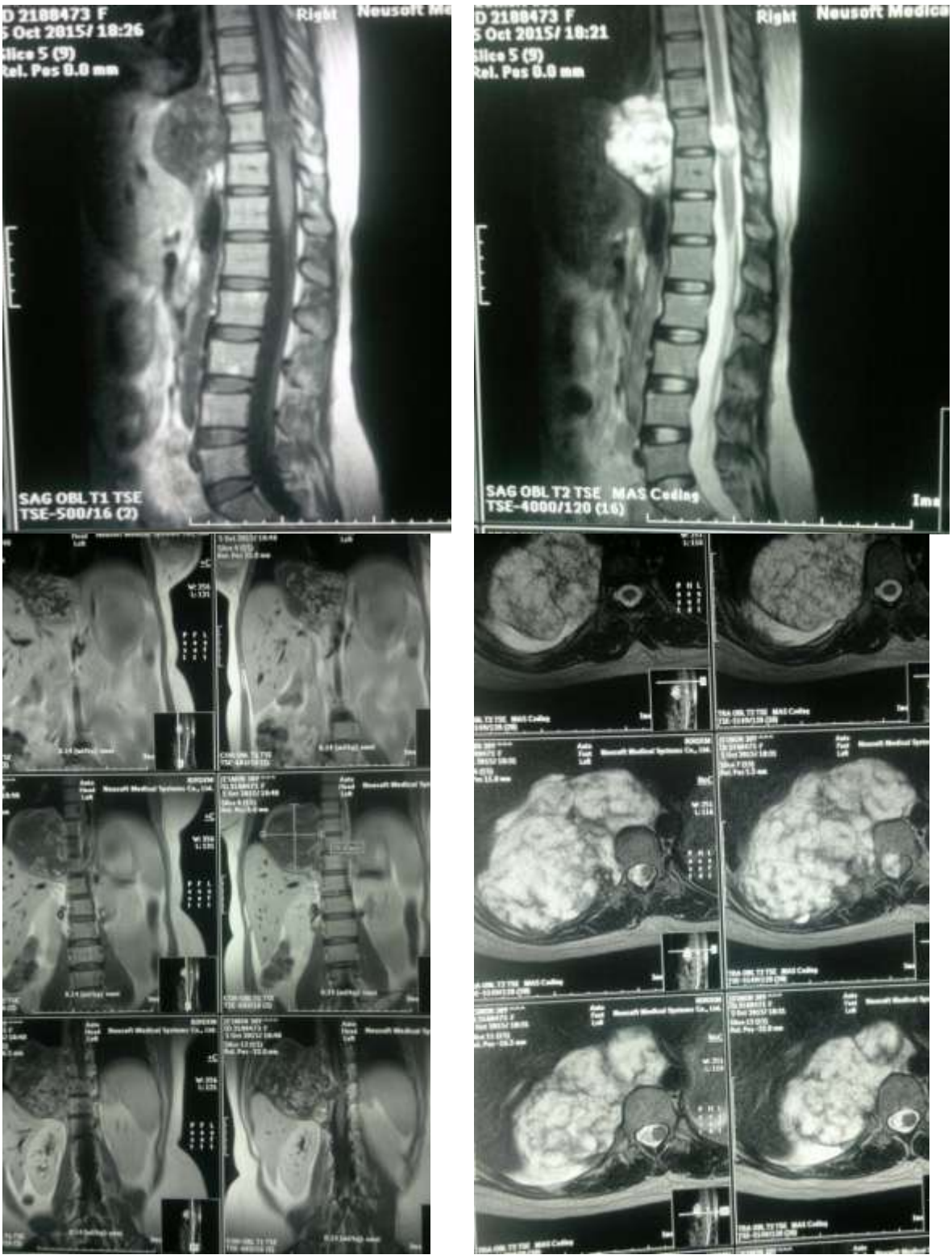

Figure: MRI of Dorsal spine (without dye & dye) showing mass (D9-D11)

In current study, MRI of dorsal spine shown a large (10X7cm) markedly heterogenous well capsulated, slightly lobulated right paraspinal lesion was seen in lower dorsal spine level (T9-T11) with an extension through right neural foramina. After I/V contrast multiple loculated non enhancing areas were seen suggestive of calcification. Radiologically, these tumors appear as destructive lesions in the spine or as a paraspinal mass with calcification (Strike et al., 2011).

Surgical resection is the recommended treatment for chondrosarcoma of the spine; these tumors are notoriously resistant to chemotherapy or radiation therapy. In one study, all patients underwent surgical treatment, either gross total resection or subtotal resection. In this case report the tumor was completely removed. Similar findings were observed in all other studies (Sundaresan et al., 2009). York et al (1999) found a significant increase in disease free interval after gross resection of the tumor versus subtotal excision. Local recurrence was noted in one of five patients who had a total resection with an average time to recurrence of 5.4 years, while nine of 13 patients with subtotal tumor excisions had disease recurrence at an average of 3.7 years (Panelos et al., 2006).

Following total resection the tumor specimen was sent in multiple segments to two diagnostic facilities for histopathology. The reports revealed well differentiated (low grade) chondrosarcoma. In current study, microscopic findings which was correlated with MRI findings, CT guided FNAC and clinical findings. The process of diagnosis was similar in another study (Shives et al., 1989). On follow up after three months the patient conditions improved neurologically. Her muscle power of lower limbs became 5/5 and she could walk without difficulties. She is under regular follow up for further evaluation.

Conclusion

Early diagnosis and complete resection of tumor and treatment of relevant symptoms represent a viable treatment for this rare disorder. That increases the life expectancy, low recurrence of tumor and quality of life of an individual.

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