



بیمارستان حضرت رسول اکرم (ص)



دانشگاه علوم پزشکی و خدمات بهداشتی، درمانی ایران

INTERNAL MEDICINE CLINICAL PROBLEM SOLVING CONFERENCE

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May 2026

STEP 1:

HX & PH/E

ID: 56 Y/O Male, Married, Originally from and a resident of Tehran

CC: Joints Pain

PRESENT ILLNESS

- The PT is a 56 Y/O Male known case of **HTN** who came to this center with CC of **Joint Pain**.
- The PT was well **3 weeks** PTA. Then symptoms developed with **coryzal symptoms** and **diarrhea** for 3 days and he received amoxicillin and ciprofloxacin.
- Since 2 weeks PTA new symptoms started: **arthralgia** of both knees, both wrists and ankles and all Interphalangeal joints. The pain was progressive during this period.
- Since 1 week PTA Generalized abdominal pain with periumbilical predominance and N/V was added to symptoms.
- The patient also reports intermittent undocumented **fever, night sweats, PND** and **Rhinorrhea** during this period.
- He also reports the appearance of multiple **petechial, purpuric, and macular** lesions since the onset of his symptoms, involving both lower extremities up to the gluteal region as well as the extensor surfaces of both upper extremities.

PRESENT ILLNESS

- He also reports **elevated BP** during this period despite adherence to his antihypertensive therapy.
- Gross Hematuria since 1 Week PTA +
- Chest Pain –
- Dyspnea –

- **PMHx:** HTN, DLP, Prediabetic

- **DHx:**

- Rosuvastatin 10mg Daily
- Valsartan 80mg Daily
- Fenofibrate 100mg Daily

- **SHx:** Negative

- **AHx:** Negative

- **FHx:**

- Psoriasis > Uncle
- HTN and IHD > Mother

PHYSICAL EXAM

- **Alert, Orient to TPP, Not ill, Not Toxic**
- **V/S:**
 - BP: **190/110** PR: 85 RR: 18 T: 37.1 O2sat in room air: 98%
- **Skin:**
 - **Petechial, Purpuric, and Macular** lesions involving both lower extremities up to the gluteal region as well as the extensor surfaces of both upper extremities
- **Eye:**
 - NL Conjunctiva, NL Sclera
- **Mouth:**
 - No Wet Purpura, No Aphthous lesions or Ulcers
- **Chest:**
 - SYMMETRIC, NL EXPANSION, NO SCAR
- **Neck:**
 - No LAP, No JVD
- **Heart:**
 - NL S1, S2, No Murmur, No HEAVE, No THRILL
- **Lungs:**
 - NL Auscultation

PHYSICAL EXAM

- **Abdomen:**

- Symmetric, No Tenderness, No Distention, No guarding

- **Joint:**

- **Tenderness** in both wrists, both ankles, both knees and MCPs
- No Edema, No erythema
- **Decreased ROM** of MCPs and Ankles

- **Limb:**

- Peripheral Pulses 2+ and Symmetric, No Edema





H&P



STEP 2:

