

## Urinary complications from breast cancer metastasis: case report and review of the literature

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**SUMMARY:** Urinary complications from breast cancer metastasis: case report and review of the literature.

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*Breast cancer is the most prevalent malignant disease among women, with the exception of non-melanoma skin cancers. Malignant breast tumours metastasise to lungs, bone, liver, lymph nodes and skin, but the literature also reports few cases of unusual metastases such as to the bladder.*

*We present the case of a 57-year-old woman affected by lobular invasive breast cancer and complaining of high urinary frequency with nicturia. To date this is the seventh reported case of isolated metastasis of breast carcinoma to the bladder.*

**RIASSUNTO:** Complicanze urinarie secondarie a metastasi da carcinoma mammario invasivo: case report e review della letteratura.

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*Il carcinoma della mammella è la patologia femminile maligna con maggior prevalenza, con l'esclusione dei tumori cutanei non-melanoma. I tumori maligni della mammella tendono a metastatizzare a polmoni, ossa, linfonodi e cute. La letteratura riporta pochi casi di sedi metastatiche rare, fra cui la vescica.*

*Presentiamo il caso di una donna di 57 anni affetta da carcinoma lobulare invasivo della mammella che presentava pollachiuria con nicturia. Ad oggi, questo è il settimo caso riportato in letteratura di un carcinoma mammario con sole metastasi vescicali.*

**KEY WORDS:** Bladder-Tumour - Breast cancer metastasis - Surgery.  
Vescica - Tumore - Metastasi mammaria - Chirurgia.

### Introduction

Breast cancer is the most prevalent malignant disease among women, with the exception of non-melanoma skin cancers (1). Furthermore, although death rates are progressively decreasing, owing to an increased awareness, screening exam and advanced therapies, breast carcinoma remains the second leading cause of death for cancer in women. In 2007, the American Cancer Society estimated that 178.480 new cases of invasive breast cancer would be diagnosed among American women, adding to a further 62.030 new cases of in situ breast carcinomas (2).

Malignant breast tumours metastasise to lungs, bone, liver, lymph nodes and skin; less frequently it can

also spread to brain, adrenal glands, ovaries, spleen, pancreas, kidneys, thyroid and heart (3-5).

Unusual metastases sites are reported in the literature (6) and the urinary bladder is indeed one of these rarely involved organs.

### Case report

In July 2006, a 57 year woman, operated in 2000 for lobular breast carcinoma pT2m pN0 presented at follow-up high urinary frequency with nicturia and urinary frequency. On admission to our Breast Unit, the patient was evaluated with both mammary ultrasound and mammography, which were negative for heteroplastic lesions. Total body CT reports dilation of the left renal pelvis and ureter up to its intersection with the iliac vessels. Furthermore, vesico-renal and pelvic transvaginal ultrasonography revealed an irregular thickening of the bladder dome.

Suspecting primary pathology of the bladder, the patient underwent cystoscopy, with transurethral wedge resection of the bladder lesion and introduction of a double-J stent in the left ureter. Pathological examination of the bioptic sample demonstrated carcinoma infiltration of breast origin, positive for estrogen receptors (80% of

the neoplastic cells) but negative for progesterone receptors. In addition, determination and hyperexpression of the protein HER2 using the Hercep Test Dako was negative (score 1). Further evaluation with abdominal MRI revealed neoplastic invasion of both the dome and anterior wall of the urinary bladder, along with irregularities of the perivisceral fat tissue.

As a result of the imaging studies and pathological exam the patient underwent 4 months of chemotherapy with docetaxel + capecitabine. Nonetheless, the total body CT and abdominal MRI performed after chemotherapy did not show any change with respect to the previous report.

For to control the disease, the patient was submitted to surgery with radical intent. On exploration of the bladder, ureters and annexes, confirming the presence of the mass identified at CT and MRI, the peri-vesical fat and iliac lymph nodes (internal and common ones) were biopsied and sent for extemporaneous histological examination. The fat surrounding the bladder resulted positive for metastatic disease. Furthermore, in the meso of the last ileal loop was detected a firm 3x2 cm mass with gross findings suggestive of secondary lesion, post-operatively confirmed at pathological examination. For the local and distant spread of the disease, it was decided on not proceeding with the planned surgery.

Starting February 2007, the patient underwent more cycles of hormone therapy with fulvestrant, which did not significantly improve the patient's condition. For the progressive pelvic disease and renal failure, the patient died in June 2008.

