

Medical Report

PATIENT NAME: ABDELAZIZ, OMAR HAMAM
DOB(AGE): 09/02/1997 (18 years and 9 months) **MR:** 549283
NATIONALITY: Saudi **SEX:** Male **LOCATION:** 5A
DATE OF ADMISSION: 18 November 2015 **DATE OF DISCHARGE:** Inpatient

Route: Patient

Purpose: Referral to King Faisal Specialist Hospital in Riyadh

CURRENT DIAGNOSIS

1. Severe pulmonary hypertension class III functional severity.
2. Near syncope.
3. Dyspnea class IV with hypoxemia at rest.
4. Past history of asthma.
5. High suspicion of pulmonary venoocclusive disease.

HISTORY OF PRESENT ILLNESS

This is an 18-year-old male with a history of asthma on occasional treatment. He presented to the emergency room on 18 November 2015 with chief complaints of difficulty breathing and irritating cough with whitish sputum. He has irritating cough since two weeks which is getting worse where he is dyspneic on rest. He has no history of fever, no chest pain, and no vomiting or diarrhea. He had flu-like symptoms in the past, two weeks ago.

PHYSICAL EXAMINATION

On initial evaluation in the emergency room, the patient's temperature was 36.3 degrees, pulse 108, respiration 24, blood pressure 105/58, and saturation 83% on room air. He was mildly tachypneic with mild to moderate respiratory distress. He was awake and oriented. His lungs were equal with bilateral breath sounds. No added sounds. Heart showed regular heart sounds. Extremities showed no signs of deep vein thrombosis or edema.

HOSPITAL COURSE

The patient was admitted to the ICU as a case of dyspnea and hypoxemia. He was evaluated by the pulmonary team and also the cardiology team. On the first day, the patient had CT scan of the chest with contrast with a CT angiography done that showed there is considerable dilation of the right atrium and main pulmonary artery. No evidence of pulmonary embolism. A cardiac echo was also done that showed a normal LV with preserved systolic function but severely dilated and right ventricle with preserved systolic function with mild tricuspid regurgitation and severe pulmonary hypertension, a mean pressure of 50. The patient also had initial lab investigation. CBC showed white blood cell count 10.9, hemoglobin 13.8, hematocrit 39, and platelets 247,000 with normal differential count. D-dimer was normal. Urea 6.1, creatinine 82, sodium 141, potassium 4.3, C-reactive protein 8.1, and troponin 0.03. TSH, magnesium, calcium, albumin, and liver function tests were all normal. ESR was 33. Random blood sugar was 6.2. ABG on room air showed pH 7.4, pCO₂ of 32, pO₂ of 60, bicarbonate 21, and saturation 94%. This was done on 5 liter oxygen.

The patient was started on oxygen. Added intravenous antibiotic levofloxacin and nebulization. The pulmonary team advised to do for him ventilation perfusion scan, connective tissue workup with ANA, rheumatoid factor, HIV, ANCA, ENA, and double-stranded DNA. ACE inhibitor level was also sent.

IMPRESSION AND PLAN

He was seen by pulmonary doctor, Dr. Ramachandran Sankaran, and his assessment is that there is no

Patient Name: ABDELAZIZ, OMAR HAMAM

DOB (AGE): 09/02/1997 (18 years and 9 months)

SEX: Male

MR: 549283

evidence of pulmonary thromboembolism by CT angio and perfusion lung scan. No evidence of left to right intracardiac shunt according to cardiologist. No evidence of left heart disease, no parenchymal lung disease on the CT scan of the chest. No restriction. No clinical evidence of sleep apnea. No history of a drug or toxic exposure known to cause pulmonary hypertension. No family history of pulmonary hypertension to suspect genetically inherited hypertension. No portal hypertension and no suspicion of schistosomiasis. This leaves us with primary pulmonary hypertension. There is a high clinical suspicion of pulmonary veno occlusive disease due to supporting features of septal lines, unexplained mediastinal adenopathy in this patient.

The plan is to refer the patient to a specialized pulmonary hypertension center. There is need for a right heart cath reversibility test with appropriate precautions due to possibility of pulmonary veno occlusive disease. If the mediastinal adenopathy is likely due to peripheral veno occlusive disease consider open lung biopsy and lymph node sampling at that time. He needs continuous oxygen in the meantime to maintain his saturation.

Currently, the patient is transferred to medical ward. He is stable clinically. He is less dyspneic and saturating more than 94% on 1 liter of oxygen ,

The plan is also to repeat the echo. Please see attached reports of chest CT scan, V/Q scan, echo, and lab results.

Report dictated by: Dr. Shaheen Ahmed

Worktype#10 D: 23/11/2015 13:07:26 T: 23/11/2015 13:16:37 SA:tt Job #1114122

S. Ahmed

Shaheen U Ahmed MD
Consultant, Internal Medicine
ID: 39673

Report ID:370618

Original copy: Patient's chart.

