
Metastatic cancer involving bladder: a review

Vamsidhar Velcheti, MD,¹ Ramaswamy Govindan, MD^{1,2}

¹Division of Oncology, Department of Medicine, Washington University School of Medicine, St. Louis, MO, USA

²Alvin J. Siteman Cancer Center at Washington University School of Medicine, St. Louis, MO, USA

VELCHETI V, GOVINDAN R. Metastatic cancer involving bladder: a review. *The Canadian Journal of Urology*. 2007;14(1):3443-3448.

Purpose: Bladder cancer is the fourth most common cancer in men and the ninth most common cancer in women. Bladder is not a common site for metastasis of cancer and often goes undiagnosed in the clinical follow up of patients with cancer. We reviewed the literature for published reports on metastatic cancer involving bladder.

Materials and methods: We searched MEDLINE, PubMed and OVID from 1953 to June 2005 for published reports on metastatic cancer involving bladder. The key words used were bladder, cancer and metastatic. A total of 2405 abstracts were reviewed. All relevant articles

reporting metastatic cancer to the bladder were selected.

Results: We found 264 cases of metastasis to the bladder from various primary foci. We found that a majority of these malignancies had primary foci in the genitourinary tract and the colon and rectum. Of the malignancies arising from distant foci, melanomas appear to be the most common followed by breast and gastric carcinoma.

Conclusions: The definitive diagnosis of metastatic bladder cancers is often difficult, and poses a significant challenge to the physician, pathologist and the radiologist alike. Bladder adenocarcinomas are uncommon and any adenocarcinoma of the bladder should be viewed with a high index of suspicion for a metastatic cancer from a distant focus.

Key Words: metastasis, bladder, cancer

Introduction

Bladder cancer is the fourth most common cancer in men and the twelfth most common cancer in women with an annual incidence of over 60000 in the Canada.¹ Bladder can be affected by direct extension of cancer from adjoining viscera, spread from transitional cell carcinoma originating proximally in the urinary tract

or spread from distant foci via the blood or lymphatic channels.² This review will summarize the limited available data on metastatic involvement of the urinary bladder.

Materials and methods

We searched MEDLINE, PubMed and OVID from 1953 to June 2005 for published reports on metastatic cancer involving bladder. The key words used were bladder, cancer and metastatic. A total of 2405 abstracts were reviewed. All relevant articles reporting metastatic cancer to the bladder were selected. All the references in the selected case reports were screened for additional reports of metastatic cancer involving bladder.

Accepted for publication November 2006

Address correspondence to Dr. Ramaswamy Govindan, Division of Medical Oncology, Washington University School of Medicine, 660 South Euclid Avenue, Campus Box 8056, St Louis, MO 63110 USA

TABLE 1. Studies showing the distribution of the primary foci of the metastatic tumors to the bladder

Location of primary	Klinger et al ⁸¹ ϕ	Melicow et al ⁹³	Bates et al ⁴	Sheehan et al ³ ϕ	Our review of literature [1953-2005]
Genitourinary*	6 (18%)	74 (47%)	120 (43%)	-	93 (35%)
Colorectal	3 (9%)	34 (22%)	93 (33%)	-	75 (28.5%)
Stomach	8 (24%)	11 (7%)	12 (4%)	6 (30%)	21 (8%)
Breast	3 (9%)	9 (6%)	7 (2%)	-	22 (8.5%)
Lung	2 (6%)	4 (3%)	8 (3%)	5 (25%)	4 (2%)
Pancreas	2 (6%)	-	3 (1%)	1 (5%)	1 (0.5%)
Melanoma	-	1 (0.6%)	11 (4%)	8 (40%)	25 (9.5%)
Others	9 (27%)	17 (11%)	28 (10%)	-	21(8%)
Total	33	156	282	20	262

* - kidney, prostate, cervix, vulva, ovary, uterus, testis, seminal vesicles; ϕ - excluded cancers arising from adjacent organs because it could not be determined if the cancers are due to direct invasion or metastasis

Results

The true frequency of bladder involvement in patients with epithelial cancer may never be known. Many earlier reports on autopsy studies revealed a much higher proportion of metastatic cancer of the bladder, probably due to a sampling bias that often exists in such post mortem studies. Sheehan et al reported 21 (33%) metastatic cancers of the bladder among a total of 84 bladder cancers in 5200 cadavers.³ Bates et al studied 5533 surgical specimens and 756 autopsy specimens of bladder cancers and reported 129 (2.3%) cases of metastatic involvement in the surgical specimens and 153

