From: "ROOT" <root@sctimst.ac.in>
To: "ROOT" <root@sctimst.ac.in>
Date: 24/09/2024 04:35 PM
Subject: CPC Clinical Protocol 25.09.2024

Dear All,
Season's Greetings.
The next Wednesday CPC of the session will be held on **September 25, 2024** at 08.00 hours (IST) in **Lecture Theatre 1**, Nehru Hospital, PGIMER, Chandigarh.

The session will also be available on the Webex platform. Kindly follow the link below to join.
https://telemedicine.webex.com/telemedicine/j.php?MTID=mb8f5c93d0efe86e2ec7df721b3c21227

In case you join in thru WebEx, kindly **ensure that your microphone and camera are switched off** and **PLEASE DO NOT SHARE YOUR SCREEN**.

The Clinical handout of the case to be discussed is attached herewith.
The clinical protocol will be discussed by ***Dr. Valliappan Muthu, Department of Pulmonary Medicine.*** Radiology will be discussed by ***Dr. Anuj Prabhakar.*** Autopsy pathology will be presented by ***Dr. Aravind Sekar.***

Yours sincerely,

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Regional Resource Centre, North
Department of Telemedicine
PGIMER, Chandigarh

Staff CPC 25-09-2024

Patient: A, 48/Female
CR No: 202305172832
DOA: 15-11-2023, **Adm.no** 2023090161
DOD: 25-11-2023

Clinician I/C: Prof. A.N. Aggarwal
Clinical Discussant: Dr. Valliappan Muthu
Radiology discussant: Dr. Anuj Prabhakar
Pathologist: Dr. Aravind Sekar

Presenting complaints: Loose stools, 4-5 episodes per day for two days, accompanied by undocumented low-grade fever. Admitted to a private hospital for altered mental status and managed for ?generalized seizures. Detected to have high blood sugars (>400 mg/dL) and hyponatremia (124 mmol/L). Dry cough 15-20 days.
Past history: Hypothyroidism, Chronic kidney disease on maintenance hemodialysis since 2020.
Renal transplantation (9-Oct-2023): Live-related renal allograft recipient (donor-husband); Induction – ATG; Discharged after 9 days (Creatinine 2.06 mg/dL) on tacrolimus, MMF and prednisolone. Tac level – 8.78 ng/mL (Ref - 10 to 15 ng/mL).
Examination: E2V1M4, BP 150/90, RR 22/minute, HR 110/minute, SpO2 – 98%. B/L pupils, small reacting to light, no neck rigidity, bilateral plantar flexor. Marginal skin necrosis and pus discharge

Investigations

	15/11/23	17/11/23	19/11/23	21/11/23	22/11/23	23/11/23	25/11/23
Complete blood count							
Hb, g/dL	7	7.7	7.3	8.1	6	6.2	8
TLC, (*10^9/L)	22720	21550	17800	26550	12350	11020	8830
DLC (N/L%)	92/6	90/3	88/8	90/8		88/8	
Platelets, (*10^9/L)	213	140	24	25	20	16	6
PBF - Mild anisocytosis, Microcytic, hypochromic, tear drop cells, nRBCs, reduced platelets. Schistocytes insignificant and <1% - two separate reports							
Biochemistry							
Na/K, mmol/L	144/3.4	145/3.3	157/3.7	148/5.5	147/3.9	146/3.1	144/2.3
BU/Creat, mg/dL	46/1.4	71/1.3	89/1.3	104/1.3	113/1.5	99/1.2	108/1
Bilirubin, mg/dL	0.7	0.6	0.7	0.6	0.7	0.7	1.1
Prot/Alb, mg/dL	7.1/3.4	5.9/2.7	4.8/2.4	4.5/2.4	4.6/2.4	5.4/2.6	5.2/2.5
AST/ALT, U/L	21/29	23/41	29/27	33/38	18/27	25/29	51/49
Alk Phos, U/L	265	199		366	280	314	382
Ca/PO4, mg/dL	9.7/2.6	9.2/3.0		8.7/3.9	9.2/3.5	8.6/4.7	8.9/5.7
Magnesium, mg/dL	1.8	1.4		1.7		1.5	
Arterial blood gases							
pH	7.42	7.47	7.45		7.39	7.46	
PaO_2	83	60	84		37	34	
$PaCO_2$	10	21	24		30	29	
HCO_3	6.7	15	17		22	24	
FiO_2 (on MV)	0.24	0.21	0.21		0.21	0.21	
Coagulation profile: PT-10.7 sec, aPTT 31 sec, PTI – 100%, D-dimer – 919 ng/mL (19/11/23 and 21/11/23)							

