

Clinical summary :

This 69-year-old male initially visited our orthopedic outpatient department in 18, November 1998 due to prolonged back pain associated with body weight loss of 6 KG within one month. Bone scan result showed active bone lesions, suggestive of a metastatic bone lesion. He was admitted in 27, November due to cough, dyspnea and passage of tarry stool. There was no hemoptysis or bowel habit change.

He was pale looking on admission, otherwise physical findings were unremarkable. Laboratory results on admission revealed anemia (HB: 5.8 G%), Thrombocytopenia (76000/MM), renal function impairment (BUN: 22MG% , creatinine : 1.7 MG%), raised liver function test (AST:ALT = 58:20 U/L, alkaline phosphatase : 928 U/L), hyperuricemia and hyperlipidemia. Bone marrow biopsy showed metastatic adenocarcinoma.

During hospitalization, he had repeated wheezing and gastrointestinal tract bleeding and was treated conservatively. He developed septicemia with respiratory failure, becoming coma and was intubated on 14, December.

CPR was performed on 15, December but he did not response to resuscitation. He was pronounced death at 16:50 H. Autopsy was performed based on patient request in order to search for primary tumor.

Past medical history : gout, hypertension, smoker and social drinker, quited.

Other related investigation results.

1. Panendoscope : Duodenal ulcer scar

2. Abdominal CT scan :

(1) nodules in liver parenchyma

(2) mixed osteoblastic/osteolytic

change in sacrum and right iliac bone

(3) No abdominal mass

3. Bone marrow biopsy (S98-85183) : metastatic poorly differentiated adenocarcinoma.

4. Peripheral blood smear : leukoerythroblastosis with polychromasia.

Autopsy findings :

(1) Body and external appearance :

Weight	Not checked	Development	Fair
Length	162 CM	Nutritional state	Fair
Oblique surgical scar at right subcostal area, measuring 20 CM in length.			
Mcburney's surgical scar measuring 11.5 CM in length			
Ecchymosis at right forearm and left wrist area			
Hydrocele at left scrotum			

(2) Body cavities :

Pleural	50 C.C. Straw-color
Peritoneal	Ascites 100 C.C. Straw-color
Pericardial	Minimal

(3) Cardiovascular system :

Greater vascular structures	
Gross	Extensive atherosclerosis with calcification throughout the aorta and its major branches. No aneurysm is seen.
Microscopic Diagnosis	Marked atherosclerosis with calcification and intimal thickening.

Heart General :			
Weight	450 GM	Pulmonary valve	5.5 CM
Left ventricle	2.5 CM	Mitral valve	7.0 CM
Right ventricle	1.0 CM	Aortic valve	6.8 CM
Tricuspid valve	7.5 CM		

Heart	Gross	Microscopic Diagnosis
Valves	Aortic valve incompetence	
Epicardium	Unremarkable	No pathological diagnosis
Myocardium	Unremarkable	Metastatic adenocarcinoma in myometrium of left ventricle
Endocardium	Unremarkable	No pathological diagnosis
Coronary arteries	Three major arteries show narrowing of the lumen	Atherosclerosis with intimal thickening

(4) Respiratory system :

Trachea and major bronchi		
Gross	Contents	Patent. No foreign body or tumor seen
	Mucosa	Mild congestion and erosion

Lung						
Gross	Weight	Right	1100 GM	Size	Right	23 x 10 x 10 CM
		Left	880 GM		Left	22 x 13 x 7.5 CM
	Consolidation, numerous tumor nodules measuring from 0.1 x 0.1 x 0.1 CM to 1.0 x 0.5 x 0.5 CM					
They are light tan and ill-defined. Pleura surface is involved.						
Microscopic Diagnosis	Diffuse carcinomatosis. Tumor nests occupy the alveolar spaces and interstitium with desmoplasia. Tumor emboli in blood vessels and lymphatic channels are seen.					

(5) Gastrointestinal Tract :

Pharynx	
Gross	Unremarkable

Esophagus	
Gross	Intact esophageal mucosa and muscle layer.
Microscopic Diagnosis	Metastatic adenocarcinoma within lymphatic channels at periesophageal soft tissue.