(20.2%) cases in the post mortem cases.⁴ They found colon was the most frequent primary site (21% of metastatic bladder cancers) followed by prostate (19%), rectum (12%) and cervix (11%). The distribution of cancers arising from distant foci are the stomach (4.3% of metastatic bladder cancers), followed by skin (3.9%), lung (2.8%), and breast (2.5%), Table 1.⁴ Abrams et al had analyzed 1000 consecutive post mortem cases of epithelial malignancies for the incidence and location of metastases from various organ malignancies.⁵ Their findings suggest that gastric adenocarcinomas metastasize to the bladder more often than any other epithelial malignancies, Table 2.

TABLE 2. The incidence of metastasis to the bladder in various organ malignancies

Location of primary	Total number of primary cancers	Number of cases with bladder metastasis	% of metastasis to bladder
Stomach	119	10	8.4
Pancreas	32	2	6.2
Ovary	64	5	7.8
Colon	118	6	5.1
Breast	167	4	2.4
Rectum	87	2	2.2
Lung	160	1	0.6
Kidney	34	-	-

Data from Abrams et al's study of 1000 consecutive post mortem cases of epithelial malignancies for the incidence and location of metastases from various organ malignancies.⁷

TABLE 3. Results of our literature review for metastatic tumors to the bladder from 1953-2005

Common sites of origin of metastatic disease to the bladder

[In order of frequency]

1. Genitourinary *
2. Colorectal
3. Melanoma
4. Breast
5. Stomach
6. Unknown Primary
7. Choriocarcinoma
8. Lung
9. Pancreas
10. Liver

* - kidney, prostate, cervix, vulva, ovary, uterus, testis, seminal vesicles

A report reviewing the literature through 1953 found 31 case reports on metastasis to the bladder.⁶ Of these 31 case reports 17 were from a metastatic melanoma, 6 were from metastatic gastric adenocarcinoma and 4 from carcinoma of the breast. We reviewed the literature from 1953 through 2005 for published reports on metastatic cancer involving bladder, Table 3, not including autopsy studies. We found 264 cases of metastasis to the bladder from various primary foci.^{2,4,6-80} The distribution of the primary foci in these 264 case reports was analyzed. We found 93 (35%) of these malignancies had primary foci in the genitourinary tract and 75 (28%) had primary foci in the colon and rectum followed by melanomas 25 (9%), breast 22 (8%) and gastric carcinoma 21 (8%). Over 16 (6%) of all metastatic malignancies to the bladder had an undetermined primary focus.

Clinical presentation

Metastasis to the bladder usually occurs many years after diagnosis of the primary malignancy (average 7 years).²⁴ Unlike primary bladder malignancies, which usually present with urinary symptoms, the metastatic involvement of the bladder infrequently presents with urinary symptoms.^{3,6,81,82} In a series of patients studied by Sheehan et al only 3 out of 21 patients with metastatic cancer to the bladder presented with symptoms.³ In another large series of

142 metastatic malignancies of the urogenital tract, 27 patients had clinical symptoms related to the urinary tract.⁸¹ Clinically it is often difficult to diagnose the metastatic involvement of the bladder. However in symptomatic patients, with known malignant disease, there should be a high index of suspicion for metastatic disease to the bladder. It is often challenging to differentiate metastatic bladder cancers from primary bladder cancers in patients with no known previous malignant disease.