Patient Name: OMAR HAMAM A
 HR Number : 549283
 DOB: 09-feb-1997

Date: 23/11/2015 Echogenicity: Good
 Indication: RV assessment
 Rhythm: Normal Sinus Rhythm Department: 5A

Measurement	mm	Valvular Doppler			
Right Ventricle (07-23 mm)		Mitral Valve		Aortic Valve	
Interventricular Septal Thickness (07-12 mm)	8	Mean Gradient(mmHg)		Mean Gradient(mmHg)	
left Ventricle End Diastolic Dimension (35-56 mm)	42	Mitral Valve Area (Two Dimension cm2)		Peak Gradient(mmHg)	
left Ventricle End Systolic Dimension (25-41 mm)	30	Mitral Valve Area (Pressure Half Time cm2)		Aortic Valve Area (cm2)	
Posterior Wall Thickness (07-12 mm)	7	Tricuspid Valve		Pulmonary Valve	
Aortic Diameter (20-37 mm)	30	Mean Gradient(mmHg)		Peak Gradient(mmHg)	
Left Atrium (19-40 mm)	28			Pulmonary Valve area (cm2)	
left Ventricle Ejection fraction % (more than or equal to 55%)		Peak Gradient(mmHg)		Pulmonary Artery Systolic Pressure (mmHg) (cm2)	55

left Ventricle (LV): Normal LV size with preserved systolic function.
 No Diastolic Dysfunction.

Left Atrium (LA): Normal size. ? partial compression by an extracardiac mass.

Mitral Valve (MV): Structurally normal valve. Trivial Mitral regurgitation.

Aortic Valve (AV): Structurally normal valve.

Right Ventricle (RV): Severely dilated RV with preserved systolic function. There is flattened ventricular septum during systole and diastole suggestive of volume overload. Also, there is a suspicious subaortic flow highly suggestive of right shunt (? Subarterial/outlet VSD).

Right Atrium (RA): Severely dilated.

Tricuspid Valve (TV): Structurally normal valve. Mild Tricuspid regurgitation. Moderate pulmonary is estimated ~ 50-60 mmHg (Slightly better compared to previous echo)

Pulmonary Valve (PV): Structurally normal valve. Mild Pulmonary regurgitation.

Pericardium PE): Normal.

Conclusion :

1. Normal LV size and function.
2. Severely dilated RV with preserved systolic function. Flattening of ventricular septum is suggestive of volume overload.
3. Suspicious subaortic flow highly suggestive of left to right shunt (? Subarterial/outlet VSD).
4. Mild TR and PR with moderate pulmonary HTN. PASP is estimated ~ 50-60 mmHg (Slightly better compared to previous echo).

5. Recommend TEE and cardiac MRI for further assessment.

Cardiologist : Dr. Hamed Saleh Ahmed Al Ghamdi

Hamed Al Ghamdi
105015



ECHO CARDIOGRAPHY REPORT

FC

Patient Name: OMAR HAMAM ABI
HR Number : 549283
DOB: 09-feb-1997

Date: 18/11/2015 **Echogenicity:** Sufficient
Indication: Assess LV function.
Rhythm: Normal Sinus Rhythm **Department:** RICU.

Measurement	mm	Valvular Doppler			
Right Ventricle (07-23 mm)		Mitral Valve		Aortic Valve	
Interventricular Septal Thickness (07-12 mm)	09	Mean Gradient(mmHg)		Mean Gradient(mmHg)	
left Ventricle End Diastolic Dimension (35-56 mm)	42	Mitral Valve Area (Two Dimension cm2)		Peak Gradient(mmHg)	
left Ventricle End Systolic Dimension (25-41 mm)	25	Mitral Valve Area (Pressure Half Time cm2)		Aortic Valve Area (cm2)	
Posterior Wall Thickness (07-12 mm)	11	Tricuspid Valve		Pulmonary Valve	
Aortic Diameter (20-37 mm)	30	Mean Gradient(mmHg)		Peak Gradient(mmHg)	
Left Atrium (19-40 mm)	28			Pulmonary Valve area (cm2)	
left Ventricle Ejection fraction % (more than or equal to 55%)		Peak Gradient(mmHg)		Pulmonary Artery Systolic Pressure (mmHg) (cm2)	63

left Ventricle (LV): Normal LV size with preserved systolic function. EF is about 55%. Flattening of the septum during systole suggestive of pressure overload. Left ventricle 111g/m2. No Diastolic Dysfunction.

Left Atrium (LA): Normal size.

Mitral Valve (MV): Structurally normal valve. Trivial Mitral regurgitation.

Aortic Valve (AV): Structurally normal valve.

Right Ventricle (RV): Severely dilated size with preserved systolic function. Trabeculation noted.

Right Atrium (RA): Severe size. Dilated inferior vena cava but collapsing.

Tricuspid Valve (TV): Structurally normal valve. Mild Tricuspid regurgitation. Pulmonary Artery Systolic Pressure 63mmHg.

Pulmonary Valve (PV): Structurally normal valve. Mild Pulmonary regurgitation.

Pericardium PE): Normal.

