

## LETTERS TO THE EDITOR

### Peritoneal carcinomatosis and prostatic cancer: a rare manifestation of the disease with an impact on management

M. Ghaddab<sup>1</sup>, E. Danse<sup>1</sup>, J.P. Machiels<sup>2</sup>, A. Dragean<sup>1</sup>, L. Annet<sup>1</sup>, B. Tombal<sup>3</sup>

Dear Editor,

As it has been recently noted in two papers published in the JBR-TBR (1, 2), prostate cancer is the second cause of male-cancer related death. The role of radiologists is crucial at the early stage of the disease, for local and distant staging, and during the follow up of the patient. We would like to take the opportunity to report on an uncommon case of peritoneal carcinomatosis observed during the long term follow up of a patient having prostate cancer. Based on these findings, there was a need for change of therapy, with a positive impact on the outcome.

Our 70 year-old patient has a diagnosis of prostate cancer since 8 years (2003), classified as Gleason 8 after surgery. Since 2009, he is treated with hormonal therapy (goserelin and bicalutamide). In June 2010, He presents asthenia requir-

ing medical advice. The blood tests are showing increased PSA level (from 33 ng/mL (02/09) to 407 ng/mL (06/10), nl < 4.0 ng/ml). An abdominal CT-scan is performed, showing a large amount of ascites in all the abdominal compartments, with tislular nodules closed to the right liver surface (Figs. 1 and 2). These findings were considered as signs of peritoneal carcinomatosis. Based on the clinical data, the PSA level and the imaging findings, chemotherapy is then initiated. Biological and imaging controls were normalized 9 months later, with persistence of a calcified centimetric nodule closed to the liver edge. At the present time, the patient disease is stable.

Peritoneal carcinomatosis is frequently in the oncologic evolution of patients with colo-rectal cancer, gastric, pancreatic and gynecologic cancers (3). It has been uncommonly reported in prostate cancers (4-6).

Prostate cancer is frequently related to lymph node invasion, bone metastases and sometimes liver and brain localizations (4, 6, 7). Uncommon metastases are reported in the eyes, the larynx and the peritoneal cavity (6, 7).

When peritoneal carcinomatosis is detected in patients with prostate cancer, it can be an isolated finding or revealing the prostate cancer (6, 7). This can also be detected during surgery without being pre-operatively suspected; it can be also observed at the end stage of the disease (7). When histology of peritoneal nodule is available, it has been showed that neuroendocrine differentiation correlates with a poor prognosis (8).

Some CT findings are suggestive of peritoneal carcinomatosis including the presence or ascites (a non specific finding), nodules in the fatty tissue of the peritoneal cavity (omentum, mesenteric roots, Douglas pouch), and nodules adjacent to the liver edge (8, 9). CT scan can help to

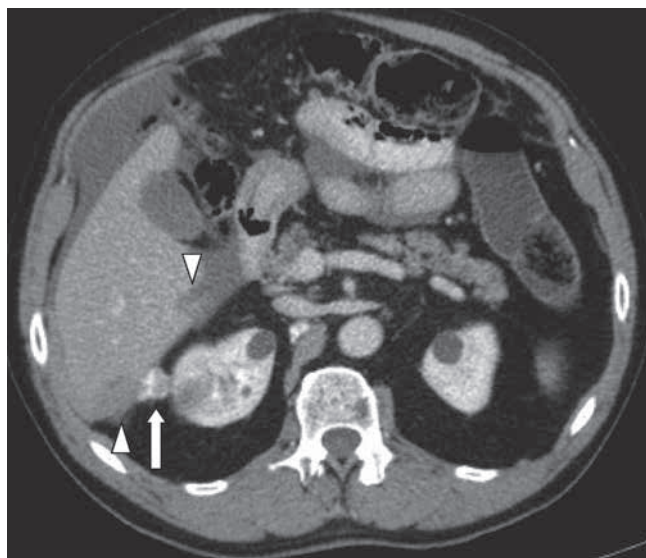


Fig. 1. — CT scan of the upper abdomen, after iodine contrast injection, showing perihepatic ascites and hyperattenuating nodules in the Morison pouch (arrowheads), one of these being calcified (arrow).