Stomach	
Gross	No ulceration or tumor seen.
Microscopic Diagnosis	Metastatic adenocarcinoma within lymphatic channels at serosal layer.

Duodenum	
Gross	Unremarkable
Microscopic Diagnosis	Autolyzed

Omentum	
Microscopic Diagnosis	Mild congestion No tumor is seen

Small bowel	
Gross	Fibrous adhesion at terminal ileum. No tumor is seen.
Microscopic Diagnosis	Autolyzed. Post mortem changes. Fibrous adhesion at terminal ileum.

Large bowel	
Gross	The cecum, ascending colon and hepatic flexure show marked dilation congestion with diverticulosis. No tumor is seen grossly.
Microscopic Diagnosis	Extensive autolysis Diverticulosis with thin muscle layer

Pancreas				
Gross	Weight	110 GM	Size	17 x 3.6 x 2.0 CM
	Suspicious small nodule measuring 0.8 x 0.7 x 0.5 CM around the pancreatic head.			
Microscopic Diagnosis	Metastatic adenocarcinoma The suspicious nodule is a lymph node with metastatic adenocarcinoma.			

Appendix	
Gross	Absent appendix

(6) Hepatobiliary system :

Liver				
Gross	Weight	1700 GM	Size	23.5 x 17 x 8.0 CM
	Several small irregular subcapsular gray white nodules measuring from 0.5 x 0.5 x 0.5 CM to 2.2 x 1.5 x 0.8 CM			
Microscopic Diagnosis	Metastatic adenocarcinoma, Tumor cells show negative staining for AFP. Fatty change, Mild Centrilobular necrosis			

Gallbladder, Bile ducts	
Gross	Absent

(7) Hematopoietic-Lymphoid system :

Spleen				
Gross	Weight	240 GM	Size	12.5 x 5.6 x 8.0 CM
Microscopic Diagnosis	No pathological diagnosis			

Lymph nodes	
Gross	Enlarged paraaortic, paratracheal, bilateral bronchopulmonary lymph node.
Microscopic Diagnosis	Metastatic adenocarcinoma

Bone marrow	
Microscopic Diagnosis	Metastatic adenocarcinoma

(8) Urogenital system :

Kidney						
Gross	Weight	Right	120 GM	Size	Right	9.0 x 6.5 x 2.2 CM
		Left	150 GM		Left	12 x 7.0 x 2.0 CM
	Autolyzed, No tumor or stone is seen					
Microscopic Diagnosis	Acute tubular necrosis No tumor is seen					

Ureters	
Gross	Unremarkable
Microscopic Diagnosis	No pathological diagnosis

Bladder and urethra	
Gross	Unremarkable
Microscopic Diagnosis	Post mortem changes

Prostate / Testes / Seminal vesicles						
Prostate	Weight : 100 GM					
	White and firm, No definite tumor mass is seen					
Testes	Weight	Right	30 GM	Size	Right	4.8 x 4.0 x 2.4 CM
		Left	30 GM		Left	5.0 x 3.5 x 2.4 CM
	No tumor is seen					
Seminal vesicles	Both Seminal vesicles and epididymis are unremarkable.					
Microscopic Diagnosis	Extensive autolysis of prostatic tissue.					
	Scattered nests of adenocarcinoma in lymphatic channels with the prostate gland.					
	Nodular hyperplasia of both Prostate gland.					
	Both testes and seminal vesicles are unremarkable.					

(9) Endocrine system :

Thyroid					
Gross	Right	Weight	10 GM	Size	5.7 x 3.2 x 1.8 CM
		A colloid containing nodule measuring 1.3CM in diameter is seen.			
	Left	Weight	10 GM	Size	5.0 x 2.0 x 1.7 CM
		Unremarkable			
Microscopic Diagnosis	Nodular hyperplasia at right lobe.				
	Metastatic adenocarcinoma at right lobe. The tumor cells stain negatively for TSH and thyroglobulin. Thus, a primary thyroid carcinoma is unlikely.				

Parathyroids	
Gross	Identified
Microscopic Diagnosis	No pathological diagnosis

Pituitary	
Gross	Size : 1.0 x 0.6 x 0.5 CM
Microscopic Diagnosis	Metastatic adenocarcinoma in parenchyma and lymphatic channels.

