## CLINICO PATHOLOGICAL CASE

A 25-year-old male, resident of Uttar Pradesh with no known comorbidities, tailor by occupation, ex-smoker (smoking index of 70) presented to the emergency room of the All India Institute of Medical Sciences (AIIMS), New Delhi with history multiple episodes of right sided flank pain since 8 month and painless hematuria since last 6 months. Flank pain was colicky in nature, radiating from loin to groin and relieved with analgesics and antispasmodics. It was associated with high grade fever with chills. Hematuria was painless, present throughout the stream of urine and was associated with occasional passage of clots in urine. There was no history of pyuria, dysuria, weight loss, anorexia, IV drug abuse or working in fields. He was evaluated outside for these complaints and found to have a nodular lesion on posterior wall of urinary bladder and left hydroureteronephrosis. He was subsequently referred to higher center for management. At the time of presentation he also had anuria for last 3 days and uremic symptoms in form of recurrent vomiting, anorexia.

At admission, he was afebrile. Blood pressure was 110/70 mmHg with pulse being 96/min and respiratory rate 22/min. Pallor was present, however, there was no icterus, clubbing, cyanosis, lymphadenopathy, skin rash. Facial puffiness and bilateral pedal edema was also present, suggesting fluid overload. The ocular fundus examination was normal. The sternal tenderness was not present. Examination of respiratory system reveled decreased breath sounds in bilateral infra-axillary and infra- scapular areas. There were no adventitious sounds. Examination of abdomen reveled a lump in hypogastrium. It was firm, non-tender, smooth and dull on percussion. Shifting dullness was present. Rest of the abdominal examination and examination of cardiovascular and central nervous system was within normal limits.

His investigations done on day 1 are as below. Peripheral smear showed normocytic normochromic RBC morphology with eosinophilia. ECG changes of hyperkalemia were absent.

| **Time** | **At admission** | **After 2 weeks** |
|---|---|---|
| Hb | 7.4 g/dl | 7.8 g/dl |
| Platelet Count | 700,000 $mm^3$ | |
| TLC | 23000 | |
| DLC | $N_{56}L_{29}E_{22}M_1$ | $N_{60}L_{21}E_{14}M_8$ |
| AEC | 5100 | |
| ESR | 100 | |
| Urea | 212 mg/dl | 30 mg/dl |
| Cr | 18.6 mg/dl | 1.3 mg/dl |
| Calcium | 9.4 mg/dl | |
| Phosphate | 4.4 mg/dl | |
| Uric Acid | 5.4 mg/dl | |
| Na | 137 mmol/l | |
| K | 6.3 mmol/l | |
| Bilirubin(T) | 0.6 mg/dl | |
| Total Protein | 6 g/dl | |
| Albumin | 3.5 g/dl | |
| SGOT | 18 u/l | |
| SGPT | 18 u/l | |
| ALP | 180 u/l | |