Radiographic appearance

Magnetic resonance imaging is a modality of choice for imaging urinary bladder cancers.⁸³ Metastatic cancers to the bladder are usually solitary unlike the primary cancers of the bladder.^{4,84} They may present with focal thickening of the bladder wall^{17,85-88} or may even present with diffuse thickening of the bladder wall.^{49,85} CT is useful in demonstrating the thickening of the bladder wall.^{37,85} In a patient with a previously diagnosed malignancy any thickening of the bladder either focal or diffuse should raise the suspicion of metastasis to the bladder.⁸⁵ Ultrasound may show moderate to severe hydronephrosis with thickened bladder wall and ascites in the event of uretric obstruction. Sonographic imaging can be used for initial evaluation of bladder symptoms or for follow up surveillance, however it can not accurately characterize bladder wall masses.⁸⁹ Color doppler imaging techniques allow the detection of vascularity of the lesion and when used in tandem with sonography may provide a valuable tool for diagnosis of bladder cancers.⁹⁰ Cystoscopy can be of great importance in making the diagnosis of tumors of the bladder. However some cases of metastasis to the bladder may go undiagnosed on cystoscopy because metastatic tumors of the bladder infiltrate the bladder wall rather than causing ulceration of the mucosal lining of the bladder. Therefore, the patient evaluation should include imaging studies, cystoscopy, and mapping bladder biopsy, whenever bladder involvement is suspected.

Bates et al reported 19 (6.7%) cases (15 surgical cases and 4 post mortem) of a total of 282 cases of metastatic cancers to the bladder, had undetermined primary.⁴ Positron emission tomography (PET) with Flurodeoxyglucose (FDG) is a modality of choice especially when other imaging techniques have failed to identify the primary. In a meta-analysis of FDG-PET reported that FDG-PET had a

high sensitivity (0.87) and an average specificity (0.71) in detecting undetermined primary cancers.⁹¹ Identification of the primary site of the malignancies is critical in planning for the treatment of patients with unknown primary.

Pathological features

There are some differences in anatomical presentation of primary bladder malignancies in comparison with those that are metastatic. Metastatic cancers are often small in size and often infiltrate the bladder wall rather than causing ulceration of the mucosal lining of the bladder.³ Bladder appears to be the second most common site to be involved in metastasis to the genitourinary tract following kidney.⁸¹ In one study about 54% of the metastatic cancers of the bladder were located near the bladder neck and trigone area⁴ in comparison to only 24% in primary cancers of the bladder.⁹² Cancers arising from the prostate routinely involve the neck and trigone of the bladder, those arising from the cervix and uterus involve the trigone, from the rectum involve the posterior wall and those from colon commonly involve the fundus.^{4,93} Adenocarcinomas are the most frequent histological subtypes of metastatic cancers of the bladders followed by the squamous cell carcinomas and the other subtypes like clear cell carcinomas, adenosquamous carcinomas, sarcomatoid carcinomas, choriocarcinoma and small cell carcinomas are less common.⁴ Without clinical history of malignancy elsewhere it is often challenging to differentiate metastatic adenocarcinoma from primary adenocarcinoma. Only 0.5% to 2% of all primary bladder cancers have adenocarcinoma histology.^{93,94} Metastatic adenocarcinomas arising from adjacent organs such as the lower gastrointestinal tract and the urogenital tract are more common than the primary adenocarcinomas.^{4,93-95} It is often challenging to distinguish between primary and metastatic adenocarcinomas of the bladder based on the histology. About 14%-16% of the primary adenocarcinomas show intestinal type metaplasia along with cystitis glandularis.^{96,97} Presence of the above features along with evidence of adenocarcinoma in situ is suggestive of primary adenocarcinoma.⁸⁴ The coexistence of transitional and squamous cell carcinoma is helpful in making the diagnosis of primary bladder cancer.⁹⁶ Histological appearance provides the most reliable information in the diagnosis and prognosis of the adenocarcinoma of the bladder.⁴ Bardales et al in

their review of urine cytomorphology of 41 patients with the diagnosis of primary and metastatic adenocarcinoma reported that cytomorphological features in association with appropriate clinical history of malignancy is of immense help in making the diagnosis of metastatic bladder adenocarcinoma.⁸⁰ Immunohistochemistry seems to be of limited usefulness in the differentiation of primary and metastatic adenocarcinomas, except in cancers arising from the prostate, colorectal and endometrial cancers.⁹⁸

Treatment

It is important to distinguish between primary and metastatic adenocarcinoma of the bladder since primary bladder adenocarcinomas have a better prognosis following cystectomy.^{99,100} Any treatment of the metastatic cancer to the bladder is often only a secondary consideration depending on the stage and prognosis of the primary cancer. Outcomes of metastatic cancer to the bladder depend on a variety of factors including location of the primary foci, grade of the malignancy, number and location of the metastatic lesions. Secondary adenocarcinomas of the bladder like other metastatic tumors have a variable chemosensitivity and radiosensitivity that correlates with the primary tumor. Radical surgery followed by chemotherapy and radiation would yield longest survival.⁹⁵ The decision to perform cystectomy should be based on the prognosis of the patient and can be offered as palliative resection in widely metastatic disease. The choice of total rather than partial cystectomy should follow the anatomical location of the tumor. The rationale for nephrostomy and ureteric stents to relieve obstructive uropathy depends on the patient's performance status and life expectancy.

