

# METASTATIC URETHRAL TUMOR FROM CARCINOMA OF THE BREAST: A CASE REPORT

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A 57-year-old woman with a tumor of the external urethral meatus and a previous primary carcinoma of the breast was presented. Diagnosis of metastatic tumor of the urethra was made at excision biopsy and its simultaneous development in a series of generalized metastases. The perusal of Japanese literatures shows that there has been only one case of metastatic urethral tumor reported up to date.  
**Key words:** Metastatic urethral tumor, Breast carcinoma

## INTRODUCTION

It is well known that carcinomas arising from neighboring organs of the urethra can come in contact with or grow into the urethra. It occurs not infrequently in carcinoma of the bladder, the prostate, the rectum and the uterus. However, extremely rare is the metastatic tumor of the urethra when the primary lesion is in a remote site. A case of metastatic urethral tumor from carcinoma of the breast is herein reported.

## CASE REPORT

A 57-year-old woman was admitted to the department of Urology of Kyoto University Hospital on May 29, 1980 for evaluation of a tumor of the external urethral meatus. She underwent a radical mastectomy in another hospital for left breast cancer in January 1979. A pathological report of the surgical specimen was infiltrating duct carcinoma of the breast. Postoperatively, the patient received 6000 rads of supervoltage radiation to the sternal and the left axillary region. Although she had not been under close follow-up, but was free of any particular symptom for about one year, except for coughing. Three months prior to the present admission the patient began to notice general malaise and genital bleeding in straining for

defecation. Thereafter she noticed several episodes of genital bleeding so that she went to see a gynecologist and was informed of the presence of a tumor of the external urethral meatus.

The physical examination disclosed a somewhat ill woman. Extending from left anterior chest to left axillary region, there was an operation scar. Respiratory sound decreased over the right lower lung field. The liver was enlarged 5 cm below the right costal margin with firm consistency. There was no palpable lymphadenopathy. The hard tumor in a little finger head size with central necrosis was present on the posterior lip of the external urethral meatus (Fig. 1).

The patient underwent extensive laboratory and x-ray evaluations. Routine laboratory studies and multichannel chemistries were within normal limits except for increased ESR and high level of LDH. Arterial gas analysis revealed decreased  $PO_2$ . Chest x-ray revealed multiple coin lesions in both lung fields, especially huge one in right lower lung field (Fig. 2). Urography was in normal findings. The excision biopsy of the tumor was done under suspicion of the metastatic lesion of breast cancer. The tumor was localized in the submucosal space with intact overlying uroepithelium, and was consistent with infiltrating duct



Fig. 1. Tumor with central necrosis at the external urethral meatus.

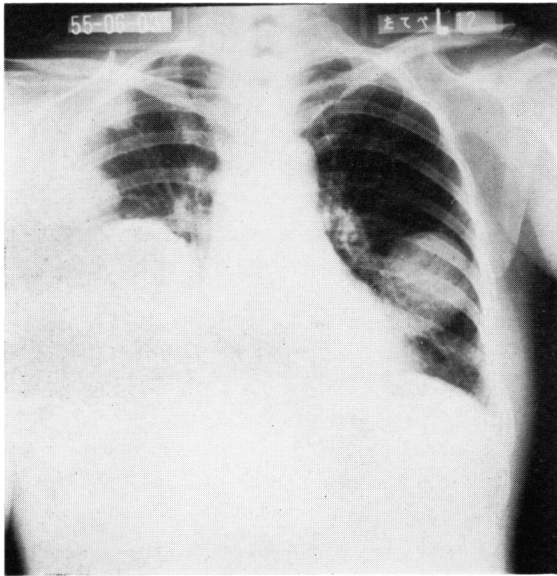


Fig. 2. Chest x-ray on admission, showing several coin lesions in the both lung fields.

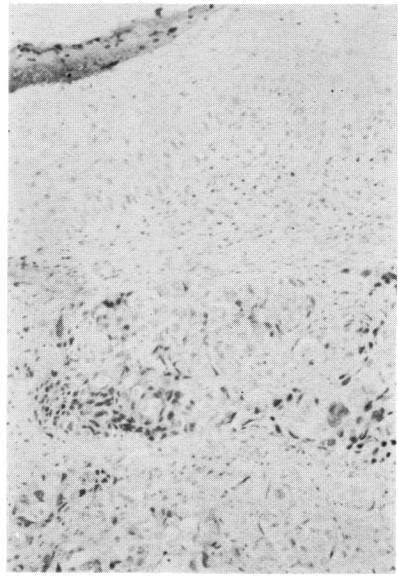


Fig. 3. Biopsy of tumor at the external urethral meatus, showing intact covering urothelium and submucosal invasion of nest of cancer cells.