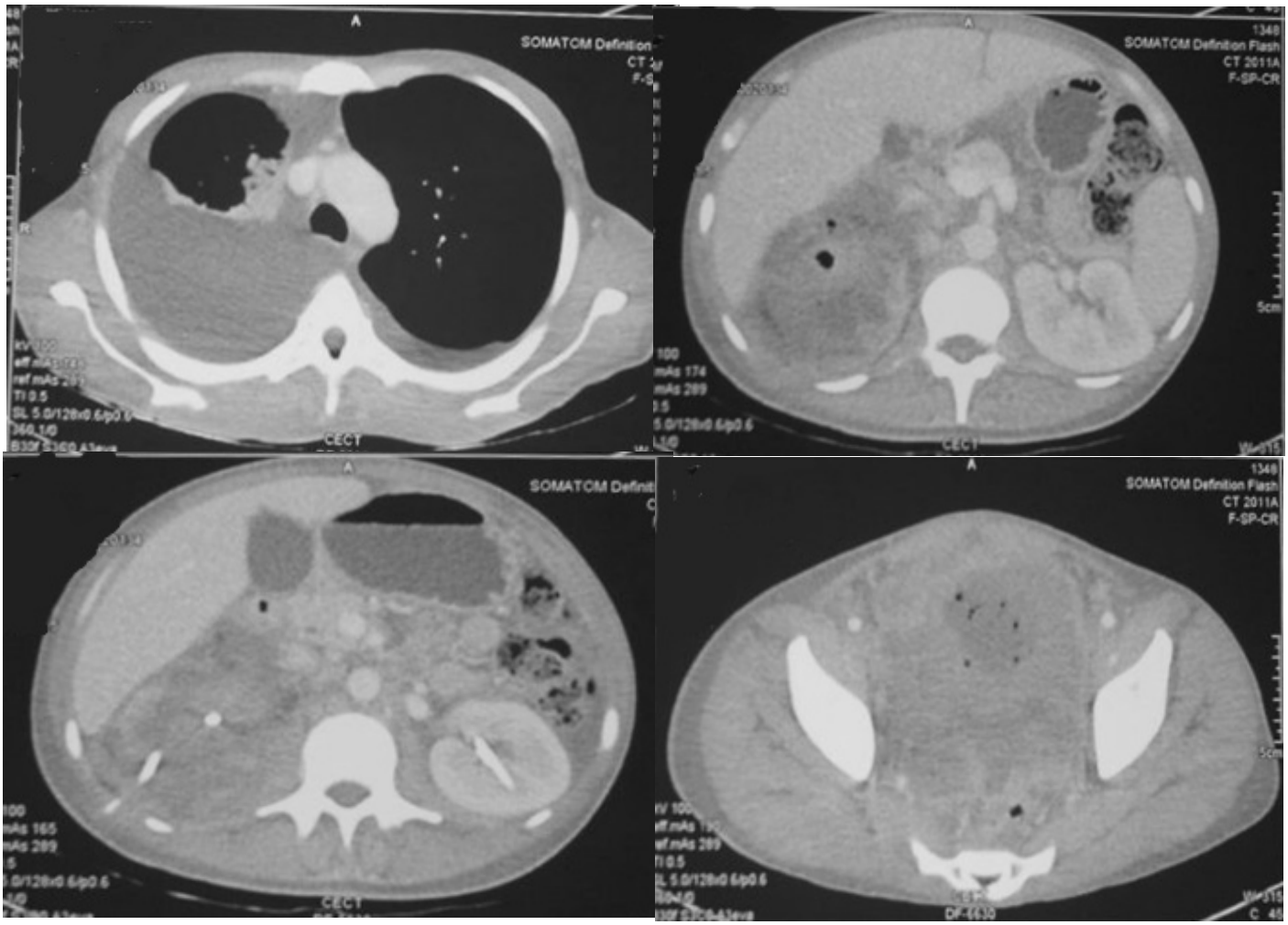
Thus summarizing, we have a 25-year-old gentleman, ex-smoker, having eight month history of right sided colicky flank pain with painless hematuria and recent onset anuria. Examination showing features of fluid overload, pallor, tachypnea and lump in hypogastrium, Base line investigation showing anemia, thrombocytosis with eosinophilia and deranged renal functions with hyperkalemia.

Urgent non-contrast CT scan of abdomen reveled left sided hydroureteronephrosis, right sided shrunken kidney and diffuse urinary bladder mass with ?stricture at vesicoureteral

junction. He underwent two sessions of hemodialysis followed by bilateral percutaneous nephrostomy.

| | |
|---|---|
| Viral Markers<br><br>- HIV serology – Negative<br>- HbsAg – Negative<br>- Anti HCV antibody - Negative | Urine Examination<br><br>- Culture – sterile<br>- Malignant cytology – Negative<br>- Ova/cyst – Negative<br>- AFB – Negative<br>- Urine fungal culture - Sterile |
| Stool Examination<br><br>- Ova/cyst – Negative<br>- Culture - Sterile | Serum Aspergillus Serology - Negative |

Repeat CECT of chest and abdomen was done which showed following features.



He underwent USG guided trucut biopsy from bladder mass.