Conclusions

Bladder is not a common site for metastasis of cancer and often missed on clinical follow up of patients with cancer. We performed a review of literature from 1953 through 2005 to review the reports on metastatic cancer to the bladder and analyzed the distribution of the primary foci in these cancers. Adenocarcinoma of the bladder should be viewed with a high index of suspicion for a metastatic cancer from a distant focus. The definitive diagnosis of metastatic bladder cancers is often difficult, and poses a significant challenge to the physician, pathologist and the radiologist alike. □

References

1. National Cancer Institute of Canada (NCIC). Canadian Cancer Statistics. 2006, Canadian Cancer Society <http://www.ncic.cancer.ca/>.
2. Abeshouse BS. Metastasis to ureters and urinary bladder from renal carcinoma; report of two cases. *J Int Coll Surg* 1956;25(1 Part 1):117-126.
3. Sheehan EE, Greenberg SD, Scott R, Jr. Metastatic Neoplasms of the Bladder. *J Urol* 1963;90:281-284.
4. Bates AW, Baithun SI. Secondary neoplasms of the bladder are histological mimics of nontransitional cell primary tumours: clinicopathological and histological features of 282 cases. *Histopathology* 2000;36(1):32-40.
5. Abrams HL, Spiro R, Goldstein N. Metastases in carcinoma; analysis of 1000 autopsied cases. *Cancer* 1950;3(1):74-85.
6. Ganem EJ, Batal JT. Secondary malignant tumors of the urinary bladder metastatic from primary foci in distant organs. *J Urol* 1956;75(6):965-972.
7. Abad JI et al. Secondary bladder melanoma, presentation of a case. *Actas Urol Esp* 1992;16(8):658-659.
8. Acino SM, Hampel N. Renal cell carcinoma presenting with gross hematuria from a solitary bladder metastasis. *Eur Urol* 1988;15(3-4):294-296.
9. Alarcon H, Melick WF. Metastatic hypernephroma to the bladder. *J Urol* 1968;99(4):387-390.
10. Alfthan OS. Squamous cell carcinoma arising in a dermoid cyst of the ovary and perforating in the bladder: case report. *J Urol* 1963;89:57-59.
11. Alhede J, T. Krarup. Melanoma metastasis to the bladder. *Ugeskr Laeger* 1980;142(19):1225-1226.
12. Amar AD. Metastatic Melanoma of the Bladder. *J Urol* 1964;92:198-200.
13. Arapantoni-Dadioti P et al. Metastasis of malignant melanoma to a transitional cell carcinoma of the urinary bladder. *Eur J Surg Oncol* 1995;21(1):92-93.
14. Bartone FF. Metastatic Melanoma of the Bladder. *J Urol* 1964;91:151-155.
15. Bolker M et al. Metastatic renal cell carcinoma to the bladder. *Urol Int* 1993;50(2):101-103.
16. Butler MJ. A solitary metastasis to the bladder from a renal adenocarcinoma. *Br J Urol* 1974;46(5):584.
17. Chiang KS, Lamki N, Athey PA. Metastasis to the bladder from pancreatic adenocarcinoma presenting with hematuria. *Urol Radiol* 1992;13(3):187-189.
18. Chin JL et al. Melanoma metastatic to the bladder and bowel: an unusual case. *J Urol* 1982;127(3):541-542.
19. Chingwundoh FI, Khor T, Leedham PW. Bladder metastasis from renal cell carcinoma. *Br J Urol* 1997;79(4):650-651.
20. Choudhary M, Ahmed AA, Williamson JG. Sole bladder metastasis from breast cancer. *J Obstet Gynaecol* 2003;23(2):212.
21. Coltart RS, Stewart S, Brown CH. Small cell carcinoma of the bronchus: a rare cause of haematuria from a metastasis in the urinary bladder. *J R Soc Med* 1985;78(12):1053-1054.
22. Corriere JN. Secondary melanoma of the urinary bladder; report of a case. *W V Med J* 1955;51(9):298-300.
23. Elia G et al. Metastatic breast cancer diagnosed during a work-up for urinary incontinence: a case report. *Int Urogynecol J Pelvic Floor Dysfunct* 1999;10(1):39-42.
24. Feldman PA et al. Metastatic breast cancer to the bladder: a diagnostic challenge and review of the literature. *Urology* 2002;59(1):138.