Conclusion :

1. Normal LV size with preserved systolic function. Flattening of the septum during systole suggestive of pressure overload.
2. Severely dilated right side with preserved right ventricle systolic function.
3. Mild Tricuspid regurgitation with severe pulmonary hypertension.

A handwritten signature in black ink, appearing to read 'Hamed Al Ghamdi', with the date '10/5/15' written below it.

Cardiologist : Dr. Hamed Saleh Ahmed Al Ghamdi

CONFIDENTIAL

Patient Name :	HASHIM , OMAR HAMAM	Specimen Source :	WHOLE BLOOD
Medical Record # :	549283	Physician :	Ahmed, Shaheen U \ P293
Gender :	Male	Location :	2A \ 3A
DOB (Age) :	09/02/1997 (18 y 9 m)	Collected :	23/11/2015 05:31:25 Hrs
Laboratory # :	L15-485943	Completed :	23/11/2015 06:35:26 Hrs

Test	Result	Unit	Reference Ranges
COMPLETE BLOOD COUNT			
WBC	9.74	10 ³ /uL	4.00 - 10.00
RBC	5.08	10 ⁶ /uL	4.30 - 6.00
HGB	14.6	g/dL	14.0 - 18.0
HCT	41.4	%	40.0 - 54.0
MCV	81.5	fL	80.0 - 96.0
MCH	28.8	pg	26.0 - 32.0
MCHC	35.4	g/dL	32.0 - 36.0
RDW	12.9	%	11.5 - 16.5
PLT	238	10 ³ /uL	140 - 400
MPV	7.02	fL	7.00 - 11.50
NEUTROPHIL #	6.61	10 ³ /uL	2.00 - 7.50
NEUTROPHIL %	67.90	%	
LYMPHOCYTE #	2.08	10 ³ /uL	1.50 - 4.00
LYMPHOCYTE %	21.40	%	
MONOCYTE #	0.87 H	10 ³ /uL	0.20 - 0.80
MONOCYTE %	8.89	%	
EOSINOPHIL #	0.117	10 ³ /uL	0.000 - 0.400
EOSINOPHIL %	1.20	%	
BASOPHIL #	0.065	10 ³ /uL	0.000 - 0.100
BASOPHIL %	0.669	%	
NUCLEATED RED BLOOD CELL	0.00	10 ³ /uL	
NR/W	0.00	%	

CONFIDENTIAL

Patient Name :	HASHIM , OMAR HAMAM	Specimen Source :	C-REACTIVE PROTEIN - CRP
Medical Record # :	549283	Physician :	Ahmed, Shaheen U \ P293
Gender :	Male	Location :	2A \ 3A
DOB (Age) :	09/02/1997 (18 y 9 m)	Collected :	23/11/2015 05:31:25 Hrs
Laboratory # :	L15-485942	Completed :	23/11/2015 06:47:54 Hrs

Test	Result	Unit	Reference Ranges
UREA NITROGEN	6.9	mmol/L	2.2 - 7.0
CREATININE	68	umol/L	50 - 100 REVISED REFERENCE RANGES ON 01/01/2014
SODIUM	139	mmol/L	135 - 145
POTASSIUM	4.2	mmol/L	3.5 - 5.1
CHLORIDE	103	mmol/L	98 - 107
CO2	25	mmol/L	22 - 32
C-REACTIVE PROTEIN	6.4 H	mg/L	0.5 - 3.0



CONFIDENTIAL

Patient Name :	HASHIM , OMAR HAMAM	Specimen Source :	WHOLE BLOOD
Medical Record # :	549283	Physician :	Ahmed, Shaheen U \ P293
Gender :	Male	Location :	2A \ 5A
DOB (Age) :	09/02/1997 (18 y 9 m)	Collected :	19/11/2015 09:50:15 Hrs
Laboratory # :	L15-481779	Completed :	19/11/2015 11:45:50 Hrs

Test	Result	Unit	Reference Ranges
ESR	18 H	mm/hr	0 - 10

CONFIDENTIAL

Patient Name :	HASHIM, OMAR HAMAM	Specimen Source :	Sputum
Medical Record # :	549283	Physician :	Ahmed, Shaheen U
Gender :	Male	Location :	2A / 5A
DOB (Age) :	09/02/1997 (18 y 9 m)	Collected :	19/11/2015 02:12:42 Hrs
Laboratory # :	481422	Completed :	21/11/2015 11:24:04 Hrs

Test Name : **RESPIRATORY SAMPLES FOR CUL**

Final Result : **MODERATE GROWTH OF NORMAL RESPIRATORY FLORA ISOLATED.**

CONFIDENTIAL

Patient Name :	HASHIM , OMAR HAMAM	Specimen Source :	WHOLE BLOOD
Medical Record # :	549283	Physician :	Ahmed, Shaheen U \ P293
Gender :	Male	Location :	2A \ 5A
DOB (Age) :	09/02/1997 (18 y 9 m)	Collected :	19/11/2015 01:43:53 Hrs
Laboratory # :	L15-481414	Completed :	19/11/2015 02:10:29 Hrs

