福島県立医科大学 学術機関リポジトリ

Title	Polymyositis associated with urinary bladder cancer: an autopsy case
Author(s)	Takeda, Isao; Sugisaki, Kota; Iwadate, Haruyo; Kanno, Takashi; Odajima, Hajime; Kamimura, Katsuhito; Sakuma, Hideo; Endo, Hitoshi; Kasukawa, Reiji
Citation	Fukushima Journal of Medical Science. 50(1): 21-28
Issue Date	2004-06
URL	http://ir.fmu.ac.jp/dspace/handle/123456789/152
Rights	© 2004 The Fukushima Society of Medical Science
DOI	10.5387/fms.50.21
Text Version	publisher

This document is downloaded at: 2024-04-19T02:16:50Z

Fukushima Medical University

Fukushima J. Med. Sci.,
Vol. 50, No. 1, 2004

[Case Report]

POLYMYOSITIS ASSOCIATED WITH URINARY BLADDER CANCER: AN AUTOPSY CASE

ISAO TAKEDA[1], KOTA SUGISAKI[1], HARUYO IWADATE[1], TAKASHI KANNO[1], HAJIME ODAJIMA[2], KATSUHITO KAMIMURA[2], HIDEO SAKUMA[2], HITOSHI ENDO[3] and REIJI KASUKAWA[1]

Divisions of [1]*Rheumatology and*
[2]*Clinical Pathology, Ohta Nishinouchi Hospital, Koriyama*
[3]*Division of Orthopedic Surgery, Tsuboi Hospital, Koriyama*

(Received February 25, 2004, accepted March 25, 2004)

Abstract: A 56-year-old man suffered from muscle weakness with elevated serum creatine kinase. Under diagnosis of polymyositis, the patient was treated with corticosteroid, methotrexate and cyclosporin A. Eleven months after the first signs of muscle weakness, the patient suffered an abrupt onset of anuria and underwent hemodialysis. The patient died of respiratory insufficiency 14 months after the first signs of muscle weakness.

Autopsy findings revealed associated urinary bladder cancer with histological indications of adenosquamous cell carcinoma, liver metastasis and cancerous lymphangitis of the lung.

Key words: polymyositis, urinary bladder cancer, interstitial lung disease, anuria, cyclosporin A

INTRODUCTION

It has been well documented that dermatomyositis/polymyositis (DM/PM) is so frequently associated with malignancy as 19% on average ranging from 7% to 60%[1]. The cancers most commonly associated with DM/PM are those of the lung, uterus, breast, stomach and colon, which are also the most common types of cancer[2]. There have been a few reported cases of urinary bladder cancer associated with DM/PM[3-12]. Here we report a 56-year-old man who suffered from polymyositis associated with urinary bladder cancer. In autopsy, the histology of the urinary bladder cancer indicated a rare case of adenosqamous cell carcinoma.

武田　功, 杉崎康太, 岩舘治代, 菅野　孝, 小田島肇, 上村勝人, 佐久間秀夫, 遠藤　仁, 粕川禮司
Correspondence to: Reiji Kasukawa, Division of Rheumatology, Ohta Nishinouchi Hospital, 2-5-20 Nishinouchi, Koriyama City 963-8558, Japan.