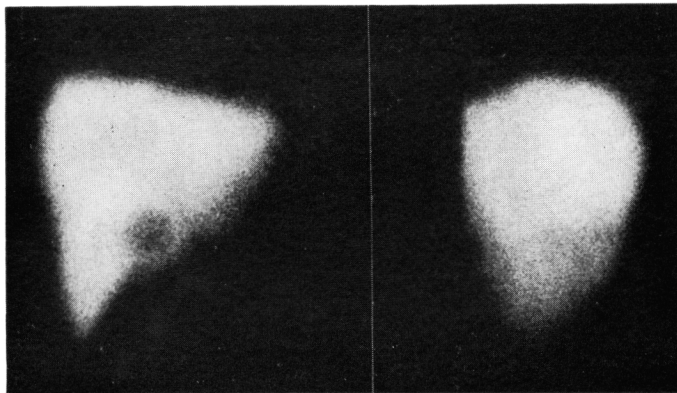


Fig. 4. Liver scintigram

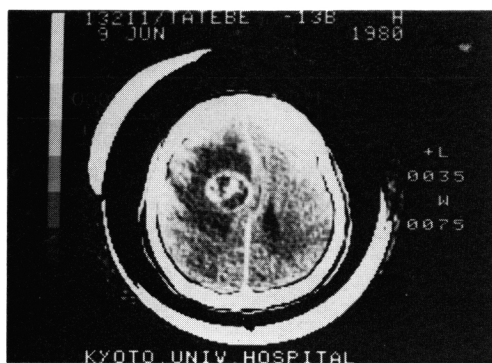


Fig. 5. Brain CT, demonstrating ring enhanced tumor with marked edema of surroundings.

carcinoma of the mammary gland in pathohistological (Fig.3) figures. Liver scintiscan revealed also multiple metastatic lesions with hepatomegaly (Fig. 4). About one week after the admission, speech disturbance and incomplete hemiplegia appeared and gradually got worse. Brain CT disclosed a metastatic tumor with marked edema of the surroundings (Fig. 5).

Accordingly, the urethral tumor was concluded as a metastasis from breast cancer followed by generalized metastatic recurrence. The general condition of the patient was so poor that it did not allow the further treatment to the urethral tumor. Although the patient was transferred to the Department of Surgery for treatment and care of an advanced staged cancer patient, three months thereafter, she died of generalized carcinomatosis.

### DISCUSSION

Urethral tumors may be classified as primary or secondary disease. Secondary tumors may be further subdivided into 4 groups as follows;

- 1) Those that reach the urethra by direct extension from a primary focus in an adjacent organ, such as the bladder, the prostate, the rectum or the vagina.
- 2) Those that develop simultaneously in the urethra and bladder or renal pelvis and ureter as a result of stimulation by an unknown carcinogen of multicentric pre-malignant foci present in the urothelial tract.
- 3) Those that involve the urethra secondary

to lymphoma or leukemia.

- 4) Those that reach the urethra by lymphogenous or hematogenous metastasis from a primary focus in a distant organ.

Several cases of group 3 have been reported as metastatic tumor<sup>1)</sup>. However, every organ has at least some amount of lymphatic tissue, tumors of group 3 should not therefore be considered as a true metastasis but as a distant contiguous infiltration or a asynchronous multicentric development<sup>2)</sup>. Tumors of group 4 should be taken to be right for a true metastatic urethral tumor.

Extremely rare is the metastatic urethral tumor. In a series of 5000 autopsies of malignant tumors, Klinger found only one metastatic urethral involvement from uterine cancer<sup>3)</sup>. Rao et al. and Mrcog reported two cases, metastasizing from the prostatic cancer and the malignant melanoma respectively<sup>4,5)</sup>. In the review of 65 malignant urethral tumors, Roberts et al. found only one case of metastatic tumor from lung cancer<sup>6)</sup>.

Perusal of Japanese literature shows that there has been only one reported case from gastric cancer up to date<sup>7)</sup>. To our knowledge, our case is the second reported case.

In 2843 autopsies of carcinoma of the breast from the Annual of the pathological autopsy cases in Japan, we found one urethral involvement.

Breast cancer is one of the malignant tumors prone to blood born metastasis. About 60% of recurrence is considered to be caused by hematogenous metastasis. Histologically, infiltrating duct carcinoma and scirrhous carcinoma appear to be the type most likely to have blood born spread, which comprise about 50% of hematogenous metastasis<sup>8~10)</sup>.