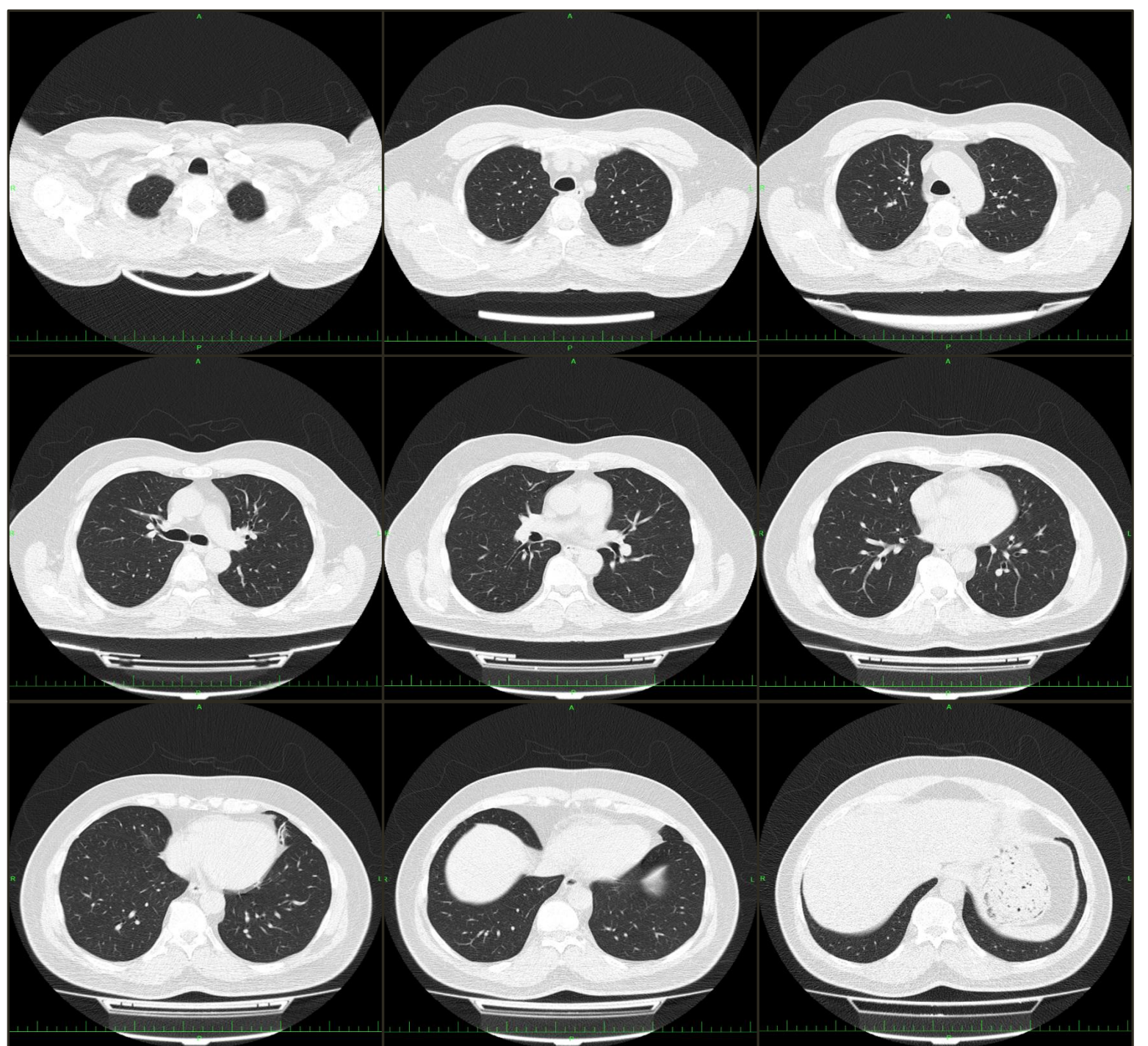
PRIMARY

PARACLINICS

U/A		U/A	
App.	Turbid	Ca.Oxalate	Few
Color	Yellow	Granular	1-2
PH	5	WBC Cast	1-2
Sp.G	1.012	Hyaline	1-2
Pro.	3+	WBC	2-3
Blood	3+	RBC	45-50
Glu.	1+	Epi.	1-2
Nitrite	NEG	Bacteria	NEG
Ketone	NEG	PCR Covid-19	NEG
Bilirubin	NEG	PCR H1N1	NEG