CASE REPORT

The clinical course of the patient is shown in Fig. 3. In early May 2000, a 56-year-old man presented with muscle weakness in the extremities and dysphagia, both of which he had been suffering from for 2 months. Over a 6-month period, the patient's body weight had decreased from 60 to 51 kg. The patient had an uneventful past history, other than an accidental fracture of the left humerus in 1998, which was treated using an artificial joint. He was a smoker for 30 years. When the patient visited Tsuboi Hospital on May 6, 2000, his laboratory data showed elevated serum levels of creatine kinase (CK ; 5298 IU/L ; normal, <150), aspartate aminotransferase (AST ; 206 IU/L ; normal, 8-40), alanine aminotransferase (ALT ; 165 IU/L ; normal, 5-40), lactate dehydrogenase (LDH ; 1,763 IU/L ; normal, 110-220) and myoglobin (5,334 mg/dl ; normal, <50) ; values of peripheral blood cell counts and urinalysis were normal. The patient was treated with prednisolone (PSL) at a daily dose of 40 mg starting on May 10, 2000. On May 25, 2000, the patient was transferred and admitted to the Division of Rheumatology, Ohta Nishinouchi Hospital. Manual muscle test showed 3/5 function in the right upper extremity, 4/5 in the left upper extremity and 4/5 in both lower extremities. The patient could not walk well without a cane. Neurologic findings showed no abnormalities. The laboratory data on admission were as follows : white blood cell (WBC) count, 19,700/μl ; red blood cell (RBC) count, $472\times10^4/\mu$l ; platelet (PLT) count, $35.2\times10^4/\mu$l ; CK, 4,121 IU/L ; AST, 228 IU/L ; ALT, 268 IU/L ; LDH, 984 IU/L ; alkalinephosphatase (ALP), 177 IU/L (normal, 80-260) ; blood urea nitrogen (BUN), 17.7 mg/dl (normal, 8-20) ; creatinine, 0.58 mg/dl (normal, 0.6-1.2) ; uric acid (UA), 3.2 mg/dl (normal, 4-7) ; C-reactive protein (CRP), <0.2 mg/dl (normal, <0.2) ; urinalysis showed no abnormalities. Antinuclear antibody and anti-Jo-1 antibody were negative. Electromyography (EMG) of the right rectus femoris muscle revealed a myogenic pattern of neuro-muscular units with short duration and low voltage. The patient received a daily dose of 60 mg of PSL under a diagnosis of polymyositis based on the muscle weakness, elevated muscle enzymes and EMG findings. From June 6, 2000, a weekly dose of 6 mg of methotrexate was added to treat the muscle weakness more efficiently. The muscle weakness gradually improved as the levels of muscle enzymes decreased : serum CK level was 801 IU/L on June 23, 376 IU/L on July 7 and 150 IU/L on August 4. However, on August 9, the patient suddenly complained of dyspnea with a high fever (39°C). Laboratory data were as follows : WBC count, 13,800/μl ; CK, 321 IU/L ; LDH, 1,246 IU/L ; CRP, 20.2 mg/dl. The chest roentgenogram showed interstitial shadows in both lung fields (Fig. 1). On August 9, because saturation O_2 level had decreased to 70%, artificial respiration was begun (FiO_2, 0.6). It was concluded that the interstitial lung lesions were either complexed interstitial lung lesions of polymyositis or toxic lung lesions caused by methotrexate. At that point, administration of methotrexate

was stopped and methylprednisolone was administered for 3 days by pulse infusion at a daily dose of 800 mg. Thereafter, a daily dose of 50 mg of PSL was administered orally. Then, daily dose of PSL was gradually reduced. Respiratory condition of the patient improved gradually, and he was removed from the respirator on August 25. On August 28, an additional daily dose of 100 mg of cyclosporin A was administered to prevent progression of suspected interstitial lung disease. The trough level of serum CsA tested on October 8 was 112 ng/ml.

The muscle weakness and respiratory condition continued to improve gradually, and the patient began rehabilitation therapy for the muscle weakness. On September 26, the left Achilles tendon ruptured, and was treated by suture. In the middle of January 2001, the patient complained suddenly of miction pain with a reduced amount of urine. The laboratory data on January 30 showed increased levels of serum creatinine (4.5 mg/dl), BUN (42.6 mg/dl) and CRP (2.2 mg/dl). The pyelography showed bilateral hydronephrosis. The cystoscopic examination revealed an oppressive lesion of the urinary bladder from outside. Computed tomography (CT) and magnetic resonance imaging (MRI) findings of the pelvic region did not demonstrate any definitely recognizable mass at the urinary bladder. However, in retrospective examination after autopsy, CT revealed an isointensive lesion of the bladder wall slightly protruding toward the left back (Fig. 2a), and T2-weighted MRI revealed a low-signal lesion of the bladder slightly invading toward the left back (Fig. 2b). The renal function worsened as laboratory data showed elevated levels of creatinine (10.7 mg/dl) and BUN (90.0 mg/dl). The patient underwent fistelization