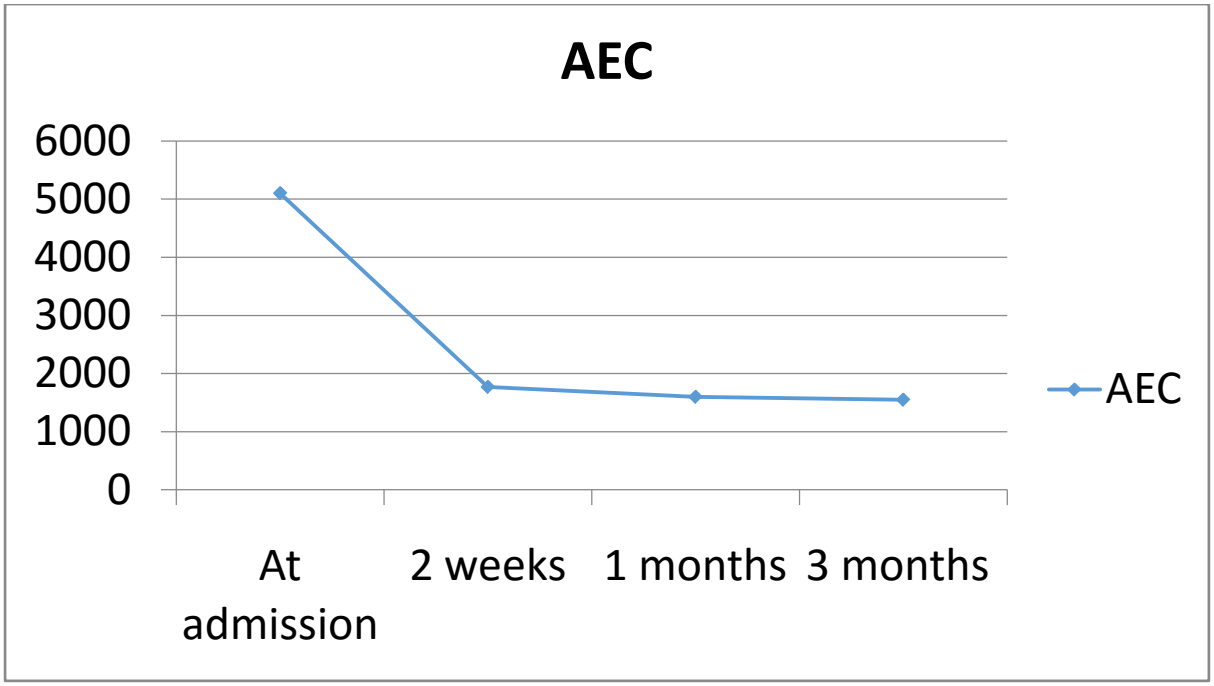
| USG guided biopsy of bladder mass – | CECT chest and abdomen – |
|---|---|
| - Predominantly necrotic tissue along with acute inflammatory exudate. No viable cells in tissue. Possibility of malignancy cannot be ruled out. | - Diffuse mass in bladder with subcentimetric retroperitoneal lymph nodes with inflammatory lesion in right kidney with ascites and bilateral pleural effusion |

He was evaluated rigorously for etiology of his illness. Pleural fluid and ascetic fluid analysis was done. Which showed following features.

| **Pleural Fluid Analysis** | **Ascetic Fluid Analysis** |
|---|---|
| Transudative | Transudative |
| Cytology – Predominant PMN | Cytology – Predominant PMN |
| Gene Xpert – Negative | Gene Xpert – Negative |
| ADA - Normal | ADA - Normal |
| TB PCR - Negative | TB PCR - **Positive** |

Though there were no confirmatory evidence he was started on category I ATT empirically. Within 10 days of starting ATT he had elevation in liver enzymes and ATT was modified.

During this course his absolute eosinophil count showed gradual decline from initial 5100/$mm^3$ to 1700/$mm^3$.