The sites of metastasis of 2843 autopsies of breast cancer from the Annual of the pathological autopsy cases in Japan (1958-1972) are summarized in Table I. Of these, 445 at autopsy have metastases to the genitourinary organs, an over-all incidence of 15.6 per cent. The commonest genitourinary organs involved are first, the kidney, and second, the bladder. The

Table 1. The sites of metastasis of 2843 autopsies cancer of breast from the Annual of the pathological autopsy cases in Japan (1958~1972)

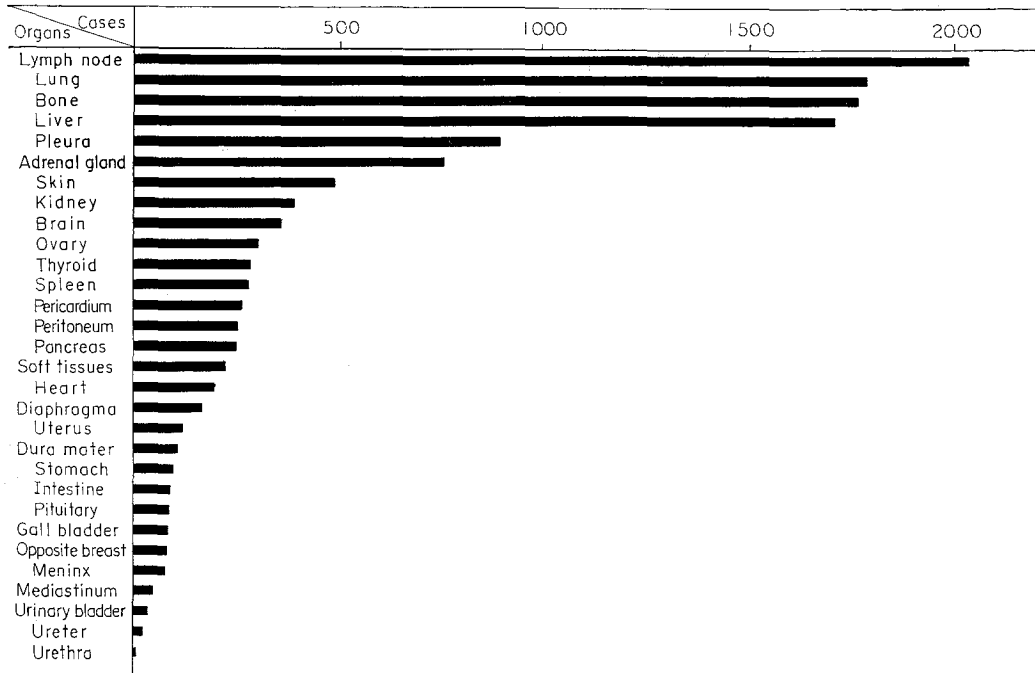


Table 2. Metastasis to the genito-urinary organs in 2843 autopsies of carcinoma of the breast. from the Annual of the pathological autopsy cases in Japan (1958~1972)

cases site	cases					
	100	200	300	400	500	600
kidney	[Bar extending to 389]					
bladder	[Bar extending to 34]					
ureter	[Bar extending to 21]					
urethra	[Bar extending to 1]					
testis	[Bar extending to 0]					
penis	[Bar extending to 0]					
Total No.	kidney	bladder	ureter	urethra	testis	penis
445	389	34	21	1	0	0
15.6%	13.7%	1.2%	0.7%	0.003%	0	0

urethra is involved in only one instance among them, an incidence of 0.003 per cent (Table 2)<sup>8,10)</sup>.

Because of rarity of the metastatic urethral tumor in comparison with the incidence of the primary disease, it may be necessary to distinguish it from double

cancer; breast cancer and primary urethral adenocarcinoma in this case. On making diagnosis of the metastatic tumor, Price et al.<sup>11)</sup> and Hermann<sup>12)</sup> present several referential factors as follows: Clinically, the patient's age and the simultaneous development in a series of generalized metastasis.

Microscopically, the identity or similarity of the type of histology and the cell atypia and microscopic demonstration of the malignant cell emboli in the perivascular phaticslym or in the blood vessels<sup>11,12</sup>. In this case, the urethral tumor should naturally be considered to be of a metastatic nature because of its simultaneous development in a series of generalized metastasis and the histological similarity to the primary foci.

It is unknown why metastatic tumors rarely occur in the urethra. In general, the following conditions are considered to be related as mechanical factors of organs with metastasis; the circulating blood flow, the architecture of the vascular system, the structure of capillary endothelium and the nature to pass tumor cells away<sup>2,8,13,14</sup>. However, it cannot adequately explain the different frequencies with which various organs are sites of metastases. It may be necessary to assume another local factors of the organ, biochemical factors for which is

rarely affected with metastasis.

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#### 和文抄録

#### 乳癌原発の転移性尿道腫瘍の1例

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患者は57歳女性。外陰部出血のため某婦人科を受診し、外尿道口に腫瘍を指摘され、1980年5月当科を初診した。約1年前に左乳癌にて左乳房切断術の既往があり、その時の病理診断は浸潤性乳頭腺管癌であった。

当科に入院後の精査にて肺、肝、脳に一連の転移性腫瘍を認め、また、外尿道口腫瘍生検にて原発巣との

組織型の一致を認めたことより乳癌原発の転移性尿道腫瘍と診断した。

進行癌の状態であるため、泌尿器科的には膀胱カテーテル留置にとどめ外科に転科したが、3カ月後癌性悪液質にて死亡した。

遠隔臓器よりの転移性尿道腫瘍はきわめて稀で、本症例は本邦文献上では第2例目と考えられる。