Test	Result	Unit	Reference Ranges
COMPLETE BLOOD COUNT			
WBC	10.10 H	$10^3/\mu\text{L}$	4.00 - 10.00
RBC	5.23	$10^6/\mu\text{L}$	4.30 - 6.00
HGB	14.6	g/dL	14.0 - 18.0
HCT	42.8	%	40.0 - 54.0
MCV	81.8	fL	80.0 - 96.0
MCH	27.9	pg	26.0 - 32.0
MCHC	34.1	g/dL	32.0 - 36.0
RDW	13.4	%	11.5 - 16.5
PLT	257	$10^3/\mu\text{L}$	140 - 400
MPV	7.27	fL	7.00 - 11.50
NEUTROPHIL #	6.77	$10^3/\mu\text{L}$	2.00 - 7.50
NEUTROPHIL %	67.30	%	
LYMPHOCYTE #	2.30	$10^3/\mu\text{L}$	1.50 - 4.00
LYMPHOCYTE %	22.80	%	
MONOCYTE #	0.86 H	$10^3/\mu\text{L}$	0.20 - 0.80
MONOCYTE %	8.52	%	
EOSINOPHIL #	0.093	$10^3/\mu\text{L}$	0.000 - 0.400
EOSINOPHIL %	0.93	%	
BASOPHIL #	0.043	$10^3/\mu\text{L}$	0.000 - 0.100
BASOPHIL %	0.426	%	
NUCLEATED RED BLOOD CELL	0.00	$10^3/\mu\text{L}$	
NR/W	0.00	%	

CONFIDENTIAL

Patient Name :	HASHIM , OMAR HAMAM	Specimen Source :	C-REACTIVE PROTEIN - CRP
Medical Record # :	549283	Physician :	Ahmed, Shaheen U \ P293
Gender :	Male	Location :	2A \ 5A
DOB (Age) :	09/02/1997 (18 y 9 m)	Collected :	19/11/2015 01:43:53 Hrs
Laboratory # :	L15-481413	Completed :	19/11/2015 02:20:54 Hrs

Test	Result	Unit	Reference Ranges
UREA NITROGEN	6.8	mmol/L	2.2 - 7.0
CREATININE	66	umol/L	50 - 100 REVISED REFERENCE RANGES ON 01/01/2014
SODIUM	140	mmol/L	135 - 145
POTASSIUM	4.5	mmol/L	3.5 - 5.1
CHLORIDE	105	mmol/L	98 - 107
CO2	22	mmol/L	22 - 32
MAGNESIUM	0.81	mmol/L	0.70 - 1.00
C-REACTIVE PROTEIN	7.3 H	mg/L	0.5 - 3.0

CONFIDENTIAL

Patient Name :	HASHIM , OMAR HAMAM	Specimen Source :	URINE
Medical Record # :	549283	Physician :	Ahmed, Shaheen U \ P293
Gender :	Male	Location :	2A \ 5A
DOB (Age) :	09/02/1997 (18 y 9 m)	Collected :	18/11/2015 11:43:03 Hrs
Laboratory # :	L15-480796	Completed :	18/11/2015 12:51:29 Hrs

Test	Result	Unit	Reference Ranges
URINE ANALYSIS			
COLOR	YELLOW		YELLOW
APPEARANCE	HAZY		HAZY
SPECIFIC GRAVITY	>=1.030 H		1.005 - 1.025
PH	6.0		5.8 - 8.0
LEUKOCYTE	NEGATIVE		NEGATIVE
NITRITE	NEGATIVE		NEGATIVE
PROTEIN	NEGATIVE		NEGATIVE
GLUCOSE	NEGATIVE		NEGATIVE
KETONES	NEGATIVE		NEGATIVE
UROBILINOGEN	0.2		0.2 - 1.0
BILIRUBIN	NEGATIVE		NEGATIVE
BLOOD	NEGATIVE		NEGATIVE
WHITE BLOOD CELLS	<5		<5
RED BLOOD CELLS	<5		<5
CASTS	NIL		NIL
CRYSTALS	NIL		NIL
AMORPHOUS CRYSTALS	NIL		NIL
EPITH	OCCASIONAL		NIL
MUCUS	OCCASIONAL		NIL
BACTERIA	FEW		NIL
OTHERS	NIL		
COMMENTS	NIL		

CONFIDENTIAL

Patient Name :	HASHIM , OMAR HAMAM	Specimen Source :	WHOLE BLOOD
Medical Record # :	549283	Physician :	Ahmed, Shaheen U \ P293
Gender :	Male	Location :	2A \ 5A
DOB (Age) :	09/02/1997 (18 y 9 m)	Collected :	18/11/2015 09:54:43 Hrs
Laboratory # :	L15-480582	Completed :	18/11/2015 11:28:39 Hrs