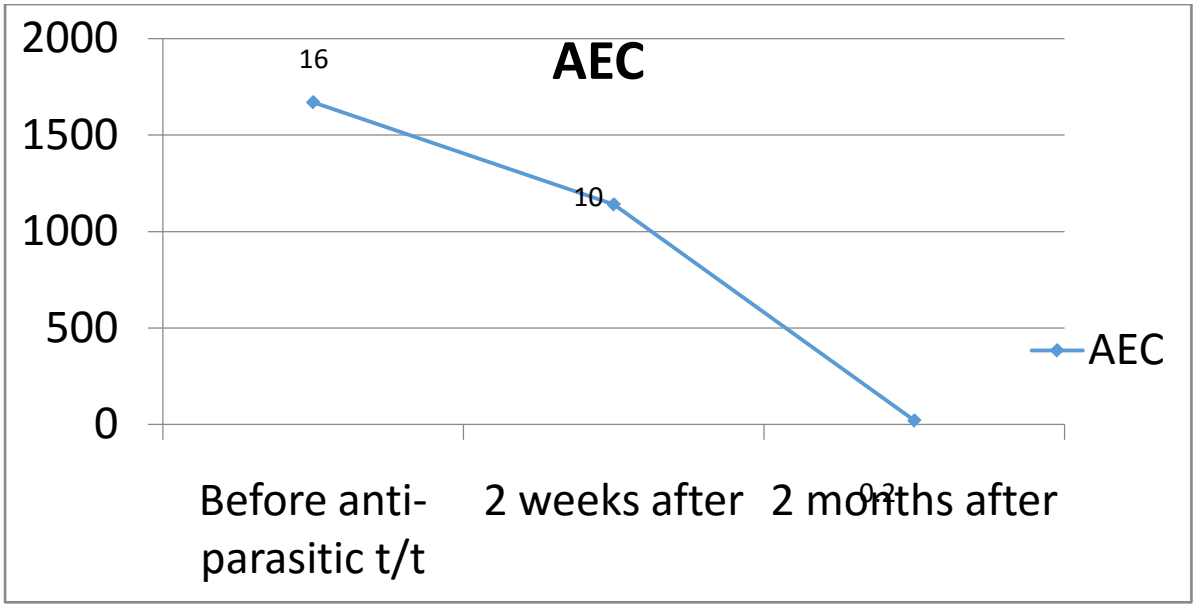



Renal functions gradually improved from initial urea/creatinine of 212/18.6 mg/dl to 30/1.3.. Right sided PCN was draining less than 50 ml of urine per day. DTPA scan showing right sided non-functioning kidney so PCN was removed. Repeat CT scan of pelvis showed features of frozen pelvis with persistent bladder mass infiltrating the bladder wall. Ascites was resolved.

This time he underwent cystoscopy guided biopsy from bladder mass. Bone marrow biopsy was also done in view of persistent eosinophilia.

| **Bone Marrow Biopsy –** | **Biopsy from bladder mass –** |
|---|---|
| Myeloid predominance with predominance of eosinophilic precursors with eosinophilia | Ulceration of mucosa along with necrosis of muscularis layer, dense acute on chronic inflammatory infiltrate predominant eosinophils. No parasite or granulomas were seen. |

Patient was started on anti-parasitic agents. Absolute eosinophil count also decreased from 1700/$mm^3$ to normal.




He was discharged with same treatment and advice to follow-up in outpatient department.

But after 2 months from his discharge he again presented to us with complaints of on and off low grade fever and pyuria. There was no history of abdominal pain, haematuria or dysuria. Left sided PCN was in situ with adequate drain per day. He was admitted again for re-evaluation in view of persistent urinary bladder mass and persistent eosinophilia.

Investigations at readmission are as below.

| **Time** | **At re-admission** |
|---|---|
| Hb | 7.5 g/dl |
| Platelet Count | 320,000 $mm^3$ |
| TLC | 7000 |
| DLC | $N_{47}L_{44}E_{1.1}M_{20}$ |
| AEC | 770 |
| ESR | 130 |
| Urea | 36 mg/dl |
| Cr | 1.3 mg/dl |
| Calcium | 8.2 mg/dl |
| Phosphate | 3.5 mg/dl |
| Uric Acid | 4.6 mg/dol |
| Na | 132 mmol/l |
| K | 4.9 mmol/l |