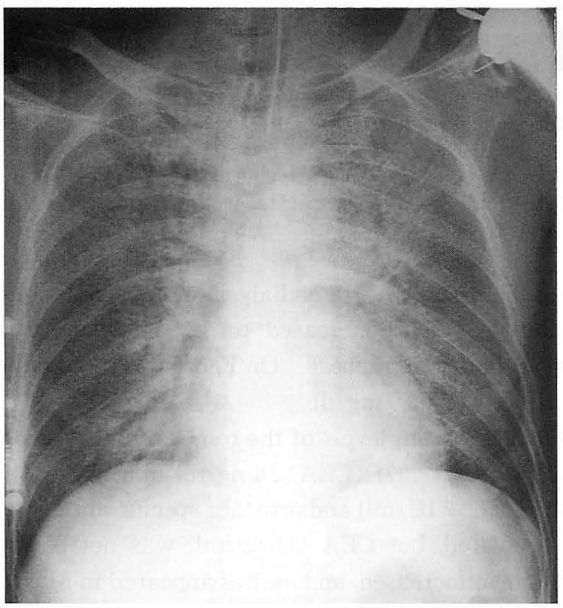

Fig. 1. Roentgenogram of the patient taken on August 10, 2000. Interstitial lung lesions are visible throughout both lung fields.

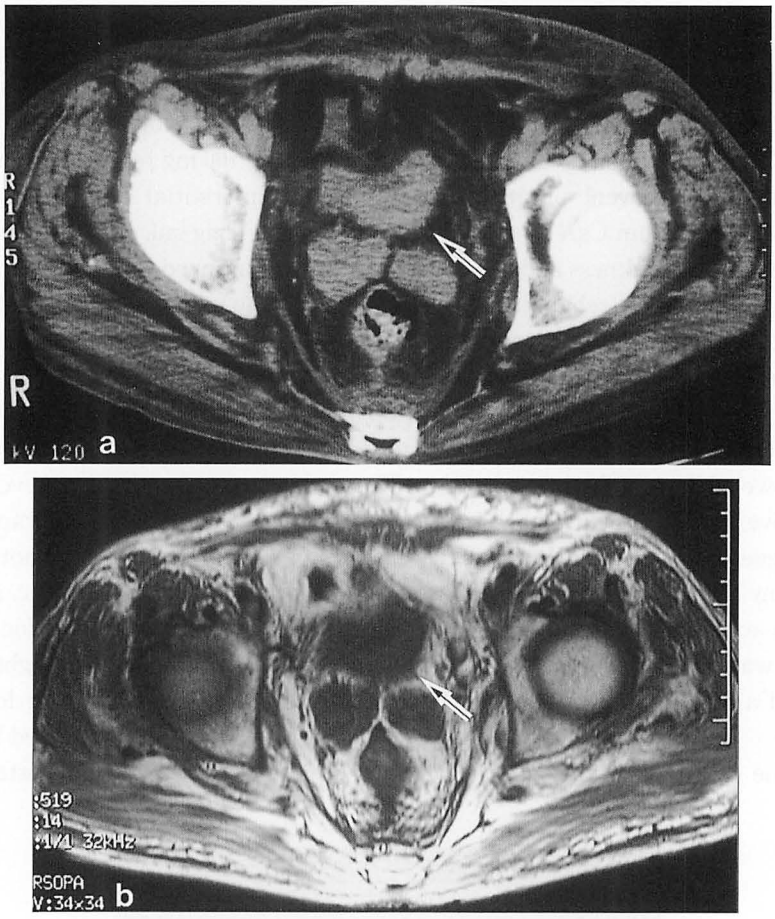

Fig. 2. a : Computed tomograph of the pelvic region taken on March 21, 2001. An isointensity lesion of the bladder wall protruding slightly toward the left back (←) is visible.
b : T2-weighted magnetic resonance image of the pelvic region taken on April 12, 2001. A low-signal lesion of the bladder wall invading slightly toward the left back (←) is visible.

