- Sex: 女
- Age: 51
- Occupation: 無
- Admission date:92/07/22

Chief complaint

- Unknown fever for one month
- Hand tremor and left huge renal tumor was noted

Present illness

- Suffered from fever for one month, hand tremor and anemia with Hb 6.0 was noted in 仁康 Hospital.
- Referred to our Hematologist OPD because of anemia.

Present illness

- CT and sono was arranged, a large mass occupying the left kidney was found.
- Transferred to Urologist for further evaluation and treatment.

Physical examination

- Ill looking
- Conjunctiva: pale
- Left abdominal tenderness

Lab data

- 92/07/22
- CBC

  RBC:4.19 ; HGB:11.0

  HCT: 31.9 ; MCV: 76.3 ; PLT:539

  electrolyte: Ca: 10.9
- U/A

  Occult blood: 2+

Sono (2003/07/18)

- a huge mixed echoic tumor(13x11cm) at L't kidney
- Impression: L't Renal tumor

CT (2003/07/18) pre-enhanced

CT pre-enhanced

- The possibility of renal lymphoma or metastasis or left adrenal malignant mass or retroperitoneal mass is less likely.

CT post-enhanced

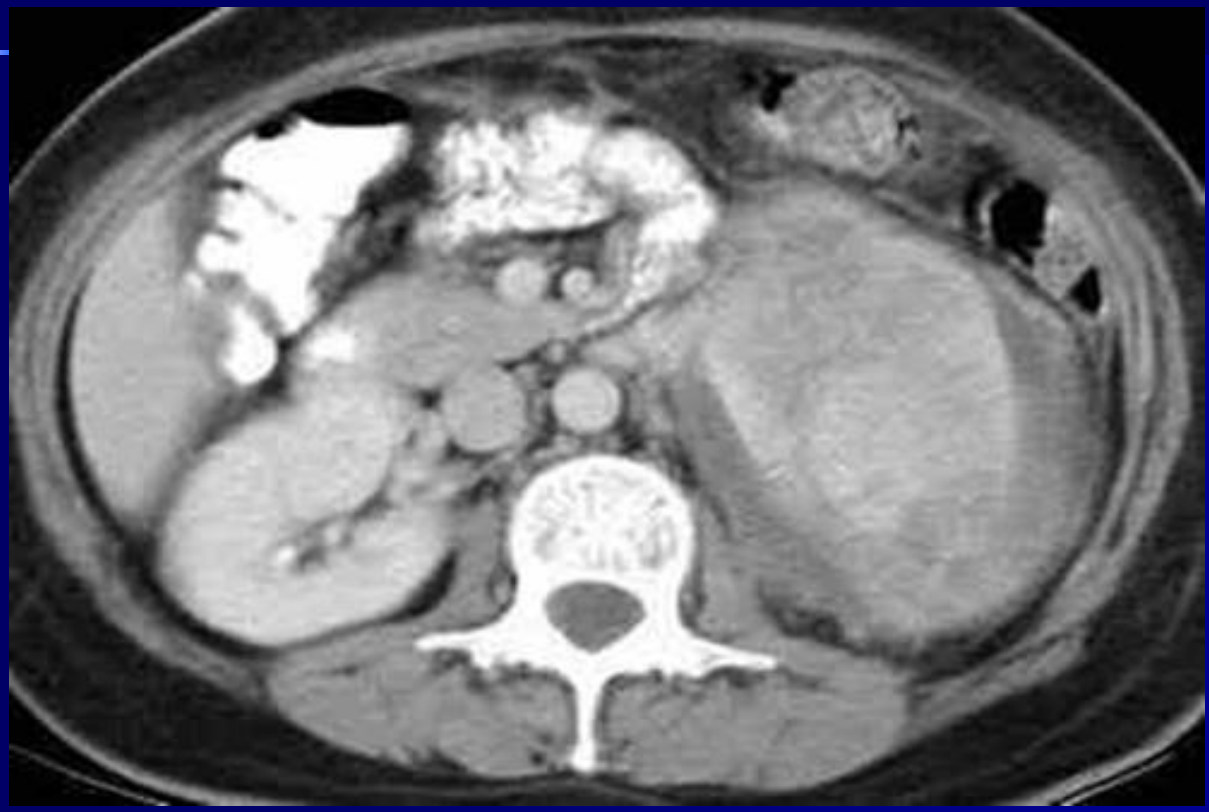
- the interfaces between the posterior gastric walls, pancreatic tail, splenic hilum and the huge left renal mass are partially blurred. Left renal tumor invading to stomach, pancreatic tail and splenic hilum

CT post-enhanced

- a large hetrogeneous enhanced mass(8.6 cm x 9.0 cm x 9.1 cm in size) with central necrosis occupying the upper and middle poles of left kidney with perirenal invasion.