25. Fourcade R, Jardin A, Kuss R. Bladder metastasis from a renal cancer. *J Urol Nephrol* 1977;83(7-8):554-557.
26. Franks ME et al. Hepatocellular carcinoma metastatic to the bladder after liver transplantation. *J Urol* 1999;162(3 Pt 1):799-800.
27. Garcia Freire C et al. Bladder metastases of pulmonary carcinoma. A report of 2 cases. *Actas Urol Esp* 1994;18(5):601-603.
28. Gelister JS et al. Urinary tract metastasis from renal carcinoma. *Br J Urol* 1992 69(3):250-252.
29. Grabstald H, Kaufman R. Hydronephrosis secondary to ureteral obstruction by metastatic breast cancer. *J Urol* 1969;102(5):569-576.
30. Gupta NP, Ravi R, Mathur M. Metastatic melanoma of bladder with occult primary presenting as haematuria—a case report and review of literature. *Indian J Cancer* 1986;23(4):222-225.
31. Haid M et al. Urinary bladder metastases from breast carcinoma. *Cancer* 1980;46(1):229-232.
32. Herrera Puerto J et al. Bladder metastasis of a renal cell carcinoma. *Arch Esp Urol* 1990;43(6):615-617.
33. Heslin JE, Milner WA, Garlick WB. Lower urinary tract implants or metastases from clear cell carcinoma of the kidney. *J Urol* 1955;73(1):39-46.
34. Irisawa C, Onmura Y, Matsushita S. Metastatic malignant melanoma of the urinary bladder: a case report. *Hinyokika Kyo* 1987;33(3):424-427.
35. Ishii Y et al. Bladder cancer discovered by ovarian metastasis: cytokeratin expression is useful when making differential diagnosis. *Int J Urol* 2005;12(1):104-107.
36. Kato T, Hiei T. Infiltration of carcinoma to the bladder from the sigmoid colon: report of a case. *Hinyokika Kyo* 1972;18(3):146-150.
37. Kim SH et al. Direct invasion of urinary bladder from sigmoid colon cancer: CT findings. *J Comput Assist Tomogr* 1992;16(5):709-712.
38. Kurimoto S et al. Metastasis of hepatocellular carcinoma to the urinary bladder. *Urologe A* 1993;32(1):64-65.
39. Lawrentschuk N, Chan Y, Bolton DM. Metastatic breast cancer to the bladder. *Breast J* 2005;11(2):143.
40. Lucas B et al. Bladder metastasis of breast cancer. *Presse Med* 1996;25(15):732.
41. Madrid Garcia FJ et al. Secondary bladder melanoma. Report of a case concomitant with urothelial tumor of the bladder. *Arch Esp Urol* 1995;48(10):1039-1042.
42. Malhotra B, Misra R. Metastatic invasive mole in the urinary bladder. *Indian J Cancer* 2002;39(3):116-118.
43. Martin-Marquina Aspiunza A et al. Bladder metastasis of lung adenocarcinoma. *Actas Urol Esp* 1997;21(4):406-408.
44. Matsuo M et al. Renal cell carcinoma with solitary metachronous metastasis to the urinary bladder. *Urology* 2002;60(5):911-912.
45. Mele V, Pellegrino A. Bladder metastasis of a chorionepithelioma secondary to a hydatidiform mole. *Cancro* 1969;22(1):32-49.
46. Meyer JE. Metastatic melanoma of the urinary bladder. *Cancer* 1974;34(5):1822-1824.
47. Mobley DF, Guthrie TH. Renal cell carcinoma metastatic to urinary bladder. *Urology* 1976;8(1):53-54.
48. Sitdykov NKH, Sitdykova EN. Metastatic melanoma of the neck of the urinary bladder. *Urol Mosc* 1962;27:66-67.
49. Oota S et al. A case of metastatic urinary bladder tumor from colon carcinoma. *Hinyokika Kyo* 1993;39(9):845-847.
50. Perez-Mesa C et al. Metastatic carcinoma of the urinary bladder from primary tumors in the mammary gland of female patients. *Surg Gynecol Obstet* 1965;121(4):813-818.
51. Piercecchi-Marti MD et al. Bladder mass and melanoma. *Ann Pathol* 1999;19(4):331-332.
52. Pontes JE, Oldford JR. Metastatic breast carcinoma to the bladder. *J Urol* 1970;104(6):839-842.
53. Post GJ, McCuskey BM. Metastatic melanoma to the bladder. *W V Med J* 1980;76(1):7-8.
54. Poulakis V et al. Metastatic breast carcinoma to the bladder: 5-year follow up. *J Urol* 2001;165(3):905.