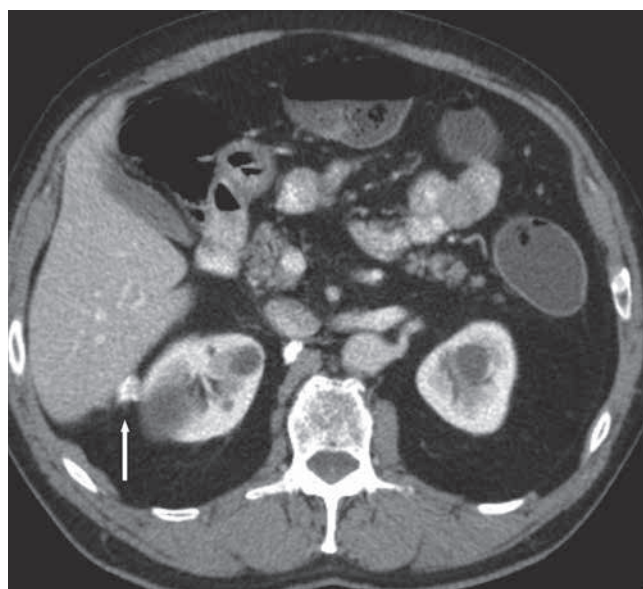


Fig. 2. — Abdominal CT performed 9 months after chemotherapy showing disappearance of the ascites and the peritoneal nodules, a part the calcified nodule of the Morison pouch (arrow).

From: 1. Department of Medical Imaging, 2. Oncology Unit, 3. Urology Unit, St Luc University Hospital, Université Catholique de Louvain, Brussels, Belgium.  
Address for correspondence: Dr E. Danse, M.D., Ph.D., Dpt of Medical Imaging, St Luc University Hospital, Université Catholique de Louvain, 10 av. Hippocrate, B-1200 Brussels, Belgium. E-mail: Etienne.danse@uclouvain.be

suggest the primary cancer: gynecological, colo-rectal or gastric origin, but with a low sensitivity.

Prostate cancer is uncommonly suggested with CT: this is the role of digital rectal examination, blood test and biopsy, with the contribution of MRI. CT can help to suspect prostate cancer when pelvic lymph nodes or/and bone lesions are detected (ribs, spine, pelvis and hips).

In our case, peritoneal carcinomatosis was detected during the follow-up in a patient with an abdominal discomfort and abnormal blood tests. We did not have the histological proof of peritoneal carcinomatosis but CT was highly suggestive. The final diagnosis of this complication was conclude based on the positive impact of the change of therapy.

As a conclusion, peritoneal carcinomatosis is an uncommon finding in patients with prostate cancer. It can be detected during routine abdominal CT performed during the follow-up of this group of patients.

The CT findings are similar to what is observed in colorectal and gynecologic cancers.

#### References

1. Turkbey B., Basaran C., Boge M., Karcaaltincaba M., Akata D.: Unusual presentation of prostate cancer with generalized lymphadenopathy and unilateral leg edema. *JBR-BTR*, 2008, 91: 211-213.
2. De Visschere P., Oosterlinck W., De Meerleer G., Villeirs G.: Clinical and imaging tools in the early diagnosis of prostate cancer. *JBR-BTR*, 2010, 93: 62-70.
3. Glockzin G., Schlitt H.J., Piso P.: Peritoneal carcinomatosis: patients selection, perioperative complications and quality of life related to cytoreductive surgery and hyperthermic intraperitoneal chemotherapy. *World J Surg Oncol*, 2009, 7: 5.
4. Zagouria F., Papaefthimioub M., Chalazonitisc A.N., Antonioud N., Dimopoulousa M.A., Bamiassa A.: Prostate Cancer with Metastasis to the Omentum and Massive Ascites: A Rare Manifestation of a Common

Disease. *Onkologie*, 2009, 32: 758-761.