Test	Result	Unit	Reference Ranges
ESR	33 H	mm/hr	0 - 10

CONFIDENTIAL

Patient Name :	HASHIM, OMAR HAMAM	Specimen Source :	
Medical Record # :	549283	Physician :	
Gender :	Male	Location :	
DOB (Age) :	09/02/1997 (18 y 9 m)	Collected :	18/11/2015 10:32:20 Hrs
Laboratory # :	480666	Completed :	23/11/2015 09:57:38 Hrs

Test Name : MRSA CONFIRMATORY BY CULTURE

Isolate Sequence : 1 Microorganism : Methicillin Resistant Staphylococcus aureus (MRSA)

Antibiotic	Interpretation
AMOX/CLAV	R
AMPICILLIN	R
CLINDAMYCIN	S
ERYTHROMYCIN	S
LINEZOLID	S
OXACILLIN	R
PENICILLIN	R
RIFAMPICIN	S
TETRACYCLINE	S
TRIM/SULFA	S
VANCOMYCIN	S

Final Result : MRSA DNA DETECTED BY MOLECULAR SCREENING TEST.
METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS (MRSA) ISOLATED BY CULTURE.

CONFIDENTIAL

Patient Name :	HASHIM , OMAR HAMAM	Specimen Source :	FASTING
Medical Record # :	549283	Physician :	Ahmed, Shaheen U \ P293
Gender :	Male	Location :	2A \ 5A
DOB (Age) :	09/02/1997 (18 y 9 m)	Collected :	18/11/2015 09:54:43 Hrs
Laboratory # :	L15-480581	Completed :	18/11/2015 11:06:06 Hrs

Test	Result	Unit	Reference Ranges
GLUCOSE FASTING	6.2 H	mmol/L	3.9 - 5.6 PREDIABETES: 5.7- 6.9 DIABETES: ≥ 7.0 AMERICAN DIABETES ASSOCIATION STANDARDS 2015

CONFIDENTIAL

Patient Name :	HASHIM , OMAR HAMAM	Specimen Source :	SERUM
Medical Record # :	549283	Physician :	Ahmed, Shaheen U \ P293
Gender :	Male	Location :	2A \ 5A
DOB (Age) :	09/02/1997 (18 y 9 m)	Collected :	18/11/2015 09:54:43 Hrs
Laboratory # :	L15-480580	Completed :	18/11/2015 16:42:55 Hrs

Test	Result	Unit	Reference Ranges
UREA NITROGEN	5.4	mmol/L	2.2 - 7.0
CREATININE	60	umol/L	50 - 100 REVISED REFERENCE RANGES ON 01/01/2014
SODIUM	138	mmol/L	135 - 145
POTASSIUM	5.1	mmol/L	3.5 - 5.1
CHLORIDE	104	mmol/L	98 - 107
CO2	21 L	mmol/L	22 - 32
MAGNESIUM	0.87	mmol/L	0.70 - 1.00
ALBUMIN	39	g/L	35 - 50
AST	26	IU/L	10 - 40
ALT	37	IU/L	12 - 78 REFERENCE RANGE UPDATED ON 25-10-2014.
LACTATE DEHYDROGENASE	217	U/L	85 - 227
ALKALINE PHOSPHATASE	117	IU/L	50 - 136
GAMMA GT	36	IU/L	15 - 85
TOTAL BILIRUBIN	13	umol/L	2 - 17
DIRECT BILIRUBIN	3	umol/L	1 - 5

CONFIDENTIAL

Patient Name :	HASHIM , OMAR HAMAM	Specimen Source :	SERUM
Medical Record # :	549283	Physician :	Ahmed, Shaheen U \ P293
Gender :	Male	Location :	2A \ 5A
DOB (Age) :	09/02/1997 (18 y 9 m)	Collected :	18/11/2015 09:54:43 Hrs
Laboratory # :	L15-480580	Completed :	18/11/2015 16:42:55 Hrs

Test	Result	Unit	Reference Ranges
IONIZED CALCIUM	1.15 L	mmol/L	1.20 - 1.38
TSH	0.804	uIU/mL	0.470 - 4.640

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Patient Name :	HASHIM , OMAR HAMAM	Specimen Source :	PLASMA
Medical Record # :	549283	Physician :	Ahmed, Shaheen U \ P293
Gender :	Male	Location :	2A \ 5A
DOB (Age) :	09/02/1997 (18 y 9 m)	Collected :	18/11/2015 09:54:43 Hrs
Laboratory # :	L15-480579	Completed :	18/11/2015 11:15:46 Hrs

Test	Result	Unit	Reference Ranges
BRAIN NATRIURETIC PEPTIDE 262 H		pg/mL	2 - 30 HEART FAILURE THRESHOLD: 100 pg/mL ACUTE CORONARY SYNDROMES PROGNOSTIC: THRESHOLD: 80 pg/mL PATIENTS >75 YEARS: INTERPRET RESULTS CONSIDERING AGE & SEX

