# Case Report

# MDCT Detection of Omental Metastases with Peritoneal Carcinomatosis and Ascites in Prostate Cancer: An unusual metastatic site

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## Abstract

*Prostate cancer is the second most common cause of cancer related death in males. The most common sites of prostate cancer metastases include bone and regional lymph nodes followed by lung, liver and brain. Peritoneal metastasis without skeletal involvement is extremely rare, with only a few cases reported in the literature. We present herein a patient of prostate cancer with omental metastases and peritoneal carcinomatosis accompanied by ascites but without bone metastases. The importance of this case report is to keep in mind that the lack of skeletal involvement does not exclude the possibility of distant metastases in prostate cancer. Prostate cancer can present with distant metastases in unexpected sites. The presence of ascites may indicate peritoneal involvement.*

***Key words:*** *Omental Metastases, Peritoneal Carcinomatosis, Prostate Cancer, Ascites.*

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## Introduction

Prostate cancer is the most frequently diagnosed malignancy and the second cancer-leading cause of death among men worldwide.[1] Histological evidence of prostate adenocarcinoma is present in 30% of men above 50 years of age and in 70% of those over 80 years old. About 9.5% of men will be clinically diagnosed as having prostate cancer at some time during their lives, 2.9% of whom will succumb to this malignancy. The prognosis of prostate cancer is mainly determined by the presence or absence of metastases.[2] Metastases from prostate cancer involve mainly the bone compartment. However, visceral metastases are found in up to 49% of metastatic patients. The incidence of visceral metastases on computed tomography (CT) scan at 9–12 months, 6–9 months, 3–6 months and within 3 months prior to death was 14, 22, 32 and 49%, respectively, suggesting that most patients developed visceral metastases late in the course of disease.[3]

Peritoneal carcinomatosis is rarely described in literature, particularly when not associated with other distant metastatic lesions.[4] Rapoport reviewed the autopsy of 523 prostate cancer cases and found that only 13 cases had peritoneal deposits.[5] This frequency is probably underestimated in clinical practice due to the poor sensitivity of conventional imaging such as abdominal CT to detect early stages of omental implants.[6]

The mechanism of this metastatic evolution is not clearly understood, even if some authors proposed iatrogenic spread following prostate surgery. We report the case of a patient with prostate cancer and isolated peritoneal carcinomatosis, without bone or lymph node metastases and no history of previous surgery.

## Case presentation

A 55-year old gentleman presented to the emergency department of Khwaja Yunus Ali Medical College & Hospital with the complaint of acute on chronic retention of urine. On DRE, a hard nodular enlargement of prostate was detected. Per abdominal ultrasonogram revealed a heterogenous enlarged prostate with median lobe extension into the bladder, irregular thickening of the urinary bladder representing features of longstanding

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outflow obstruction. PSA was 420 ng/ml. Histopathological study from prostatic tissue shows adenocarcinoma of prostate (Gleason score 8). After two weeks, the patient came with complaints of abdominal discomfort and feeling of abdominal heaviness. Per abdomen ultrasonogram was done and revealed a heterogenous enlarged prostate, features of obstructive cystitis and mild ascites. PSA was 511 ng/ml, CEA was 1.95 ng/ml. MDCT was done to search for macro-metastases. CT findings revealed heterogeneous prostatic tissue with peri-prostatic fat infiltration, omental and peritoneal nodular metastatic deposits and mild ascites (figures 1 and 2). A small homogeneously enhancing soft tissue nodule (18mm x 12mm) was noted in the left adrenal gland favouring benign adenoma. No significant enlarged intra abdominal lymphadenopathy was noted. There was no evidence of bone metastases. USG guided FNAC from omental nodules and ascitic fluid collection were performed. The histopathology report revealed presence of malignant cells favouring metastatic adenocarcinoma (figures 3 and 4).