of the left kidney on February 3. Hemodialysis was started on February 8 because the serum creatinine level had increased to 12.5 mg/dl. At that time, pleural effusion was observed in the right chest. On February 26, serum creatinine was 7.1 mg/dl and serum BUN was 90.9 mg/dl.

On May 25, 2000, the serum levels of the tumor markers assayed were normal : CA19-9, 8.1 IU/ml (normal, <37) ; CEA, 2.1 ng/ml (normal, <5). On February 3, 2001, levels of CA19-9 (182.7 IU/ml) and prostata specific antigen (PSA ; 13.4 mg/dl ; normal, <4) were elevated, but CEA (3.6 ng/ml) was not elevated. The pleural effusion in the right chest increased, and ascites appeared in May. The patient died on May 10, 2001, due to respiratory insufficiency.

An autopsy was performed, and the findings were as follows. The patient had

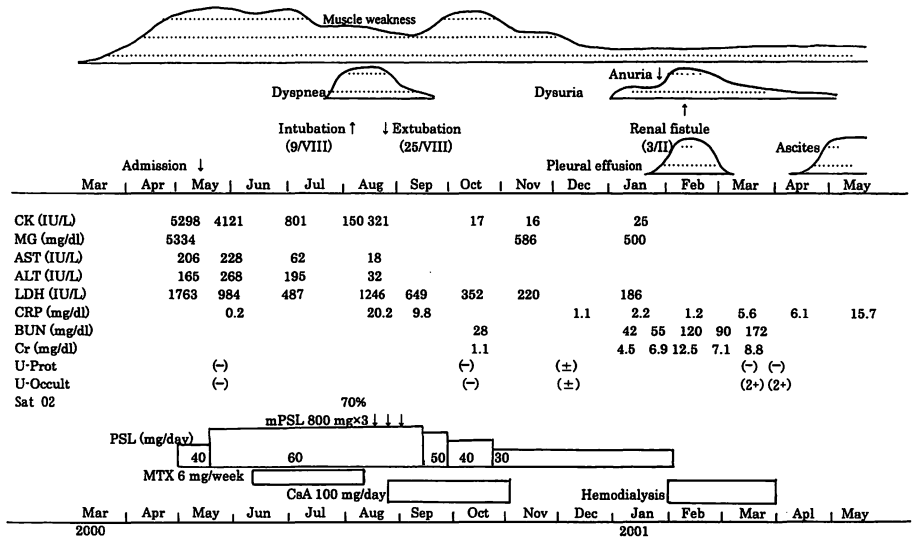

Fig. 3. Clinical course of the patient.
BUN, blood urea nitrogen; CK, creatine kinase; Cr, creatinine; CsA, cyclosporin A; LDH, lactate dehydrogenase; MG, myoglobin; MTX, methotrexate; PSL, prednisolone; u-occult, urinary occult blood; u-prot, urinary protein.

carcinoma at the trigone of the urinary bladder, with a disc-like tumor (size, 4 cm) with histological indications of adenosquamous cell carcinoma (Fig. 4). The tumor had invaded sequentially to the pelvic cavity, forming a tumor in the rectum (diameter, 3 cm), and then to the peritoneum. There were multiple metastases in the liver (diameter, 2 cm), a small metastasis in the left adrenal gland, and carcinomatous lymphangitis in both lungs with carcinomatous pleuritis. The patient had suppurative peritonitis with yellow-turbid ascites, acute pyelonephritis and slight hydronephrosis of both kidneys due to urinary bladder cancer.

