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Sacrococcygeal Chordoma

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Abstract **Case Report**

Chordomas are rare tumors of the axial skeleton, most commonly developing at the base of the skull and the sacrum. They are slow-growing lesions with a very high recurrence rate, and their location often complicates treatment. Computed tomography (CT) and magnetic resonance imaging (MRI) are essential for initial diagnosis, treatment planning, and post-treatment follow-up.

Keywords: Chordoma, CT & MRI.

INTRODUCTION

The sacrococcygeal chordoma is a rare pathological entity, reported in less than 3% of bone tumors and in 50% of chordoma cases, with an average patient age at diagnosis of around 50 years [1]. These are low-grade, slow-growing tumors that invade surrounding structures by destroying bone, nerves, and adjacent organs. They are rarely metastatic but present a high risk of local and locoregional recurrence after treatment [2].

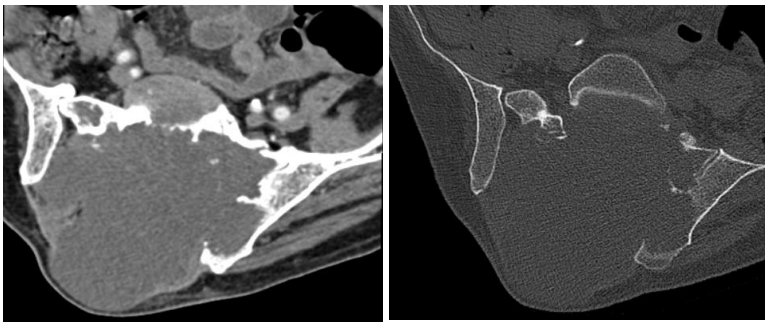
We report the case of a recurrence of a sacrococcygeal chordoma in a 77-year-old man.

CASE

A 77-year-old man, with no significant medical history, was referred to our radiology department for a CT scan of the lumbar spine and sacroiliac region as part of the follow-up evaluation for a recurrence of a sacrococcygeal chordoma treated since 2019.

The CT scan showed a pelvic mass centered in the sacrococcygeal region, hypodense and heterogeneous with spontaneous contrast, multiloculated with calcifications, and enhancing septa after contrast injection.

The MRI showed a locally infiltrative sacrococcygeal mass, multiloculated, with heterogeneous hypo intensity on T1 and marked hyperintensity on T2 and diffusion, with restricted ADC. The septa and the wall exhibited enhancement after contrast agent injection.



a **b**

Figure 1: CT coronal plan

a) Parenchymal window with contrast injection shows a locally infiltrating mass centered on the sacrum, multilobulated, heterogeneous with calcifications, and slight enhancement of the septa.
b) Bone window shows significant bone lysis.

DISCUSSION

Chordomas affect the sacrococcygeal region in 50% of cases, with clinical symptoms primarily characterized by sacral or perineal pain that is often nonspecific. Additional symptoms may include gastrointestinal disturbances, sphincter dysfunction, dysuria, and radiculopathy [3]. The tumor's insidious growth and vague, nonspecific symptoms contribute to frequent and significant diagnostic delays, often exceeding one year. Consequently, the tumor typically reaches a considerable size (12-25 cm) and invades nearby structures, including soft tissues such as sacral roots, rectum, bladder, uterus, levator ani muscles, spinal muscles, and the sciatic nerve, with only the thin presacral fascia acting as a natural barrier. In contrast, adjacent bony structures, such as the lumbar spine and iliac bones, are generally unaffected [3, 4]. Notably, chordoma is the most common primary bone tumor of the sacrum.

Standard radiography presents challenges in examining the sacrum due to its deep location and the overlay of digestive gas. An ill-defined lytic bone lesion is typically visible, beginning in the medial part of the bone; however, detection is primarily possible once the chordoma leads to cortical osteolysis, which results in the loss of the sacrum's contours or the sacral foramina. A mass in the surrounding soft tissues may also be identified, along with intra- or perilesional calcifications.

CT scans offer excellent visualization of tumor-related osteolysis, typically located at the midline. The lesion often has lobulated edges and is usually of intermediate density, occasionally showing hypodense areas indicative of cystic degeneration or gelatinous material. The use of iodinated contrast agent does not seem to enhance diagnostic information. Peripheral intratumoral calcifications are frequently seen, usually representing sequestrated bone debris [5, 6].

MRI is considerably more effective than CT for assessing locoregional tumor extension, including involvement of muscles, sacral foramina, nerve roots, and the rectum. A three-dimensional evaluation is crucial for accurately mapping the tumor and its extent. The highly lobulated contours of the tumor in soft tissues, resembling "pseudopods," strongly suggest the diagnosis [6, 7]. On T1-weighted images, the tumor appears hypointense or isointense with slight heterogeneity, while it appears hyperintense, often heterogeneous, on T2-weighted images. Following gadolinium injection, heterogeneous enhancement of the chordoma is usually noted, particularly in the tumor septa, with central necrosis also being observable [7].

On bone scintigraphy, the chordoma may show central hypofixation surrounded by a peripheral hyperfixing halo.

CONCLUSION

Chordoma is an uncommon primary bone tumor predominantly found in the sacrococcygeal area. While it carries a low risk of metastasizing to distant sites, it has a significant likelihood of recurrence. Diagnosis is determined through MRI and histopathological examination.

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