Critical Value:
VERIFIED, AND PHONED TO DR. SHAHEEN ID# 39673. READBACK CONFIRMED. - 18/11/2015 11:16 AM

CRITICAL REPORT VERIFIED, AND PHONED TO DR. SHAHEEN ID#39673. READBACK CONFIRMED. 18-Nov-2015 11:15 AM

CONFIDENTIAL

Patient Name :	HASHIM , OMAR HAMAM	Specimen Source :	SWAB
Medical Record # :	549283	Physician :	Ahmed, Shaheen U \ P293
Gender :	Male	Location :	2A \ 5A
DOB (Age) :	09/02/1997 (18 y 9 m)	Collected :	18/11/2015 07:00:01 Hrs
Laboratory # :	L15-480420	Completed :	18/11/2015 10:02:27 Hrs

Test	Result	Unit	Reference Ranges
MOLECULAR VANCOMYCIN RESISTANT ENTEROCOCCI (VRE) SCREENING	NEGATIVE FOR VRE DNA		

COMMENTS

Vancomycin Resistant Enterococci (VRE) screening test is real-time PCR on Cepheid GeneXpert system, rapid identification of (vanA / vanB) genes that can be associated with VRE from rectal swab. The sensitivity is 99 % and the specificity is 100 %, the test result to be interpreted together with other laboratory tests. Culture is the gold standard method for diagnosis of VRE.

CONFIDENTIAL

Patient Name :	HASHIM , OMAR HAMAM	Specimen Source :	NASAL SWAB
Medical Record # :	549283	Physician :	Ahmed, Shaheen U \ P293
Gender :	Male	Location :	2A \ 5A
DOB (Age) :	09/02/1997 (18 y 9 m)	Collected :	18/11/2015 07:00:01 Hrs
Laboratory # :	L15-480419	Completed :	18/11/2015 11:26:35 Hrs

Test	Result	Unit	Reference Ranges
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MOLECULAR MRSA SCREENING NASAL	MRSA DNA DETECTED. FINAL RESULT TO FOLLOW AFTER CULTURE AND SUSCEPTIBILITY TESTING. PLEASE SEE CULTURE RESULT: L15-480666		NEGATIVE FOR MRSA DNA
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Methicillin-resistant Staphylococcus aureus (MRSA)DNA is tested by real-time PCR on GeneXpert Dx System (Cepheid Xpert SA Nasal Complete, IVD, FDA approved).The positive and negative agreement with reference culture method is 89.8 % and 98 % respectively. Test results might be affected by concurrent antibiotic therapy

Critical Value:

VERIFIED, AND PHONED TO DR.Hassan Kheder, ID#43122 . READBACK CONFIRMED. at 11:15 am on 18/11/2015 - 18/11/2015 11:24 AM

CRITICAL REPORT

VERIFIED, AND PHONED TO DR.Hassan Kheder, ID#43122 . READBACK CONFIRMED. at 11:15 am on 18/11/2015

COMMENTS

Methicillin-resistant Staphylococcus aureus (MRSA)DNA is tested by real-time PCR on GeneXpert Dx System (Cepheid Xpert SA Nasal Complete, IVD, FDA approved).The positive and negative agreement with reference culture method is 89.8 % and 98 % respectively. Test results might be affected by concurrent antibiotic therapy.

CONFIDENTIAL

Patient Name :	HASHIM , OMAR HAMAM	Specimen Source :	C-REACTIVE PROTEIN - CRP
Medical Record # :	549283	Physician :	Elamin, Ahmed Abdulaziz \ P32607
Gender :	Male	Location :	ER
DOB (Age) :	09/02/1997 (18 y 9 m)	Collected :	18/11/2015 01:08:00 Hrs
Laboratory # :	L15-480221	Completed :	18/11/2015 01:41:33 Hrs

Test	Result	Unit	Reference Ranges
UREA NITROGEN	6.1	mmol/L	2.2 - 7.0
CREATININE	82	umol/L	50 - 100 REVISED REFERENCE RANGES ON 01/01/2014
SODIUM	141	mmol/L	135 - 145
POTASSIUM	4.3	mmol/L	3.5 - 5.1
C-REACTIVE PROTEIN	8.1 H	mg/L	0.5 - 3.0
TROPONIN I	0.03	ng/mL	0.01 - 0.04

SAAD SPECIALIST HOSPITAL

SAAD GROUP

RADIOLOGY DEPARTMENT
TEL: 03 882-6666 X 2800
FAX: 03 882-6666 X 1998



هستشفى سعد التخصصي

مجموعة سعد

قسم الأشعة التشخيصية

Radiology Report

Patient Name	OMAR HAMAM ABDELAZIZ HASHIM	MR:	549283
Patient Sex	Male	Accession	1402600
Birth Date	09/02/1997	Report Status	Finalized
Finalizing Radiologist	Mohammad Abusedera	Completed By	Rufaida Abdelwahab Elobeid Elawad
Finalization Date	22/11/2015	Completion Date	21/11/2015 14:25
Procedure Description	71010 - CHEST PA		

Clinical History:

R59.9 - Enlarged lymph nodes, unspecified R06 - Abnormalities of breathing R06.0 - Dyspnoea
R05 - Cough J45 - Asthma

Technique:

CHEST AP SUPINE PORTABLE

Findings:

COMPARISON: Previous Examination 18-11-2015

Support apparatus: Remain in appropriate position.