WBC	12.3 - 9.9	PT	12.7	ALT	28
Seg	78	PTT	26	AST	15
Lymph	11	INR	1	ALP	142
Eos	2	BUN	34 - 37	T.BILI	0.6
Mono	7	CR	1.4 – 1.7	D.BILI	0.2
Band	2	NA	141 – 138	Ferritin	302
Hb	12.7 - 11.4	K	4.9 – 3.8	TIBC	321
HCT	35.3	CA	8.6	SI	83
MCV	90.5	MG	1.9	Vit B12	369
MCH	27.2	P	4.2	Vit D3	28.6
RDW	13.5	ALB	4.3 – 3.2	U/C	NEG
PLT	524 - 141	URIC ACID	6.4 – 5.4	B/C	NEG
ESR	13 - 6	CPK	70	S/C	NEG
CRP	60 - 1	LDH	391 - 610	S/E	NL
TSH	3.41	T4	10.75	Sputum/C	NEG

CHEST CTS



CHEST CTS REPORT

- Degenerative changes consistent with degenerative joint disease (**DJD**) are noted in the vertebral column.
- The lung parenchyma demonstrates normal attenuation and aeration. The pulmonary vasculature and airways appear normal, and no pulmonary nodules are identified.
- The mediastinum, cardiac chambers, and great mediastinal vessels are normal in size with no evidence of focal lesions.
- The hila of both lungs demonstrate normal size and density, and the main bronchi appear normal.
- The pleurae are normal bilaterally, with no evidence of pleural thickening or pleural effusion.

ECHOCARDIOGRAPHY

- Normal LV size with normal systolic function (**EF=55%**).
- No significant RWMA at rest.
- Normal GLS:-18%
- No LVH, mild focal segmental hypertrophy in mid septal wall (maximal thickness:13mm).
- Mild LV diastolic dysfunction.
- Normal RV size with normal systolic function.
- Trivial MR, no MS.
- Trivial AR, no AS.
- Trivial TR (unmeasurable TRG), no TS.
- Trivial PI (PIPG:7mmHg), no PS.
- No significant PH (mPAP:12mmHg)
- No pericardial effusion.

ABDOMEN PELVIC SONOGRAPHY

- The liver demonstrates normal size and homogeneous echotexture.
- The gallbladder shows normal wall thickness with no evidence of gallstones or sludge.
- The intrahepatic bile ducts, portal vein, and common bile duct (CBD) appear normal within the limits of examination.
- The spleen measures 96 mm in longitudinal diameter and demonstrates normal echotexture.
- The right kidney measures 121 mm in length with a parenchymal thickness of 14 mm. No evidence of renal calculi or hydronephrosis is seen.
- The left kidney measures 133 mm in length with a parenchymal thickness of 13 mm. No evidence of renal calculi or hydronephrosis is seen.
- **Increased echogenicity of the renal parenchyma is noted in both kidneys.**
- The pancreas and para-aortic region are not adequately visualized due to overlying bowel gas.
- Pelvic ultrasonography: The urinary bladder is empty; therefore, adequate evaluation of the pelvic organs is not possible.
- No free fluid is detected in the abdominopelvic cavity.