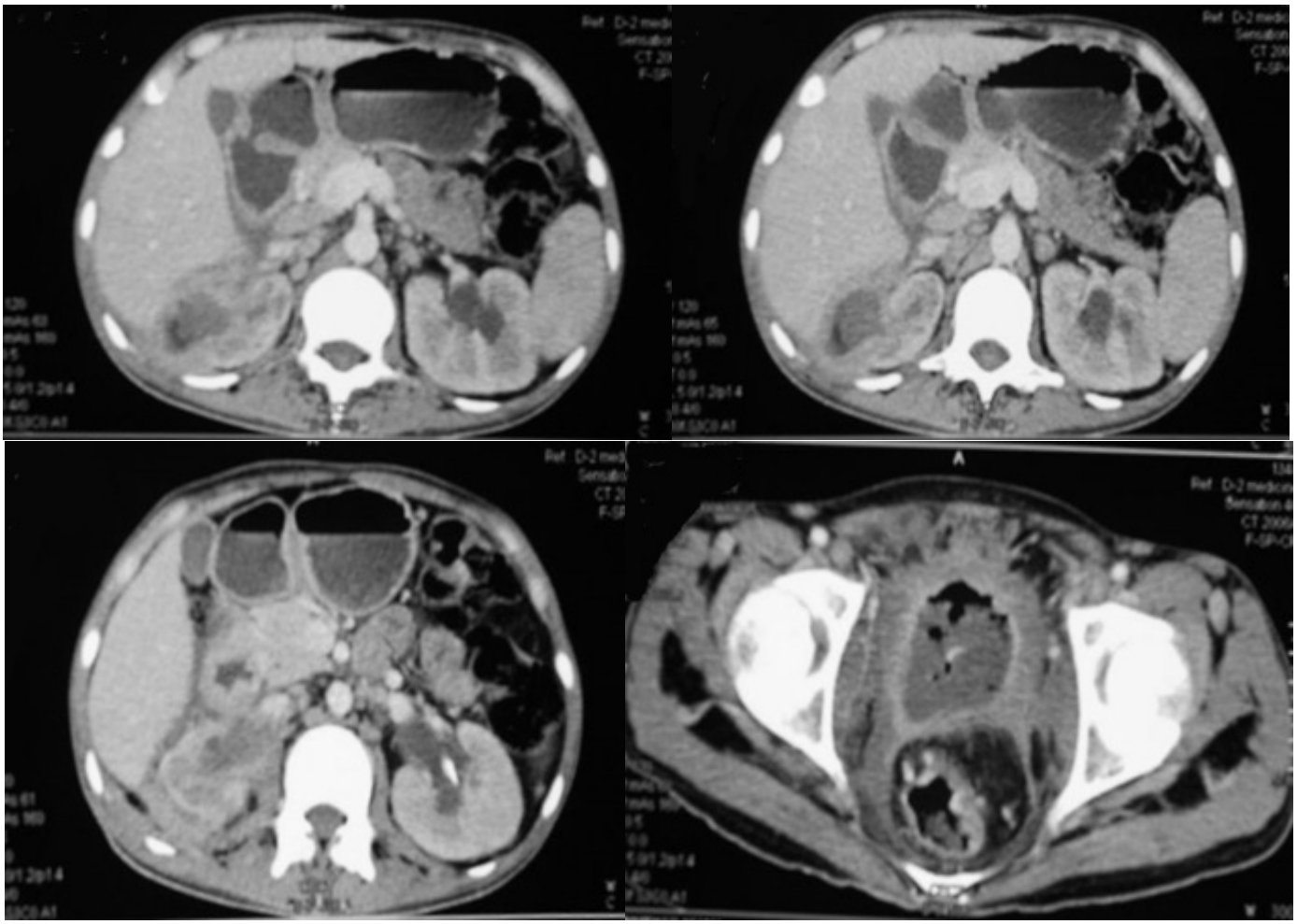
| | |
|---|---|
| Bilirubin(T) | 0.5 mg/dl |
| Total Protein | 6.8 g/dl |
| Albumin | 2.5 g/dl |
| SGOT (<50) | 17 u/l |
| SGPT (<50) | 16 u/l |
| ALP | 379 |

Investigation at re-admission revealed following features.