  Left renal cell carcinoma is more favored

CT post-enhanced



- some non-enhanced decreased attenuated materials at the left perirenal space.

CT post-enhanced

- no definite abnormal enlarged para-aortic lymph nodes.

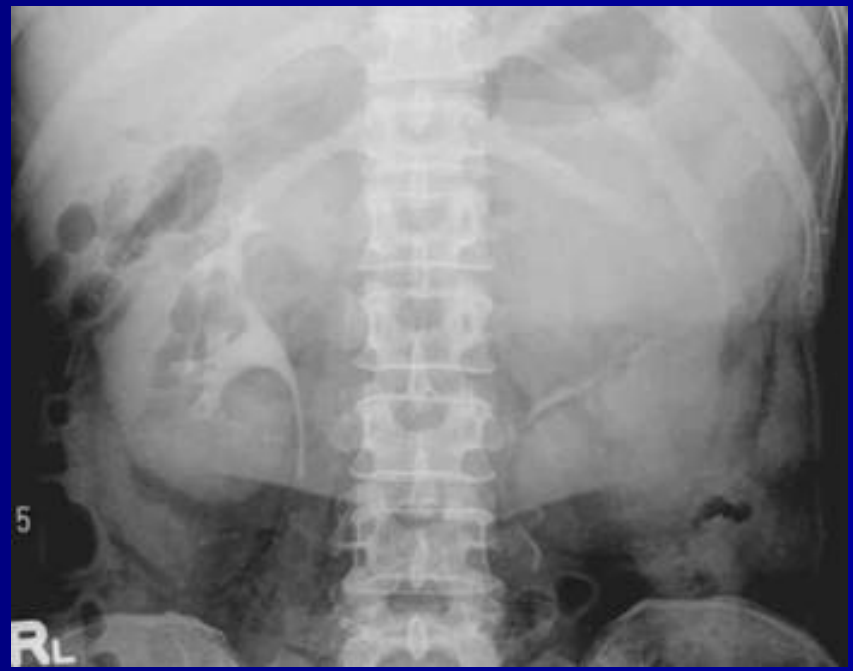
CXR (2003/07/22)

- mild obliteration of L't costophrenic angle, pleuritis or small amount of pleural effusion can not be R/O.

KUB (2003/07/22)

- Relatively clear R't renal shadow, but the L't renal shadow is not well demonstrated in this film.

I.V.P (2003/07/24) 1MIN, 5MIN



I.V.P 10MIN

- There is shadow of huge tumor mass, mainly occupy at L't upper pole region
- Impression : Poor functioning of Lt kidney ,with huge tumor at Lt pole kidney.

L’t Renal angiography (2003/07/24)

Huge tumor arise from upper pole of Lt kidney.

L’t Renal angiography

Summary of image finding

- A large hetrogeneous enhanced mass with central necrosis occupying the upper and middle poles of left kidney with perirenal invasion. There is found involvement of Lt renal artery, splenic artery and some collateral supplies from the adjacent arteries.
- Left renal cell carcinoma (may be stage IV A) with stomach, pancreatic tail and splenic hilum invasion is more favored.

D/D

- **Renal cell carcinoma**

  I.V.P: distortion of the renal contour, enlargement of a portion of the kidney, and calcifications.

  CT:solid and highly enhancing mass.

- **Transitional cell carcinoma**

  I.V.P: Filling defects in the upper urinary tract

  CT:obstruction and dilatation of the ureter and pelvis proximal to the lesion; ureteral wall thickening .

D / D

- Angiomyolipoma

1.a benign renal neoplasm composed of fat, vascular, and smooth muscle elements.

2.main presenting symptoms are related to intratumoral or retroperitoneal hemorrhage.

3. displaces the renal parenchyma and distorts the collecting system, and sometimes causes renal destruction.