ECG

- Normal Sinus Rhythm

Paraclinics

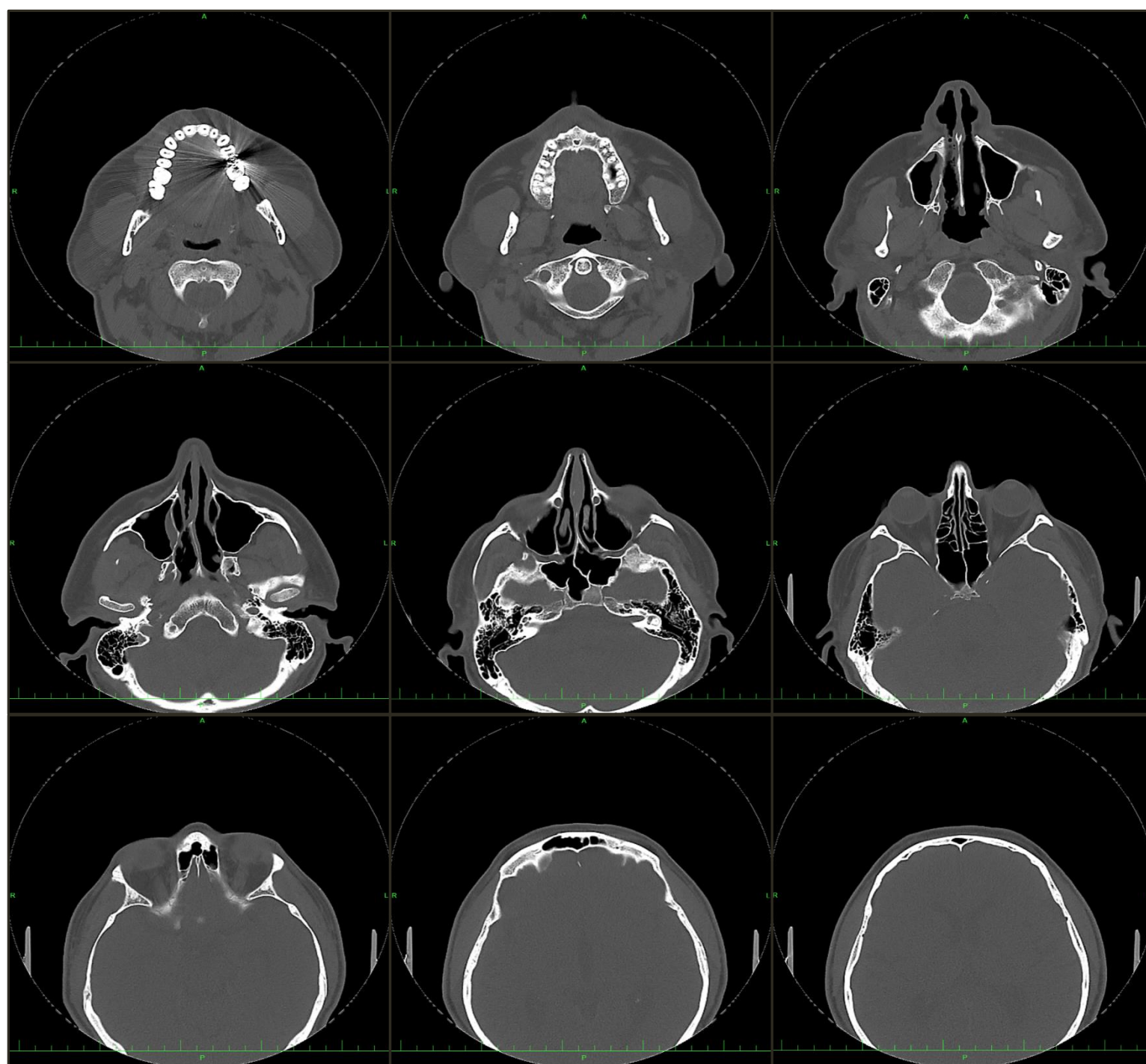


STEP 3: PROGRESS

- In the subsequent days, he developed **Nocturia**, **Polyuria**, and increased urinary **Frequency** and serum **Creatinine** **rised**. He also noted **worsening Rhinorrhea** and had some episodes of **Epistaxis**.
- **ENT** consultation due to rhinorrhea and epistaxis: Nasal Biopsy
 - Diagnostic nasal endoscopy > Normal.
- **Dermatology** consultation due to cutaneous lesions: skin biopsy.
- **Cardiology** consultation for blood pressure management.
- **Infectious** diseases consultation due to patient's diarrhea and coryzal manifestations.