DISCUSSION

It is very rare for DM/PM to be complicated by urinary bladder cancer. To the best of our knowledge, there have been only 10 reported patients with urinary bladder cancer associated with DM/PM (9 DM and 1 PM; 9 men and 1 woman)[3-12]. Mean age of these 10 patients was 68 years, with an age range of 61 to 76 years.

In the present case, polymyositis was complicated by urinary bladder cancer. The present patient did not exhibit hematuria, which is the most common symptom of urinary bladder cancer. Renal dysfunction started with an abrupt onset of anuria 3 months prior to death. This lack of hematuria may be due to the location of the cancer, which occupied the outside wall of the urinary bladder and invaded into the pelvic cavity (including rectum and peritoneum) without invading the mucous membrane of the bladder.

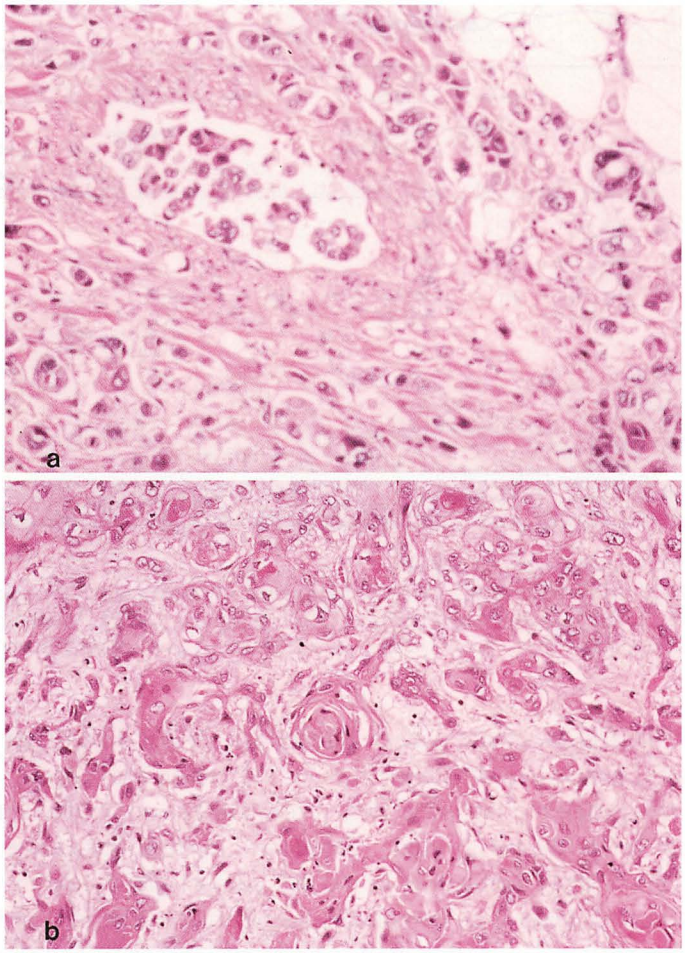

Fig. 4. Histology of the urinary bladder cancer.
Cancerous lesions with 2 different types of histology were observed in the submucosa of the bladder: a lesion containing adenomatous cell carcinoma (a), and a lesion containing squamous cell carcinoma (b) (hematoxilin and eosin stain, ×100).

In the 10 previously reported cases of urinary bladder cancer associated with DM/PM, histology indicated that the tumor consisted entirely of transitional cell carcinoma. In contrast, the histology of the urinary bladder cancer of the present patient indicated adenosquamous cell carcinoma, a finding that may be related to the peculiar location of the cancer in the present case, and the lack of hematuria. Adenosquamous cell carcinoma is a rare type of urinary bladder cancer, and is generally considered more aggressive and infiltrative to the muscular wall[13] than transitional cell carcinoma. The time difference in occurrence of DM/PM and cancer ranges from several months to years[1]. However, most malignancies have been detected between 1 year before and 1 year after the diagnosis of DM/PM[2]. In

the present patient, urinary bladder cancer was detected 11 months after onset of muscle weakness. In the search for the etiology of concomitance of DM/PM and cancer, researchers have looked for common antigens present in both the muscle cells and cancer cells[14,15], and have considered the possibility that the cancer causes a paraneoplastic syndrome that leads to DM/PM[6]. In addition to such immunological and paraneoplastic mechanisms for concomitance of DM/PM and cancer, there is suspicion that immunosuppressants used for treatment of DM/PM promote occurrence of cancer[4]. In the present case, prednisolone, methotrexate and cyclosporin A were used to treat DM/PM before detection of the urinary bladder cancer.