| | |
|---|---|
| Chest X-ray<br>- Slight haziness in right upper zone. | ECG –<br>- Within normal limits |
| Auto-immune workup<br>- RF – Negative<br>- ANA – Negative<br>- ANCA – Negative<br>- Anti dsDNA – 4 (0-50)<br>- C3 levels – 99 (70-240) | Urine Examination<br>- Culture – sterile<br>- Malignant cytology – Negative<br>- Ova/cyst – Negative<br>- AFB – Negative<br>- Urine fungal culture - Sterile |
| Workup for Eosinophilia<br>- PDGFR/$FIL_1P_1$ – Negative<br>- Serum IgE levels – 11000 IU/ml<br>- Aspergillus serology – Negative | Immunodeficiency workup –<br>- $CD_4$ –Normal<br>- IgG : 1757 (960-1986)<br>- IgA : 397 (125-386)<br>- IgM : 137 (90-242)<br>- $HbA_{1c}$ – 5.1<br>- NBT test - Negative |

Left nephrostogram showed stricture at left ureterovesical junction with no further passage of contrast. CECT was repeated for better characterisation of renal lesion.

| | |
|---|---|
| CECT chest + abdomen<br>- Right sided kidney was shrunken with formation solid looking mass at upper pole, possibly inflammatory/infective in nature. Rectal wall was adhered to bladder with significant edema. Pelvis showing extensive adhesions. | USG KUB<br>- Focal hypoechoic lesion at upper pole of right kidney |



Ultrasound guided renal biopsy was done as well as his prior bladder mass biopsies were again reviewed. Sigmoidoscopy was undertaken to look for possibility of infiltration in rectum.

| | |
|---|---|
| Sigmoidoscopy –<br>- Mucosal edema and ulceration with formation of small recto-vesical fistula | Rectal biopsy –<br>- Unremarkable inflammatory granulated tissue and acute inflammatory exudate. |
| Renal Biopsy –<br>- Healed acute cortical necrosis with chronic tubulointerstitial nephritis and formation of renal abscess. | Review of bladder mass biopsy –<br>- Predominantly necrotic tissue along with acute inflammatory exudate. |

Patient was started on treatment based on these findings. He was monitored with serial abdominal imaging for treatment response. As right kidney was non-functional a decision to perform right nephrectomy along with cystectomy was taken. Patient underwent nephrectomy without any complications but plan form cystectomy was deferred in view of extensive pelvic adhesions. His postoperative condition remained stable. His follow-up investigations are as below.

| **Time** | **Before definitive treatment** | **After definitive treatment** | **Before surgery** | **After surgery** |
|---|---|---|---|---|
| Hb | 11.1g/dl | 10.9 g/dl | 10.9g/dl | 8.6 g/dl |
| PCV | | | 32 | 27 |
| Platelet Count | 262000$mm^3$ | 187000$mm^3$ | 224000$mm^3$ | 310000$mm^3$ |
| TLC | 8800 | 6200 | 8700 | 8700 |
| DLC | | | | |
| Urea | 43mg/dl | 35mg/dl | 46mg/dl | 22mg/dl |
| Cr | 1.1 mg/dl | 1.6 mg/dl | 1.6 mg/dl | 1.5mg/dl |
| Calcium | 9.9 mg/dl | | 8.9 mg/dl | |
| Phosphate | 3.9 mg/dl | | 4.3 mg/l | |
| Uric Acid | 2.7 | | 4.5 | |
| Na | 143 mmol/l | 144 mmol/l | 131mmol/l | 142 mmol/l |
| K | 3.5 mmol/l | 3.5 mmol/l | 3.0 mmol/l | 2.7 mmol/l |
| Bilirubin(T) | | 0.6 | 0.5 | 0.4 |
| Total Protein | 6.7 g/dl | 6.4 g/dl | 6.6g/dl | |
| Albumin | 3.1 g/dl | 3.5 g/dl | 3.3 g/dl | |
| SGOT | 25u/l | 23u/l | 31u/l | |
| SGPT | 20 u/l | 16u/l | 21u/l | |
| ALP | 377 | 785 | 682 | |

He was discharged on oral treatment with advice to follow up after 2 months for evaluation of disease resolution and need for cystectomy.