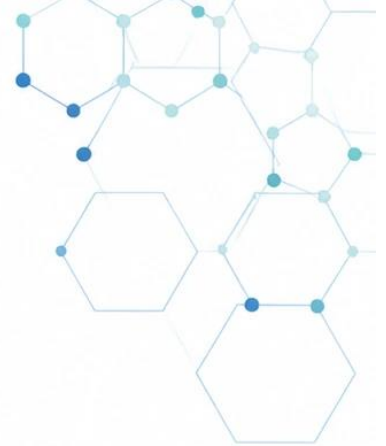
STEP 3: IMAGING

PNS CTS



PNS CTS REPORT

- Mucosal thickening (**MT**) of the right maxillary sinus is noted.
- Nasal septal deviation (**NSD**) toward the right is observed.
- The sphenoid, frontal, and bilateral ethmoid sinuses, as well as the left maxillary sinus, appear normal with no evidence of opacification or mucosal thickening.
- The ostiomeatal complex (OMC) appears patent.
- The pharynx and surrounding parapharyngeal regions appear unremarkable.



Progress

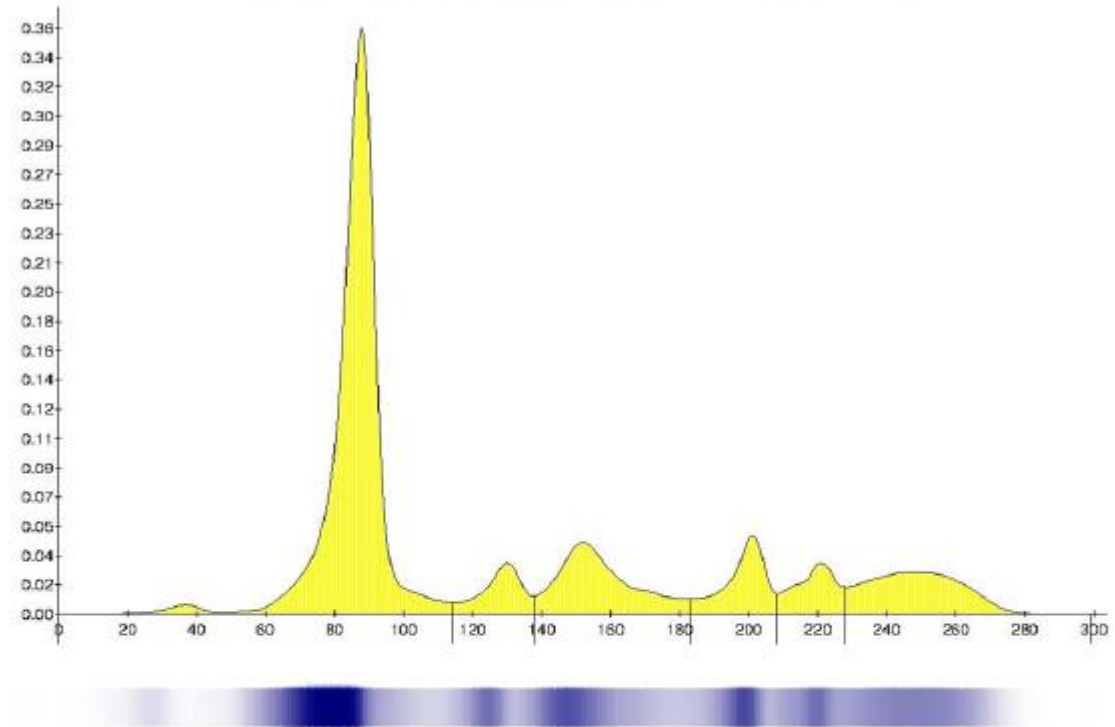


STEP 5: ADVANCED PARACLINICS

Urine 24h		Anti- HBC (IgM)	Neg
Vol.	3100	Anti-HBc Total	Neg
Cr.	930	Anti EBV IgM	Neg
Pro.	3366	RPR	Neg
C3	193	B2 Glycoprotein IgG	0.6 (Neg)
C4	38.2	B2 Glycoprotein IgM	0.2 (Neg)
Cardiolipin(IgM)	3.6	SSA-RO	5.8 (Neg)
ANA	0.08 (Neg)	SSA-LA	2.5 (Neg)
Anti ds-DNA	6 (Neg)	Anti CCP	4.9 (Neg)
MPO Ab.(PANCA)	4.1 (Neg)	Anti Smith Ab	Neg
PR3 Ab.(CANCA)	3.2 (Neg)	IgA	284
HIV 1,2	Neg	IgG	933
HBsAg	Neg	Stool Calprotectin	Neg
HCV Ab	Neg	IGRA	Neg
Anti PLA2R IgG	Neg	Anti-GBM	0.8 (Neg)

STEP 5: ADVANCED PARACLINICS

Capillary Serum Protein Electrophoresis



Fractions	%		Ref. %	g/dl	Ref. g/dl
Albumin	56.7		55.8 - 66.1	3.2	3.5 - 4.8
Alpha 1	5.3	H	2.9 - 4.9	0.3	0.2 - 0.4
Alpha 2	13.1	H	7.1 - 11.8	0.7	0.5 - 0.9
Beta 1	7.5	H	4.7 - 7.2	0.4	0.3 - 0.5
Beta 2	5.6		3.2 - 6.5	0.3	0.2 - 0.5
Gamma	11.8		11.1 - 18.8	0.7	0.8 - 1.4

Total Protein : 5.7 6.0 - 8.0

Albumin / Globulines:1.31

Comment :

- Hypoproteinemia were seen.

Paraclinics



PATHOLOGY REPORT

- **Specimen:** Nasal biopsy
- **MACROSCOPIC:**
 - A: Right middle turbinate, consists of one fragment of creamy rubbery tissue
 - B: Base of right nasal septum, consists of 2 fragments of creamy rubbery tissue
 - C: Right nasal inferior turbinate, consists of one fragment of creamy rubbery tissue