In conclusion, in the present autopsy case, the patient had polymyositis associated with urinary bladder cancer with histological indications of adenosquamous cell carcinoma. It is important to be aware of the possibility of concomitant cancer in patients with DM/PM, and of the possibility that treatment for DM/PM may promote advancement of occult cancer.

ACKNOWLEDGMENT

We express our sincere thanks to Mr. K. Nihei at the Library Unit of Ohta Nishinouchi Hospital for his technical help.

REFERENCES

1. Callen JP. Malignancy in polymyositis/dermatomyositis. Clin Dermatol, **6**: 55-63, 1988.
2. Bonnetblanc JM, Bernard P, Fayol J. Dermatomyositis and malignancy: a multicenter cooperative study. Dermatologia, **180**: 212-216, 1990.
3. Behan WMH, Behan PO, Doyle D. Association of myasthenia gravis and polymyositis with neoplasia, infection and autoimmune disorders. Acta Neuropathol, **57**: 221-229, 1982.
4. Almog Y, Ben-Yehuda A, Ben-Chetrit E. Dermatomyositis associated with the recurrence of transitional cell carcinoma and Kaposi's sarcoma. Clin Exp Rheumatol, **9**: 285-288, 1991.
5. Bouropoulos C, Knellakopoulou KD, Zarakovitis IE, Melekos MD. Paraneoplastic polymyositis associated with transitional cell carcinoma of the bladder. J Urol, **157**: 950-951, 1997.
6. Mallon E, Osborne G, Dinneen M, Lane RJ, Glasser M, Bunker CB. Dermatomyositis in association with transitional cell carcinoma of the bladder. Clin Exp Dermatol, **24**: 94-96, 1999.
7. Talanin NY, Bushore D, Rasberry R, Rudolph T, Tuli M, Friedman-Musicante R. Dermatomyositis with the features of inclusion body myositis associated with carcinoma of the bladder. Br J Dermatol, **141**: 926-930, 1999.
8. Russ BW, English JC III, King DH, Halbach DP. Amyopathic dermatomyositis associated with transitional cell carcinoma of the bladder. Cutis, **63**: 73-76, 1999.
9. Federman DG, Radonich M, Kirsner RS. Fatal bladder cancer and dermatomyositis. South Med J, **93**: 492-493, 2000.

10. Robinson AJ, Alcock CJ. Dermatomyositis in association with transitional cell carcinoma of the bladder. Clin Oncol, **13**: 50-51, 2001.
11. Rankin WR, Herman JR. Rapidly progressive transitional cell carcinoma associated with dermatomyositis. J Urol, **167**: 639-640, 2002.
12. Apaydin R, Gul U, Bahadir S, Siviloglu C, Ofluoglu I. Dermatomyositis without muscle weakness associated with transitional cell carcinoma of the bladder. J Eur Acad Dermatol Venereol, **16**: 172-174, 2002.
13. Bussani R, Silvestri F, Cosatti C, Giarelli L. L'adenocarcinoma primitivo della vesicica. Minerva Urol Nefrol, **41**: 261-266, 1989.
14. Alexander S, Forman L. Dermatomyositis and carcinoma. Br J Dermatol, **80**: 86-96, 1968.
15. Curtis AC, Heckaman JH, Wheeler AH. Study of the autoimmune reaction in dermatomyositis. J Am Med Assoc, **178**: 571-573, 1961.