Urine routine: (15/11/23) Sugar - +++ (1000 mg/dL), ketones - + (10mg/dL), blood+++
Urine microscopy: RBCs – 247/hpf (range: 0-2), WBC – 1.4 /hpf (0-4), bacteria-31/hpf (0-80)

ECG- HR 110, ST segment depression and T inversion II, III, aVF, v4-v6
CK MB – 38 U/L (19-Nov-23), Trop T – 53, Pro BNP – 8435 pg/mL

T3-0.379 (0.8-2 pg/mL). T4-5.98 (4.8-12.7 µg/L), TSH – 2.70 (0.27-4.2 µIU/mL)
HbA1C- 7.2%, cortisol-1400 mmol/L

G6PD – normal; plasma Hb – not raised, urine Hb- not detected; Direct Coombs test – negative
Serum galactomannan – 0.12; beta-D-glucan- 37

EEG (21/11/23) – suggestive of encephalopathy; EEG (23/11/23) – Electrical silence

	16/11/23	**17/11/23**	**18/11/23**
Blood cultures	Sterile x 3		
ET aspirate	*Enterococcus faecium*	Aseptate hyphae, *Rhizopus arrhizus*	
Urine cultures	Sterile		Cocci 195/hpf; sterile
Pus g/s, c/s	*Enterococcus faecium*		
CSF	TC/DC – 821/mm^3 (N91%, L7%), Protein – 416 mg/dL, Sugar – 86 mg/dL Culture sterile, fungal smear, India Ink and cryptococcal antigen - negative		

Imaging:

USG abdomen (Outside) - gallstone 24 mm, shrunken native kidneys, graft kidney in RIF with 16 mm perinephric collection anteriorly
USG abdomen – Renal parenchymal disease of transplant kidney, 13*5 mm perinephric collection, prominent CBD with central IHBRD ?benign stricture

Echo (TTE): Conc LVH, Mobile mass attached to ventral side of PML 8*5 mm; mild MR, no RWMA
Echo (19-Nov-23): RWMA LCX territory, EF-35-40%, mass attached to PML 8*2 mm (?healed lesion or calcification)

CXR – Right upper zone thick-walled cavity (14/11/23 and 15/11/23)
CT thorax: R upper lobe consolidation with large cavitation and internal septae, patch of consolidation in left LL

NCCT KUB: Transplant kidney in situ with small perinephric collection, air foci within operative site s/o wound dehiscence, dilated GB, and CBD

CEMRI brain (16/11/23) – diffuse leptomeningeal enhancement s/o meningitis. Large hemorrhagic peripherally enhancing lesions in bilateral basal ganglia and frontal lobes with perilesional edema and mass effect. Small abscess in the right occipital lobe
NCCT head (19/11/23) – Diffuse cerebral edema, left PCA territory infarct, tonsilar and transtentorial herniation

Course & Management

A 48-year-old female underwent renal transplantation at a private hospital for CKD-ESRD (diagnosed in 2020, basic disease - unknown). Thirty-five days following transplantation, she developed loose stools, low-grade fever and was admitted to a private hospital with altered mentation (?preceded by a seizure episode). Hyperglycemia and hyponatremia were observed. She was admitted to PGI emergency the next day, required endotracheal intubation for altered sensorium and was later shifted to RICU. Chest radiograph and CT thorax suggested possible pulmonary mucormycosis, and neuroimaging showed bilateral intracranial lesions (?hemorrhagic infarcts). Physical examination suggested surgical site infection. She was managed with intravenous liposomal amphotericin-B, vancomycin and wound debridement. Serum creatinine and urine output remained stable till demise while thrombocytopenia, leukocytosis and anemia continued to worsen (required PRBC transfusions). There was no clear evidence of hemolysis or TMA. She was managed for infective endocarditis based on echocardiography at admission, showing 8*5 mm vegetation in PML. Blood and urine cultures were sterile, and CSF showed leukocytosis (neutrophilic). On day 4 of the RICU stay, she developed shock, and a repeat echocardiography showed RWMA and reduced LVEF (30-35%); antiplatelets could not be administered due to thrombocytopenia. Shock persisted despite vasopressor support. Fever recurred, GCS worsened, and neuroimaging suggested further deterioration. EEG showed electrical silence (23/11/23), and the patient suffered a cardiac arrest resulting in her demise (25/11/23).

Unit's final diagnosis

- Post renal transplant status (LERRAR – Oct 2023)
- Diabetes mellitus (?New-onset diabetes after transplantation) with diabetic ketoacidosis
- Disseminated (Pulmonary and cerebral) mucormycosis
- Surgical site infection – *Enterococcus* spp.
- Infective endocarditis ?fungal
- Inferior wall myocardial infarction
- Severe sepsis, septic and cardiogenic shock

Cause of death

Raised intracranial tension