## Discussion

Cancer of the bladder is the fourth and ninth most common cancer in males and females respectively. Nonetheless, the bladder is only rarely a metastatic site of other cancers and, as a consequence, is seldom evaluated in the clinical follow-up of patients affected by malignant neoplasia (7). Urinary bladder metastases from solid tumours represent almost 2% of all bladder neoplasms and are most often associated to primary tumours such as melanoma, breast and gastric carcinoma (7). Specifically, about 2.5% of these metastatic cancers affecting the urinary bladder arise from primary breast lesions (8). Brady et al. (9) presented data for diverse metastatic tumours to the lower female genitourinary tract. While the cervix was the most commonly involved organ, no case of distant metastases to the bladder have been observed.

In the literature Sherlock et al. (10) reported that patients given steroids may develop unusual metastases as

a consequence of their immunosuppressive effects. Similarly, other authors (11) have associated the likelihood of developing bladder metastases with the presence of positive lymph node or with steroid therapy.

Secondary urinary bladder tumours can be subdivided into: metastases by direct extension from a primary focus in an adjacent organ; metastases by urethral or renal pelvis spread; metastases from lymphoma or leukaemia; metastases by lymphogenous or haematogenous spread from a primary focus in a distant organ (7). Another pathway described in the literature (12) relates bladder metastasis of mammalian origin to a retroperitoneal spread of the cancer. Interestingly, the lobular histotype, which affected our patient, appears to be more prone to this kind of diffusion. The most common primary tumours metastasising to the bladder arise from stomach, lung and skin (melanoma).

Evaluation of a patient with a history of breast cancer presenting with urinary symptoms should, include cystoscopy and biopsy of any suspicious lesion. Nonetheless, Feldman et al. (12) presented the case of a patient with strong clinical and CT evidence of bladder involvement but no cystoscopy findings, thus suggesting the use of imaging studies in patients evaluated for urinary bladder metastases.

The case presented by us is the seventh reported case of isolate bladder metastatic of breast carcinoma (1).

## Conclusion

Although urinary bladder metastases from breast carcinomas are rare, the reports in the literature shows an increase of such occurrences over the last few years. Indeed, not only could urinary symptoms be the first clinical manifestation of metastatic breast cancer but, in patients with a history of malignant breast tumour and suspicious urinary clinical features, the possibility of bladder metastases should not be underestimated. In these cases, we strongly recommend a careful assessment through cystoscopy with biopsies and imaging studies. A precocious radical surgery could prevent the rapid progression the metastatic lesion.

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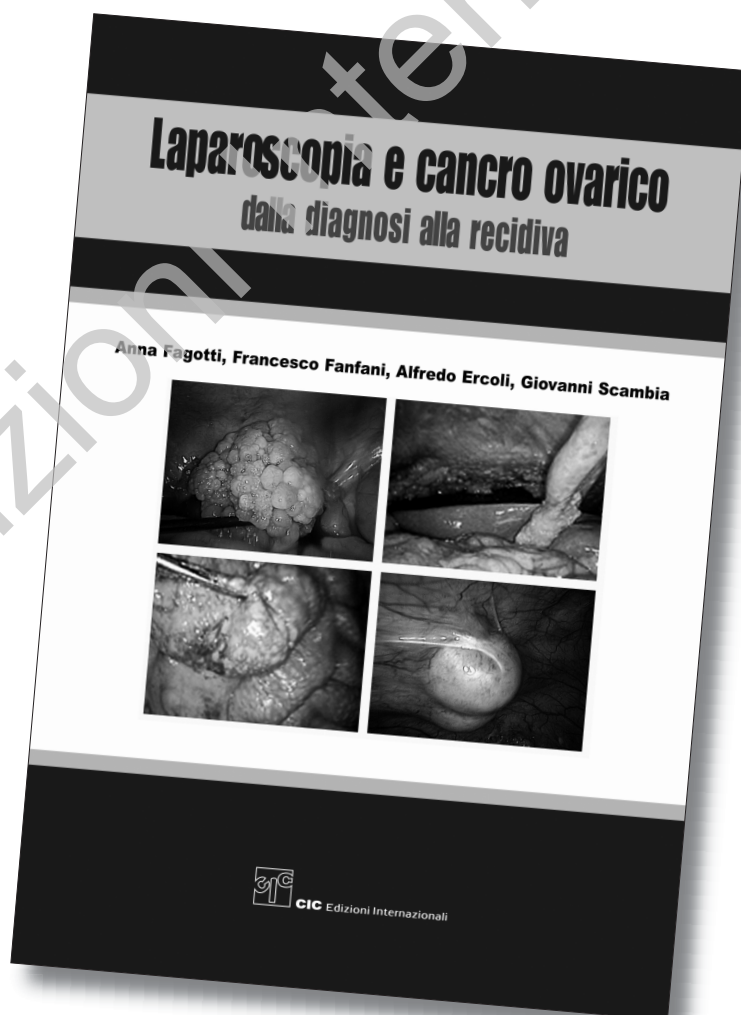
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