American Journal of Cancer Case Report
http://ivyunion.org/index.php/ajccr
Vol 2 Article ID 201300495, 4 pages

Case Report

Determination of the Primary Organ is Difficult for Poorly Differentiated Adenocarcinoma with Signet-Ring Cells of the Esophagus and Urinary Bladder

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Abstract

Introduction: Diagnosis of poorly differentiated adenocarcinoma with signet- ring cells of the esophagus and urinary bladder is very difficult.

Presentation of Cases: We report 2 cases of poorly differentiated adenocarcinoma with signet-ring cells, 1 in the esophagus and 1 in the urinary bladder.

Conclusion: Infiltration of cells of poorly differentiated adenocarcinoma with signet-ring cells occurs in early stage of the cancer development. Therefore, complete removal is difficult for these cancers of the esophagus and urinary bladder.

Keywords: Poorly differentiated adenocarcinoma with signet-ring cells; Primary site; Esophagus; Urinary bladder
Peer Reviewer:Juan Rosai, MD, Department of Pathology, Cornell University Medical College, United States; W. M. Murphy, Department of Pathology, University of Florida, United States
Received:
Competing Interests: The authors have declared that no competing interests exist.
Consent: We confirm that family members of the patients have given their informed consents for the case report to be published.

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Introduction

Primary poorly differentiated adenocarcinomas with signet-ring cells of the esophagus and urinary bladder are rare [1-10] and tend to invade deeper layers, having no superficial protrusion. Therefore, it is difficult to decide the primary site.

Case Presentation

Case 1: A 71-year-old Japanese man visited our hospital in September, 2008, for regular 6 months check for prostate cancer removed 3 years before. He had dysphagia and epigastralgia for 3 months. A medium-sized tumor was found in the mid mediastinum by chest CT examination. Endoscopic examination showed a medium-sized round projection of the left side of the wall of the mid-esophagus. A tumor mass measured 6×3×2 cm was found in mid mediastinum by routine X-ray examination. A tissue fragment taken from a tumor nodule on the pleura was diagnosed erroneously as angiosarcoma, but was rediagnosed as poorly differentiated adenocarcinoma with signet-ring cells after enzyme immuno-histochemical examinations. Radiation therapy was performed from October through December, but he died in mid December, 2008.

At autopsy, about 2000 and 800 ml of hydrops accumulated in the left and right chest cavities, respectively. A large ulcer measuring 10.3 cm long was found in the mid esophagus (Fig. 1A).

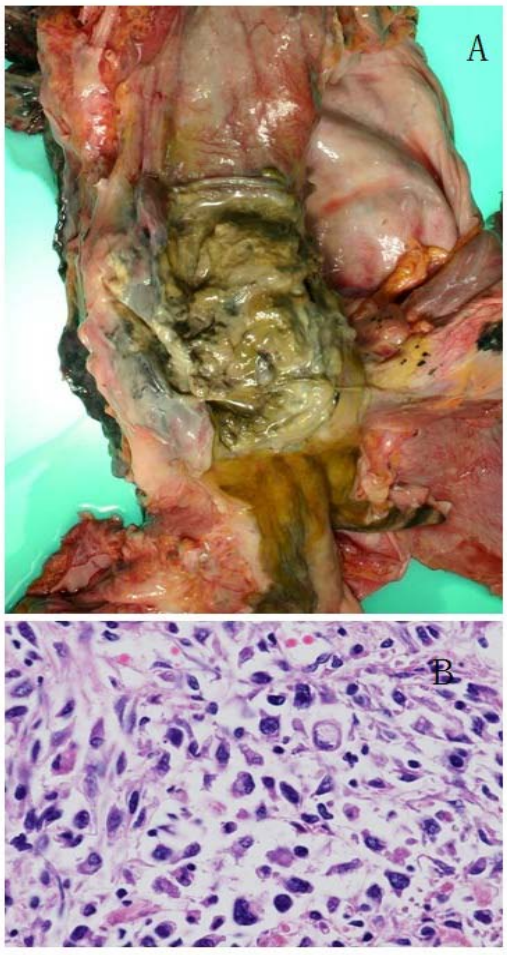

Figure 1 (A) A ulcerative tumor is seen in the mid esophagus. (B) Infiltration of cancerous signet ring cells into the muscle layer of the chest wall (×200).

The surface of the ulcer was extremely irregular in shape, and dirty yellow in color, showing radiation effects. Histologically, cancer cells infiltrated into the muscle layers, left lung and lateral chest wall. Further invasions and distant metastases were found in the mediastinal tissues, visceral and parietal peritoneum, diaphragm, intracostal muscles, lungs, liver, spleen, adrenals, and paraaortic, parapancreatic, and retroperitoneal lymph nodes. A few carcinoma cells had irregular shaped nuclei and cytoplasm with intracellular large mucous vacuole (Fig. 1B). No fibrotic changes were accompanied in the tumor masses. Signet-ring cells of the carcinoma showed no reaction against Reg IV antigen, but a few cells showed a positive reaction against Vimentin. No macroscopic and microscopic appearances of Barrett's esophagus were found in the epithelial lining of the lower part of esophagus.

Case 2. A 86-year-old Japanese man had appetite loss and a slight dehydration. He showed respiratory distress and chest pain, and admitted to our hospital in August, 2008, as an emergency patient. CT examination showed a tumor sized 9×6 cm in the lower-posterior wall of the urinary bladder. Cytologic examinations revealed numerous free cancer cells, having intracytoplasmic mucous granules, in the ascites. The leukocyte count was 33,500 and CRP value was 18.5 mg/dl. He was given antibiotics, but died 4 days after the admission.