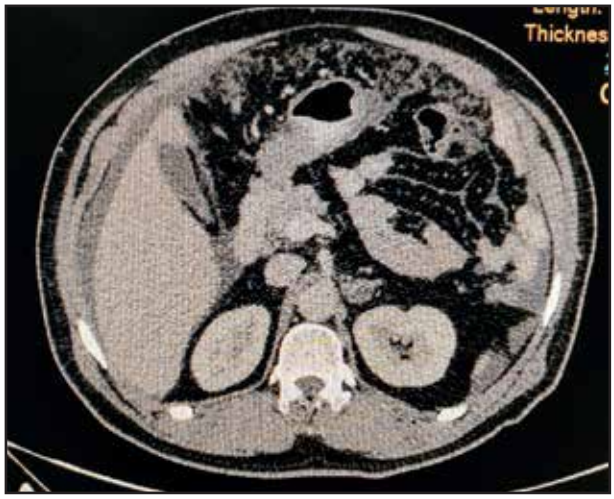
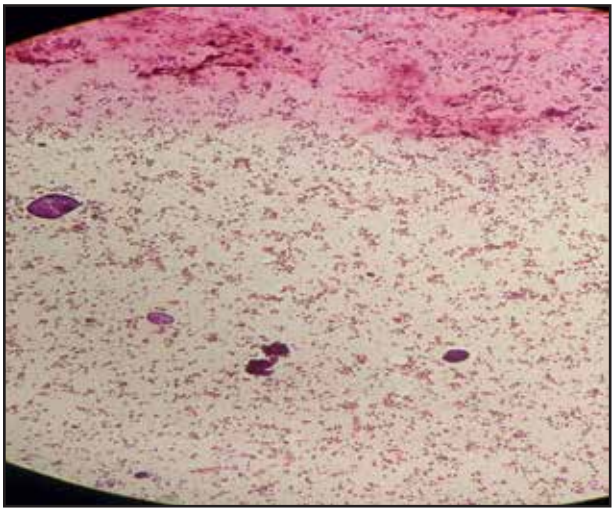



**Fig: 1 & 2** - CT images show enhancing soft tissue nodules studded over the omentum (black arrows) and nodular thickening of peritoneum with presence of ascites.



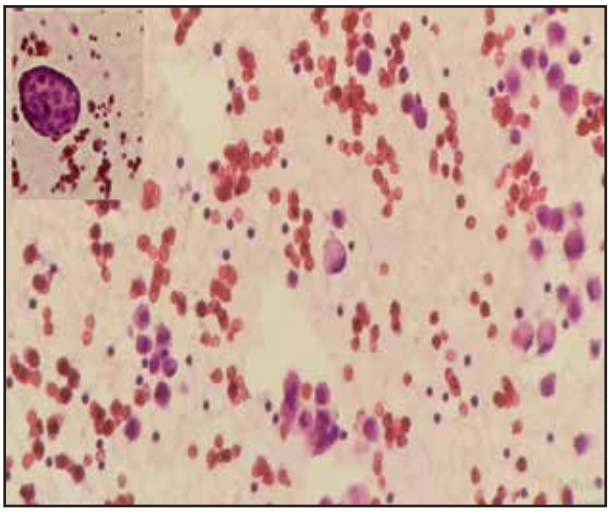


**Fig: 3 & 4** - Atypical epithelial cells arranged in small groups, glands and singly. Cells have hyperchromatic irregular nucleus with prominent nucleoli. The background shows diffuse lymphocytes, histiocytes and reactive mesothelial cells.

## Discussion

Prostatic adenocarcinoma metastasizes 35% of the time, with an overwhelming predilection to involve the bone. The most frequent organ involved in metastatic prostatic carcinoma is bone (90%). Clinical involvement of visceral sites, such as lung (46%), liver (25%), pleura (21%), and adrenals (13%) is less common, even in patients with widespread castration-resistant disease.[7] Mechanisms of tumor spread have traditionally been explained by the mechanical theory of spread through lympho-vascular channels or alternatively through the "seed and soil" hypothesis.[8] Peritoneal carcinomatosis is very rarely described in prostate cancer, particularly when isolated and not associated with other distant lesions, reflecting a potential specific way of dissemination and / or a specific tropism. In this patient, peritoneal carcinomatosis was isolated; bone and other extra-abdominal synchronous macro metastases were excluded by combining conventional imaging (bone scan and thoraco-abdominal CT) suggesting that peritoneal cavity was the preferen

tial and first homing in this patient. The mechanism of dissemination remains of course unknown. Some authors postulated iatrogenic spread following laparoscopic surgery and port-site metastases.

## Conclusion

Peritoneal carcinomatosis is rarely described in prostate cancer, particularly when not associated with other metastatic lesions. In this case, we describe the role of MDCT in allowing detection of peritoneal metastases.

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