4.CT:shows a mixed-attenuation mass interspersed with areas of low attenuation (fat) and areas of high attenuation (blood).

D/D

- Oncocytoma

1. occur within a well-defined fibrous capsule, with tumor tissue rarely penetrating the renal capsule, pelvis, collecting system, or perinephric fat .
2. The diagnosis of **oncocytoma** is predominantly pathologic .

Impression

- Renal cell carcinoma

Operation method

- Left radical nephrectomy
- Ligated renal artery, vein and ureter, then cut them.
- Dissected Gerota fascia with surrounding structure.
- Remove kidney; repair diaphragm and remove the bleeding spleen.

Pathological finding

- The tumor is solid, golden-yellow with marked hemorrhage and necrosis.
- The tumor involves the capsule and perirenal adipose tissue but not beyond the Gerota fascia.

Pathological finding

- Renal artery, renal vein and ureter in the hilar area are free of the tumor.
- The adrenal gland is not involved by the tumor.
- The tumor also extended to the peripelvic adipose tissue.

Pathological finding

- The diaphragm reveals focal hemorrhage but no tumor involvement.
- Zero out of 4 lymph nodes dissected out from the perirenal and perisplenic shows metastatic carcinoma (perirenal: 0/3, perisplenic: 0/1).

Renal Cell Carcinoma

- 3% of adult malignancies and 90-95% of neoplasms arising from the kidney.
- RCC is more common in men than in women (ratio, 2:1)
- aged 50-70 years
- One fourth to one third of patients have metastatic disease at the time of presentation.

Risk factors

- increased age,
- male sex,
- smoking,
- excessive weight,
- chronic dialysis use,
- several genetic syndromes (familial RCC, von Hippel-Lindau syndrome, and tuberous sclerosis).

Pathophysiology

- Spread by means of direct local invasion of adjacent structures, such as the adrenal glands, liver, spleen, colon or pancreas, can occur.
- RCCs have a propensity to extend into the renal vein and, subsequently, into the inferior vena cava.
- The lungs are the most common sites of distant metastases.

Pathophysiology

- RCCs can be staged by using the Robson classification
- Stage 1: RCCs are confined to the kidney
- Stage 2: RCCs extend to the adrenal gland or perinephric tissues but not beyond the Gerota fascia
- Stage 3a: tumors extend into the renal vein or vena cava
- Stage 3b: tumors involve the regional nodes
- Stage 3c: tumors involve both regional nodes and the renal vein or vena cava.
- Stage 4a: tumors extend beyond the Gerota fascia.
- Stage 4b: tumors have distant metastases

Mortality/Morbidity

- The prognosis is worst for patients with metastatic disease at presentation and best for patients with small masses confined to the kidney.
- Unresectable RCCs have a 5-year survival rate of less than 2%.

Clinical Details

- Most common presentations
  - Hematuria (40%)
  - Flank pain (40%)
  - Palpable mass in the flank or abdomen (25%)
- Incidental detection has increased on ultrasonographic (US) images.

Other signs and symptoms

- Weight loss (33%)
- Fever (20%)
- Hypertension (20%)
- Hypercalcemia (5%)
- Night sweats
- Malaise
- Varicocele, usually left sided, due to obstruction of the testicular vein (2% of males)

Imaging Studies

- Excretory urography
- CT scan
- Ultrasonography
- Arteriography
- Venography
- MRI

Sono

- RCC can be isoechoic, hypoechoic, or hyperechoic relative to the remainder of the renal parenchyma.
- US is used primarily to differentiate solid masses from simple cysts.

CT

- On nonenhanced CT, RCCs may appear isoattenuating, hypoattenuating, or hyperattenuating relative to the remainder of the kidney. Calcifications may be present.
- On contrast-enhanced CT, RCC is usually solid, and evidence of necrosis is often present.
- RCC may also appear as a completely solid and highly enhancing mass.

I.V.P

- mass effect on the collecting system, distortion of the renal contour, enlargement of a portion of the kidney, and calcifications.

Histologic Findings

- Clear cell carcinoma the most common histologic type; other phenotypes: granular carcinoma, mixed histology, and sarcomatoid-spindle cell

Operation method

- Radical nephrectomy:

  complete removal of the Gerota fascia and its contents, including a resection of kidney, perirenal fat, and ipsilateral adrenal gland, with or without ipsilateral lymph node dissection.

THANK YOU!!!