55. Remigio PA, Ramos CM. Bladder tumor implant from renal adenocarcinoma. *Urology* 1974;4(3):334-335.
56. Remis RE, Halverstadt DB. Metastatic renal cell carcinoma to the bladder: case report and review of the literature. *J Urol* 1986;136(6):1294-1296.
57. Rigatti P et al. Breast cancer metastases of the urinary bladder. *Int J Tissue React* 1991;13(3):159-163.
58. Ruel E, Sutton WE. Carcinoma of the renal parenchyma: one case with metastases to opposite kidney, bladder and ureteral wall; the other associated with papillary carcinoma of same kidney and metastases to skin. *J Urol* 1950;63:487-491.
59. Sanda M, Hidaka N. Carcinoma of the colon and rectum involving the urinary bladder. *Ryokibetsu Shokogun Shirizu* 1994;6(6):292-295.
60. Schneidau T et al. Metastatic breast cancer to the bladder: a case report. *Int Urol Nephrol* 1995;27(3):297-300.
61. Shaw RE. Metastases to the Bladder from carcinoma of the Kidney. *Br J Surg* 1961;48:420-422.
62. Silver SA, Epstein JI. Adenocarcinoma of the colon simulating primary urinary bladder neoplasia. A report of nine cases. *Am J Surg Pathol* 1993;17(2):171-178.
63. Silverstein MJ, DeKernion J, Morton DL. Malignant melanoma metastatic to the bladder. Regression following intratumor injection of BCG vaccine. *JAMA* 1974;229(6):688.
64. Silverstein LI et al. Breast carcinoma metastatic to bladder. *Urology* 1987;29(5):544-547.
65. Sim SJ et al. Metastatic renal cell carcinoma to the bladder: a clinicopathologic and immunohistochemical study. *Mod Pathol* 1999;12(4):351-355.
66. Soon PS, Lynch W, Schwartz P. Breast cancer presenting initially with urinary incontinence: a case of bladder metastasis from breast cancer. *Breast* 2004;13(1):69-71.
67. Stirling WC, Hunter OB Jr. Metastatic melanoma to the bladder with possibility of being primary in the thyroid gland; report of a case. *Med Ann Dist Columbia* 1952;21(2):84-87.
68. Swanson DA, A. Liles A. Bladder metastasis: a rare cause of hematuria in renal carcinoma. *J Surg Oncol* 1982;20(2):80-82.
69. Talamonti MS et al. Locally advanced carcinoma of the colon and rectum involving the urinary bladder. *Surg Gynecol Obstet* 1993;177(5):481-487.
70. Tashiro K et al. A case study with bladder metastasis of renal cell carcinoma and stomach cancer. *Hinyokika Kiyo* 1984;30(2):249-252.
71. Tolley DA, Castro JE, Ansell ID. Malignant metastatic melanoma of the bladder. *Br J Clin Pract* 1975;29(10):276-278.
72. Turini D et al. Biological, diagnostic and therapeutic aspects of a case of renal cell carcinoma occurring with bladder and contralateral adrenal metastasis. *Urol Int* 1988;43(5):293-296.
73. Uygur MC et al. A solitary and synchronous metastasis of renal cell carcinoma to the bladder. *Int Urol Nephrol* 1994;26(5):529-533.
74. Viddeleer AC, Lycklama GA, Nijeholt A, Beekhuis-Brussee JA. A late manifestation of testicular seminoma in the bladder in a renal transplant recipient: a case report. *J Urol* 1992;148(2 Pt 1):401-402.
75. Walsh EJ et al. Treatment of metastatic melanoma of the bladder. *J Urol* 1966;96(4):472-478.
76. Weston PA, Smith BJ. Metastatic Melanoma in the Bladder and Urethra. *Br J Surg* 1964;51:78-79.