- **DIAGNOSIS**
 - A: RIGHT NASAL MIDDLE TURBINATE, BIOPSY:
 - Respiratory type mucosa with acute **leukocytoclastic vasculitis**.
 - B: BASE OF RIGHT NASAL SEPTUM, BIOPSY:
 - Fibrinoleukocytic exudate.
 - Fragment of benign appearing hyalin cartilage is also noted.
 - C: RIGHT NASAL INFERIOR TURBINATE, BIOPSY:
 - Unremarkable respiratory type mucosa.

PATHOLOGY REPORT

- **Specimen:** Skin punch biopsy, labeled as lower limbs.
- **Microscopic Description:**
 - Sections of the skin revealing quite unremarkable epidermis. Within the dermis, perivascular infiltrate of lymphocytes, neutrophils and sparse eosinophils are evident accompanied by fibrinous damage of small vessels and many nuclear debris. Medium sized vessels not included in the sample.
- **Diagnosis:**
 - Small vessel leukocytoclastic vasculitis.

PATHOLOGY REPORT

- **Specimen:** Kidney needle biopsy
- **I.F. FINDINGS:**
 - Two glomeruli are present with the following immunofluorescent characteristics:
 - IgA: Negative
 - IgG: Negative
 - IgM: Negative
 - C1 q: Negative
 - C3c: Negative
 - Fibrinogen: Negative
 - Kappa light chain: Negative
 - Lambda light chain: Negative

PATHOLOGY REPORT

- **L.M. FINDINGS:**

- Corticomedullary renal tissue with presence of 15 glomeruli that 2 of them are obsolete.
- The other glomeruli are almost preserved but 4 of them show segmental endocapillary hypercellularity & synechia.
- There is no evidence of GBM thickening or mesangial expansion and crescent in other glomeruli.
- About 5–10% of the cortical tubules are atrophic but some tubules show vacuolization & few tubules contain thin hyaline casts.
- Fibrosis is noted around the atrophic tubules.
- No significant vasculopathy. No Amyloid deposition in the Congo-Red stained slide.