Mediastinum : No unfavorable change. No pneumomediastinum. prominent size and density of left hilum

Lungs : upwars vascular redistribution ,No pneumothorax. No new air space disease.

Bone: No new acute fractures.

Impression:

No interval change since the prior.

M. Sedera

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RADIOLOGY DEPARTMENT
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**هستشفى سعد التخصصي****مجموعة سعد****قسم الأشعة التشخيصية****Radiology Report**

Patient Name	OMAR HAMAM ABDELAZIZ HASHIM	MR:	549283
Patient Sex	Male	Accession	1402186
Birth Date	09/02/1997	Report Status	Finalized
Finalizing Radiologist	Mohammad Nizami	Completed By	Ahmed Tawfik
Finalization Date	19/11/2015	Completion Date	19/11/2015 14:16
Procedure Description	78584 - PULMONARY PERFUSION and VENTILATION		

Clinical History:

R59.9 - Enlarged lymph nodes, unspecified R06 - Abnormalities of breathing R06.0 - Dyspnoea
 R05 - Cough J45 - Asthma

Technique:

Lung perfusion study was performed using 5mCi Tc-99m MAA. Multiple static views were completed.

Findings:

There is slightly heterogeneous pattern of tracer uptake in both lung fields.
 No obvious areas of peripheral perfusion defects noted in either of lung fields.
 Cardiac impression appears to be within normal limits.

Impression:

There is no evidence of any peripheral perfusion defect in either of the lung fields excluding the possibility of acute macro-embolic PE.



Dr. Muhammad Nizami, ID#40033,
Consultant Nuclear Medicine, MOH-1040924

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هستشفى سعد التخصصي
مجموعة سعد
قسم الأشعة التشخيصية

Radiology Report

Patient Name	OMAR HAMAM ABDELAZIZ HASHIM	MR:	549283
Patient Sex	Male	Accession	1402057
Birth Date	09/02/1997	Report Status	Finalized
Finalizing Radiologist	Mohammad Nizami	Completed By	Mohd Zarar Bin Mohd Isa
Finalization Date	22/11/2015	Completion Date	22/11/2015 14:14
Procedure Description	78816 - PET W/CT:ATTEN.CORR. ANATOMICAL LOCALIZATION WHOLE BODY		

Clinical History:

R59.9 - Enlarged lymph nodes, unspecified R06 - Abnormalities of breathing R06.0 - Dyspnoea
R05 - Cough J45 - Asthma

Technique:

The patient fasted for more than 6 hours. His fasting blood sugar was 5.1mmol/l measured prior to the procedure. An intravenous injection of 18-fluoro-2-deoxyglucose (FDG) 10mCi was given to the patient while he lay quietly in a room. Plain water was given as negative oral contrast after the FDG injection. The PET emission acquisition was performed 70 minutes after 18F-FDG injection using a PET/CT scanner. The field of view covered the area from the top of skull to mid thighs with the arms positioned above the head using 2D acquisition. A low dose CT scan of the same area was acquired without i.v contrast for attenuation correction of the PET data and image co-registration and not for diagnostic purposes. Another dedicated brain PET-CT was also performed after the whole body study. Transverse image reconstruction using an iterative algorithm was performed with reoriented tomograms displayed in transaxial, coronal and sagittal planes.

Findings:

18 years old male patient with reported matted lymphadenopathy in medistinum, hilar and abdominal retroperitoneal regions.
A PET/CT examination is requested to exclude any sinister active hypermetabolic disease process.

Head and Neck:

Skull and neck: There are bilateral few enlarged mild FDG avid lower cervical level 2A nodes seen (SUVm 3.0). No pathological FDG avid supraclavicular adenopathy. Mild physiologic activity is noted in soft palate, nasopharynx, genoglossi and submental and submandibular glands.

Brain: On the PET study, physiological FDG activity in the brain gray matter.

Chest:

There is no abnormality noted in chest wall soft tissue including axillae.
There is mild FDG avid right paratracheal mediastinal soft tissue mass seen with SUVm 3.0. Subcarinal region

shows non FDG avid soft tissue. NO obvious prevascular or hilar lymphadenopathy seen. Thymus hypertrophy with diffuse FDG avidity is seen that extends around aortic arch above pulmonary trunk. Both lung fields appear normal with no FDG avid lesions. Physiological 18F-FDG uptake is seen in the heart (cardiac hypertrophy noted). The esophagus and posterior mediastinum are normal.

Abdomen and Pelvis:

There is dilated left renal pelvis extending beyond PUJ with intense FDG uptake in excreted urine, most likely due to pelvic outlet obstruction due to ureteric stenosis. Normal 18F-FDG excretion is seen in kidneys and bladder.

Liver, spleen, pancreas, stomach and adrenal glands are unremarkable.