At autopsy, abdominal cavity contained about 180 ml of bloody ascites and the pelvic cavity was occupied by hemorrhagic cancerous tissue. A tumorous protrusion of 5.5×3.5 cm in size was found in the lower-posterior wall of the urinary bladder (Fig. 2A). Histologically, lower half of the posterior wall of the bladder was occupied by cells of poorly differentiated adenocarcinoma with signet-ring cell type (Fig. 2B) and all the surface of the peritoneum was infiltrated with free carcinoma cells. However, no involvements were found in the mucosae and muscle layers of the gastro-intestinal tracts. Signet-ring cells of the carcinoma were negative against Reg IV, but a few cells showed positive reaction against Vimentin. No lymph node metastasis was found in the pelvic wall.

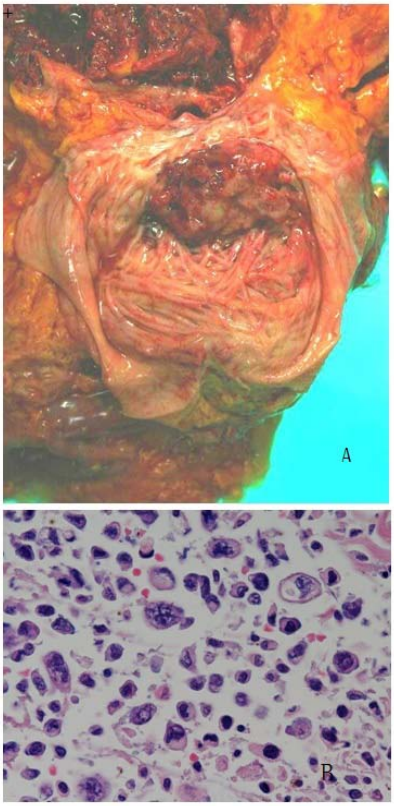

Figure 2 (A) A large hemorrhagic tumor occupied lower half of the posterior wall of the urinary bladder. (B) Proliferation of carcinoma cells in the wall of the urinary bladder, showing signet ring shape (×40).

Discussion

Two cases of poorly differentiated adenocarcinoma with signet-ring cells in the esophagus and urinary bladder are described in this report. Wide infiltration of cells of these carcinomas resulted in pleuritis carcinomatosa and peritonitis carcinomatosa, respectively. Poorly differentiated adenocarcinomas with signet-ring cells are rare entity with highly aggressive clinical course, invading deeper layers at the initial clinical stage. Therefore, determination of the primary site of these carcinomas is difficult. Histological difficulty for diagnosis of these carcinomas is further building up, since only a few cells show a typical signet-ring shape in peripheral part of the invasions. Negative staining of carcinoma cells against Reg IV shows that carcinoma of the present 2 cases are not originated from stomach or colon. Staining for Vimentin is useful to identify signet-ring cells originated from the stomach and colon [11, 12]. Urachal carcinoma usually develops in the top of the urinary bladder. However, no urachal epithelium nor intestinal differentiation was seen in the epithelial cells of the bladder of the present case.

References

1. Wang HH, Antonioli DA, Goldman H. Comparative features ofesophageal and gastric adenocarcinomas. Recent changes in type and frequency. ***Hum Pathol***. 1986, 17:482-487
2. Grignon DJ, Ro JY, Ayala AG, et al. Primary signet-ring cell carcinomaof the urinary bladder. ***Am J Clin Pathol***. 1991, 95:13-20
3. Grignon DJ, Ro JY, Ayala AG, et al. Primary adenocarcinoma of theurinary bladder. A clinicopathologic analysis of 72 cases. ***Cancer***. 1991, 67:2165-2172
4. Holmäng S, Borghede G, Johansson SL. Primary signet-ring cellcarcinoma of the bladder: a report on 10 cases. ***Scand J Urol Nephrol***. 1996, 31:145-149
5. Xiaoxu L, Jianhong L., Jinfeng W., et al. Bladder adenocarcinoma: 31reported cases. ***Can J Urol.*** 2001, 8:1380-1387
6. Wang HL, Lu DW, Yerian LN, et al. Immunohistochemical distinctionbetween primary adenocarcinoma of the bladder and secondarycolorectal adenocarcinoma. ***Am J Sur Path***. 2001, 25:1380-1387
7. Enzinger PC, Mayer RJ. Esophageal cancer. ***N Eng J Med.*** 2003,349:2241-2252
8. Brown LM, Devesa SS, Chow WH. Incidence of adenocarcinoma of theesophagus among white Americans by sex, stage, and age. ***J Natl CancerInst***.2008, 100:1184-1187
9. Shibata A, Matsuda T, Ajiki W. et al. Trend in incidence ofadenocarcinoma of the esophagus in Japan, 1993-2001. ***Jpn J ClinOncol***.2008, 38:464-468
10. Terada T. Esophageal cancers: A clinicopathologic and immuno-histological study of 223 cases. ***Gastroenterol Res***. 2009, 2:148-151
11. Wang HL, Lu DW, Yerian LN, et al. Immunohistochemical distinctionbetween primary adenocarcinoma of the bladder and secondarycolorectal adenocarcinoma. ***Am J Sur Path.*** 2001, 25:1380-1387
12. Sentani K, Oue N, Tashiro T, et al. Immunohistochemical staining ofReg IV and claudin-18 is useful in diagnosis of gastrointestinal signetring cell carcinoma. ***Am J Surg Pathol***. 2008, 32:1182-1189