- **Diagnosis:**

- **Focal segmental proliferative glomerulonephritis.**
- No evidence of immune deposits in the I.F study.
- IF/TA in 5–10% of the specimen.



Pathology

- **Final Diagnosis:**

- Pauci Immune Small Vessel Vasculitis

Follow Up



STEP 6:

FOLLOW UP

- During the hospital course, the patient's blood pressure was adequately controlled. The joint pain improved, while the cutaneous lesions showed no significant change.
- The patient was discharged with the following medications:
 - Prednisolone 60mg D
 - Calcitriol D
 - Ca Carbonate 500mg BD
 - Co-Trimoxazole 400/80mg QOD
 - Rosuvastatin 20mg Qhs
 - Telmisartan 80mg D
 - Empagliflozin 10mg D
 - Furosemide 40mg BD
 - Diltiazem 30mg BD
 - Spironolactone 12.5mg D
 - Cellcept 500mg x2 BD

- Developed severe **dyspnea** and productive, non-bloody **cough** in 11/1404
- **Hospitalized** on 02/12/1404 at another center
 - Chest CT scan performed
 - Discharged on itraconazole 100mg BD and increased dose of TMP-SMX

■ SPIRAL CHEST CT SCAN WITHOUT IV CONTRAST

- Lungs: **Diffuse centrilobular nodule** with adjacent **ground glass opacity** is seen in bilateral lung.
- Pleural reflections: no pleural thickening or effusion
- Mediastinum: normal without lymphadenopathy or mass.
- Heart: unremarkable in size and position.
- Chest wall and thoracic spine: unremarkable for age

LATEST IMAGINGS

- **Coronal CT of the Paranasal Sinuses:**
 - Right **septal deviation** is seen.
 - **Mucosal thickening** is seen in both maxillary, sphenoidal and left ethmoid sinuses.
 - **Polyp** or **retention cyst** is seen in left maxillary sinus.
 - Frontal sinuses are unremarkable.
 - Ostia, infundibula and hiatus semilunaris on OMCs are patent, bilaterally.

LATEST IMAGINGS

■ SPIRAL CHEST CT SCAN WITHOUT IV CONTRAST

- Lungs: mild **fibroatelectatic** changes in lower lobe of both lungs. There are **fibrotic bands** in lingula and right middle lobe.
- Pleural reflections: no pleural thickening or effusion
- Mediastinum: normal for age without lymphadenopathy or mass.
- Heart: unremarkable in size and position.
- Chest wall and thoracic spine: unremarkable for age

LATEST LAB DATA

U/A	
App.	Clear
Color	Yellow
PH	5
Sp.G	1.030
Pro.	1+
Blood	Trace
Glu.	2+
WBC	0-1
RBC	4-6
Epi.	0-1

C3	153
C4	32
CH50	100
ANA	<1 /40 (NEG)
MPO Ab.(PANCA)	3 (NEG)
PR3 Ab.(CANCA)	3.4 (NEG)
SSA-RO	<0.1 (NEG)
SSA-LA	1.5 (NEG)
Anti CCP	4.6 (NEG)
Anti Smith Ab	NEG
IgA	120
IgG	298

WBC	10.3	PT	13.8
Seg	58%	PTT	25.4
Lymph	31%	INR	1
Hb	14.3	BUN	17
HCT	42.9	CR	1.33
MCV	90.1	NA	144
MCH	30	K	3.8
RDW	14.6	CA	10
PLT	251	P	2.8
ESR	9	ALB	4.5
CRP	2.5	Urine 24h	
TSH	3.6	Vol.	3100-1600
T4	8.6	Cr.	930-1368
HbA1C	6.1	Pro.	3366-640

■ **Current status:**

- Dyspnea and cough: Improved
- Blood pressure: Well controlled
- Fever / weight loss: Absent
- Night sweats: Persistent
- Skin lesions: Completely resolved

THANK YOU FOR YOUR KIND ATTENTION