Adrenals					
Gross	Right	Weight	15 GM	Size	6.0 x 2.6 x 0.5 CM
		The cut surface shows variegated appearance, varies from yellow, light tan to gray white. A 0.5 x 0.5 CM solid nodule within the parenchyma is seen.			
	Left	Weight	10 GM	Size	4.8 x 2.7 x 0.7 CM
		Variegated unremarkable			
Microscopic Diagnosis	Metastatic adenocarcinoma in both adrenal glands, involving both cortical and medullary region.				

(10) Central nervous system :

Central nervous system	Gross
Scalp	Unremarkable
Dura	Unremarkable
Falx	Unremarkable
Tentorium	Unremarkable
CSF	Unremarkable

Brain / Leptomeninges / Cranial nerves / Circle of Willis / Spinal cord			
Brain	Weight	Cerebrum, brain stem and cerebellum	1400 GM
		Cerebellum and brain stem	170 GM
	Shape	Unremarkable	
		No infarct, Brain softening or herniation	
		Tonsil, Right/Left : 1.5 CM / 1.0 CM	
Uncus, Right/Left : 0.5 CM / 0.4 CM			
Leptomeninges	No sagittal sinus thrombosis		
Cranial nerves	Intact		
Circle of Willis	Atherosclerosis at proximal Basilar artery		
Spinal cord	Intact		
Microscopic Diagnosis	Metastatic adenocarcinoma in choroid plexus.		
	Atherosclerosis of the basilar artery.		
	The brain parenchyma, brainstem and cerebellum are free of tumor involvement.		
	No meningeal carcinomatosis		
	There is no evidence of brain		

Section Taken and Labeled as :

Labeled	Section Taken	Labeled	Section Taken
A 1-4	Liver nodules	RBRON 1-2	Right bronchus
A 5	Liver (random section)	LBRON 1-2	Left bronchus
B 1-2	Spleen	RU 1-5	Lung, Right upper lobe
C	Parathyroid	RM 1-2	Lung, Right meddle lobe
RK 1-4	Right kidney and ureter	RL 1-5	Lung, Right lower lobe
LK 1-4	Left kidney and ureter	LU 1-5	Lung, Left upper lobe
BLA 1-3	Bladder	LL 1-4	Lung, Left lower lobe
U	Urethra	AOR 1-2	Aorta
RP 1-8	Right prostate	RCOR	Right coronary artery
LP 1-13	Left prostate	LCOR 1	Left coronary artery
PIT	Pituitary	LCOR 2	Left circumflex artery
RTH 1-2	Right thyroid	H 1-2	Right ventricle
LTH	Left thyroid	H 3-4	Left ventricle
RAG 1-3	Right adrenal gland	H5, H8, H9	
LAG 1-3	Left adrenal gland	LN 1-2	Paratracheal nodes
ESO 1-2	Esophagus	LN 3	Paraortic nodes
ESO 3	Gastroesophageal junction	LN 4	Left bronchopulmonary node
STO 1-4	Stomach	LN 5	Right bronchopulmonary node
STO 4	Gastroduodenal junction	B 1	Meninges
SB 1	Duodenum	B 2	Pineal gland
SB 2-5	Small intestine	B 3	Ventricular area
LB 1-4	Cecum	B 4	Optic nerve
LB 5-6	Transverse colon	B 5	
LB 7	Descending colon	B 6	Left Hippocampus
LB 8	Sigmoid colon	B 7	Right Hippocampus
LB 9	Rectum	B 8	Substantia nigra, Left
LB 10-13	Cecum and ascending colon	B 9	Thalamus nigra, Left
PAN 1-8	Pancreas	B 10-11	Basal ganglia, Left
PAN 8	Suspicious pancreatic nodule	B 12-13	Frontal, Left (缺B12-13 蠟塊)
O	Omentum	B 14	Visual cortex, Left

Section Taken and Labeled as :

Labeled	Section Taken	Labeled	Section Taken
B 15	Pons, Left	RTES	Right testis
B 16	Midbrain, Left	LTES	Left testis
B 17	Medulla, Left	RVC	
B 18	Cerebellum, vermis	LVC	
B 19	Cerebellum	Z	
B 21	Spinal cord		
B 20	Blood vessel, circle of Willis including basilar artery		