5. Brehmer B., Makris A., Wellmann A., Jakse G.: Solitary peritoneal carcinomatosis in prostate cancer. *Aktuelle Urol*, 2007, 38: 408-409.
6. Lapoile E., Bellaïche G., Choudat L., Boucard M., El Belachany G., Ley G., Slama J.L.: Ascites associated with prostate cancer metastases: an unusual localisation. *Gastroenterol Clin Biol*, 2004, 28: 92-94.
7. Rodriguez Alonso A., Dominguez Freire F., Perez Garcia D., Ojea Calvo A., Alonso Rodrigo A., Rodriguez Iglesias B., et al.: Metastasis de adenocarcinoma prostático en saco herniario. Aportacio, de un caso. *Actas Urol Esp*, 1999, 23: 717-719.
8. Wynn S.S., Nagabundi S., Koo J., Chin N.W.: Recurrent prostate carcinoma presenting as omental large cell carcinoma with neuroendocrine differentiation and resulting in bowel obstruction. *Arch Pathol Lab Med*, 2000, 124: 1074-1076.
9. Pannu H.K., Bristow R.E., Montz F.J., Fishman E.K.: Multidetector CT of peritoneal carcinomatosis from ovarian cancer. *Radiographics*, 2003, 23: 687-701.

## VARIATIONS OF THE HEPATIC ARTERY

B. Karaman, V. Akgun, S. Celikkanat<sup>1</sup>

Dear Sir,

We read the article titled as 'Multidetector CT of hepatic artery pathologies' by Karaosmanoglu et al. (1), published in *JBR-BTR* (95: 345-349, 2012) with a great interest. This article will be a useful guide for radiologists in their future experiences. In the paper, MDCT angiography has been referred as a very fast and efficient method in identifying hepatic artery variations and pathologies for radiologists. The Authors conclude that MDCT gives both arterial and venous phase images in almost every plane that allows radiologists to inform the clinicians, more accurately and in a shorter time.

The authors identified the hepatic artery variations observed nearly in half of the cases, with Michel's classification method. This classification system was first described by Michel (2) who dissected 200 cadavers

to determine anatomic variations of hepatic artery in 1955. In the following years few studies describing hepatic artery variations have been published by Vandamme et al. (3) and Suzuki et al. (4) Covey et al. (5). The later literature reported few additional differences compared to Michel et al. (2). The standard hepatic artery anatomy was 61.3% by Covey et al., and 55% in Michel's original report in 1955. The major difference was frequency of replaced left hepatic artery that was 2.63 times more frequent in Covey et al. (3.8% in 600 patients) compared to that of Michel's report (10.0% in 200 cadavers).

In our institution we have about 50 cases with Y-90 radioembolization. In these cases we embolize gastroduodenal and left gastric arteries. At the fourth week of embolization, we take hepatic angiograms and inject Y-90 substance. These hepatic angiograms indicate a large varia-

tion and development of collaterals after the embolization. Additional to interindividual variability, there may be some differences even in the same patients depending of the condition. Therefore MDCT is mandatory for imaging and radiologists should consider this situation.

#### References

1. Karaosmanoglu D., Erol B., Karcaaltincaba M.: Pictorial essay multidetector CT of hepatic artery pathologies. *JBR-BTR*, 2012, 95: 345-349.
2. Michels N.A.: Blood supply and anatomy of the upper abdominal organs with a descriptive atlas. Philadelphia, Pa: Lippincott, 1955.
3. Vandamme J.P.J., Bonte J., Van der Scheueren G.: A reevaluation of hepatic and cystic arteries: the importance of aberrant hepatic branches. *Acta Anat*, 1969, 73: 192-209.
4. Suzuki T., Nakayasu A., Kawabe K., et al.: Surgical significance of anatomic variations of the hepatic artery. *Am J Surg*, 1971, 122: 505-512.
5. Covey A.M., et al.: Variant hepatic arterial anatomy revisited: digital subtraction angiography performed in 600 patients. *Radiology*, 2002, 224: 542-547.

From: 1. Gulhane Military Medical Academy, School of Medicine, Department of Radiology, Ankara, Turkey.

Address for correspondence: Dr B. Karaman, M.D., Department of Radiology, Gulhane School of Medicine, Tevfik Saglam St., 06018 Etlik/Ankara, Turkey.  
E-mail: bulkaraman@yahoo.com