77. Williams JR, Stott MA, Moisey CU. Bilateral hydronephrosis secondary to breast carcinoma metastasising to the bladder. *Br J Urol* 1992;69(1):97-98.
78. Yishai D et al. Choriocarcinoma of the bladder. Report of a case of primary tumor or late metastasis of a molar pregnancy. *J Reprod Med* 1995;40(6):482-484.
79. Yokoyama S et al. Primary and metaplastic choriocarcinoma of the bladder. A report of two cases. *Acta Cytol* 1992;36(2):176-182.
80. Bardales RH et al. Urine cytology of primary and secondary urinary bladder adenocarcinoma. *Cancer* 1998;84(6):335-343.
81. Klinger ME. Secondary tumors of the genito-urinary tract. *J Urol* 1951;65(1):144-153.
82. Goldstein AG. Metastatic carcinoma to the bladder. *J Urol* 1967;98(2):209-215.
83. Barentsz JO, Jager GJ, Witjes JA. MR imaging of the urinary bladder. *Magn Reson Imaging Clin N Am* 2000;8(4):853-867.
84. Bates AW, Baithun SI. The differential diagnosis of secondary and unusual primary tumours of the bladder. *Curr Diagnostic Pathol* 1998;5:188-197.
85. Kim HC et al. Isolated bladder metastases from stomach cancer: CT demonstration. *Abdom Imaging* 2001;26(3):333-335.
86. Fornage BD et al. Bladder metastasis of gastric carcinoma: diagnosis by sonography. *J Clin Ultrasound* 1984;12(9):578-580.
87. Leddy FF, Peterson NE, Ning TC. Urogenital linitis plastica metastatic from stomach. *Urology* 1992;39(5):464-467.
88. Saba NE, Hoenig DM, Cohen SI. Metastatic signet-ring cell adenocarcinoma to the urinary bladder. *Acta Oncol* 1997;36(2):219-220.
89. Cochlin DL. Urogenital ultrasound : a text atlas. 1994, London Philadelphia: M. Dunitz; Lippincott. x, 425.
90. Sambur MR et al. Sonographic detection of metastatic renal cell carcinoma to the bladder. *J Ultrasound Med* 2004;23(3):439-442.
91. Delgado-Bolton RC, et al. Meta-analysis of the performance of 18F-FDG PET in primary tumor detection in unknown primary tumors. *J Nucl Med* 2003;44(8):1301-1314.
92. Stephenson WT et al. Analysis of bladder carcinoma by subsite. Cystoscopic location may have prognostic value. *Cancer* 1990;66(7):1630-1635.
93. Melicow MM. Tumors of the urinary bladder: a clinico-pathological analysis of over 2500 specimens and biopsies. *J Urol* 1955;74(4):498-521.
94. Torenbeek R et al. Primary signet-ring cell carcinoma of the urinary bladder. *Histopathology* 1996;28(1):33-40.
95. Gill HS, Dhillon HK, Woodhouse CR. Adenocarcinoma of the urinary bladder. *Br J Urol* 1989;64(2):138-142.
96. Mostofi FK, Thomson RV, Dean AL Jr. Mucous adenocarcinoma of the urinary bladder. *Cancer* 1955;8(4):741-758.
97. Abenoza P, Manivel C, Fraley EE. Primary adenocarcinoma of urinary bladder. Clinicopathologic study of 16 cases. *Urology* 1987;29(1):9-14.
98. Torenbeek R et al. Value of a panel of antibodies to identify the primary origin of adenocarcinomas presenting as bladder carcinoma. *Histopathology* 1998;32(1):20-27.
99. Raitanen MP et al. Diagnostic and therapeutic aspects of adenocarcinoma of the urinary bladder. *Ann Chir Gynaecol* 1993;206(Suppl):43-49.
100. Burnett AL, Epstein JI, Marshall FF. Adenocarcinoma of urinary bladder: classification and management. *Urology* 1991;37(4):315-321.