

## Renal parankim taşında Tc-99m HDP tutulumu

*Tc-99m HDP uptake in a renal parenchymal calculus*

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### Özet

Bu vakada prostat kanseri tanılı 75 yaşında bir erkek hasta sunulmaktadır. Hastaya evreleme aşamasında kemik metastazının değerlendirilmesi amacıyla kemik sintigrafisi çekildi. Kemik sintigrafisinde hastanın sol böbreğinin üst polünde, kosta ile superpoze görünümde fokal ve yoğun radyofarmasötik tutulumu izlendi. Sonrasında gerçekleştirilen BT çalışmasında aynı lokalizasyonda renal parankim taşı saptandı.

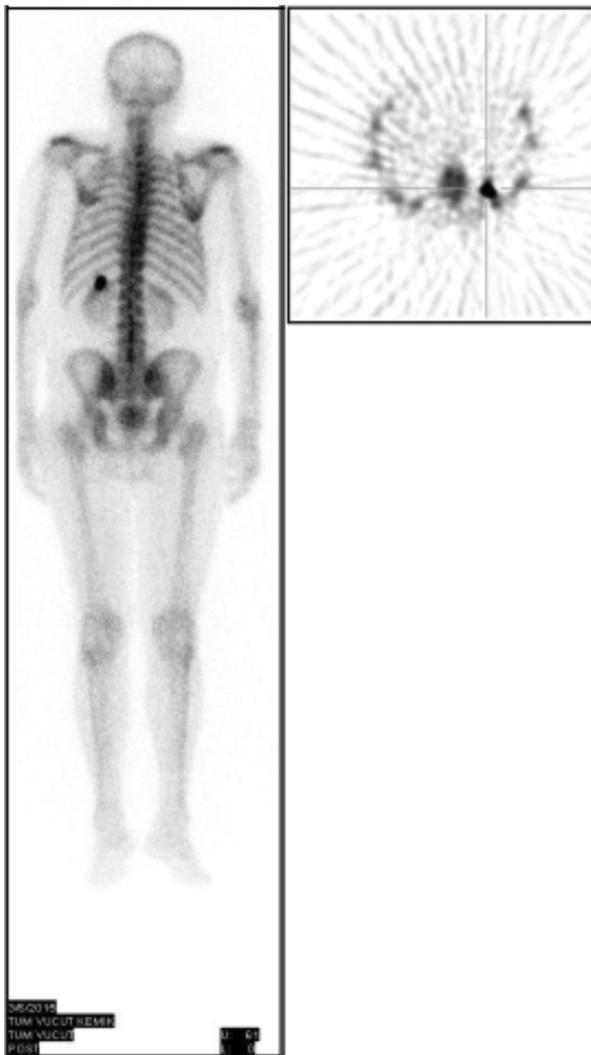
**Anahtar Kelimeler:** Böbrek taşı, Sintigrafi

**Abstract** We present the case of a 75-year-old man with the clinical diagnosis of prostate cancer. As a part of staging he underwent a bone scan (BS) for the investigation of bone metastasis. On the BS an increased focal area of radiopharmaceutic uptake was seen at the upper pole of the left kidney superposed with the rib. On abdominal CT scan performed after BS, there was a renal parenchymal calculus at the same location.

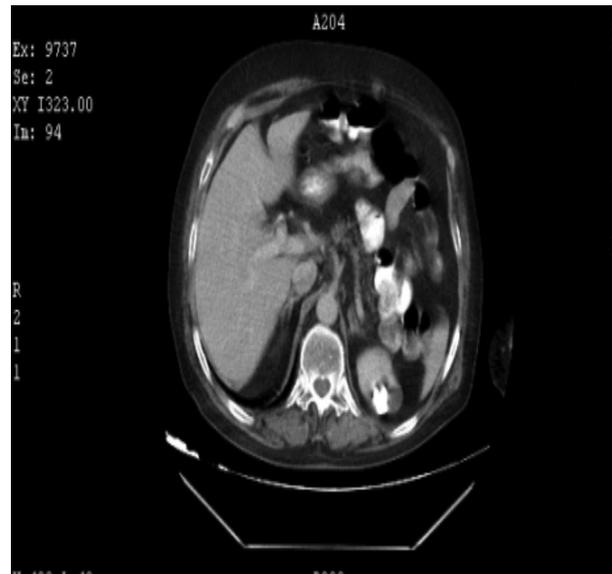
**Keywords:** Renal calculus, Scintigraphy

## INTRODUCTION

Bone scan (BS) has remained a mainstay of clinical nuclear medicine for more than 4 decades and is typically performed to assess abnormalities of bone including metastases, osteomyelitis, and a host of other degenerative, inflammatory, and orthopedic disorders (1). Altered biodistribution of bone seeking radiopharmaceuticals is well described in the literature (2). In this case, we report a renal parenchymal calculus showing Tc-99m HDP uptake that can be confused with rib uptake.



**Figure 1**  
Focal intense Tc-99m HDP uptake is seen at the upper pole of left kidney in whole body scan and SPECT images.



**Figure 2**  
Abdominal CT image shows a renal parenchymal calculus at the same location.

## CASE REPORT

A 75-year-old man with the clinical diagnosis of prostate cancer was referred to a medical oncologist for medical therapy. After clinical evaluation he underwent a BS for the investigation of bone metastasis. On the BS, three hours after an intravenous injection of 25 mCi Tc-99m HDP, an increased focal area of radiopharmaceutical uptake was seen on the upper pole of the left kidney (figure 1). On abdominal CT scan there was a renal parenchymal calculus at the same location (figure 2).

## LITERATURE REVIEW AND DISCUSSION

Prostate cancer is the second common solid neoplasm and the second most common cause of cancer death in men (3). Although the most common metastatic site is the lymph nodes, usually those of the pelvis and retroperitoneum, prostate cancer preferentially spreads to the skeleton and more than 80% of men who die from prostate cancer are identified with bone metastases at autopsy (4,5).

The prevalence of urinary tract stone disease is increasing. According to the U.S. National Health and Nutrition Examination Survey (NHANES), as of 2012, 10.6% of men and 7.1% of women in the United States are

affected by kidney stones, a 70% increase from the previous NHANES in 1994 that reported just 6.3% of men and 4.1% of women were affected (6). Urinary tract stones are a common cause of obstruction of the urinary tract (7). Complications of urinary tract stones include hydronephrosis, renal damage and infection of the urinary tract (8).

BS is an imaging tool commonly used for screening patients with cancer, especially those with high prevalence of osseous metastases including the breast, prostate, lung, thyroid, and kidney, which account for 80% of osseous metastasis (1). Multiple etiologies of increased soft tissue uptake of bone seeking radiopharmaceutic agents have also been described, which appear related to focal calcium uptake within the soft tissues; apparently, the radiopharmaceutical also binds onto the surface of the deposited calcium salts by chemisorption (9). Because Tc-99m HDP is excreted by the urinary system, radiopharmaceutic uptake can be seen on a renal parenchymal calculus by chemisorption as explained above. In that case it must be kept in mind that; a renal parenchymal calculus showing radiopharmaceutic uptake can be confused with pathological rib uptake because of superposition of ribs with the kidneys.

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