There is no pathological FDG uptake lymphadenopathy in the abdomen or pelvis. Small non FDG avid paraaortic nodes seen.

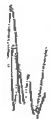
Diffuse FDG activity in the colon represents physiologic activity.

There are no FDG avid abnormalities in the axial skeleton and the extremities those are included in the field of view.

Impression:

Overall features are not typical of malignant lymphoma by the PET criteria. Mild FDG avid and enlarged cervical lymph nodes and right paratracheal lymphomatous mass is likely inflammatory/benign cause. For further work up/ tissue biopsy for confirmation of diagnosis. Thymic hypertrophy has been demonstrated (physiological variant).

There is dilated left renal pelvis extending beyond PUJ with intense FDG uptake in excreted urine, most likely due to pelvic outlet obstruction due to ureteric stenosis.



Dr. Mohammad Nazari, MD, PhD
Consultant Nuclear Medicine, MOH-100004

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هستشفى سعد التخصصي

مجموعة سعد

قسم الأشعة التشخيصية

Radiology Report

Patient Name	OMAR HAMAM ABDELAZIZ HASHIM	MR:	549283
Patient Sex	Male	Accession	1401569
Birth Date	09/02/1997	Report Status	Finalized
Finalizing Radiologist	Inas ElGhoniemy	Completed By	Ibrahim Mohammad Alhassan
Finalization Date	18/11/2015	Completion Date	18/11/2015 03:46
Procedure Description	71275 - CTA THORAX with and without CONTRAST		

Clinical History:

R06.0 - Dyspnoea J45 - Asthma R05 - Cough R06 - Abnormalities of breathing

Technique:

CTA, CHEST (NONCORONARY), W/ CONTRAST MATERIAL, INCLUDING NONCONTRAST IMAGES IF PERFORMED, & IMAGE POSTPROCESSING

Findings:

Lungs:

Bilateral basal atelectatic bands.

Right lung lower lobe posterior basal subpleural single nodule less than 5 mm in size.

Congested lung vasculature.

No consolidation / ground glass attenuation.

No interstitial thickening and bronchiectasis.

No other nodules seen.

Airways: patent tracheobronchial tree.

Pleura:

No pleural effusion, thickening or pneumothorax.

Thoracic aorta, pulmonary arteries and great vessels:

Considerable dilated right atrium, main pulmonary artery No evidence of pulmonary embolism..

Lymph nodes:

Enlarged and matted retrocaval, prevascular, aorto-pulmonary window., subcarinal and hilar lymphadenopathy. This is suggestive of lymphoma,

Thoracic Spine and chest wall:

Normal.

Visualized upper abdomen:

Multiple small para-aortic lymphadenopathy, perigastric small lymph nodes are seen as well.

Ballooning bilateral extra renal pelvis.

Impression:

Considerable dilated right atrium, main pulmonary artery. No evidence of pulmonary embolism. For further cardiac assessment and echo to exclude cardiac disease and pulmonary arterial hypertension. Mediastinal lymphadenopathy, as described suggestive of lymphoma for further biopsies and histopathological correlation. CT scan of the abdomen and pelvis are also advised for detailed assessment and extension of the disease process.

Inas El Ghoneimy

Dra. Inas El Ghoneimy, ID#100888,
Senior Specialist Radiologist

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Radiology Report

Patient Name	OMAR HAMAM ABDELAZIZ HASHIM	MR:	549283
Patient Sex	Male	Accession	1401566
Birth Date	09/02/1997	Report Status	Finalized
Finalizing Radiologist	Mohammad Abusedera	Completed By	Ibrahim Mohammad Alhassan
Finalization Date	18/11/2015	Completion Date	18/11/2015 01:45
Procedure Description	71020 - CHEST PA & LATERAL		

Clinical History:

R06.0 - Dyspnoea J45 - Asthma R05 - Cough R06 - Abnormalities of breathing

Technique:

Chest X-ray two views were obtained.

Findings:**Lungs:**

Both lung fields are clear.

No consolidation or atelectasis.

Costo-phrenic angles:

Bilateral costophrenic angles are sharp.

Heart:

Cardiac size is normal.

Mediastinum:

Central and of normal contour.

Soft tissues and osseous skeleton:

Grossly Normal.

Impression:

Normal Chest X-ray.

Nabusedera

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PATIENT: HASHEM, OMAR HAMMAM ABDLZ
MRN: 5172215
FIN: 16081522
DOB: 09 February, 1997
AGE: 18 years
SEX: Male
ADMISSION: 05 January, 2016
DISCHARGE: 05 January, 2016

KFSH & RC Riyadh

Medical Evaluation

Dictated By: WEHEBA, IHAB 05 January, 2016 15:49:38
Authenticated By: Zeitouni, Mohamed Omar 07 January, 2016 14:42:15

MEDICAL EVALUATION

DATE OF REPORT:
05 January 2016

TREATING PHYSICIAN

Zeitouni, Mohamed Omar

Diagnosis:

Pulmonary veno-occlusive disease

History

This is an 18-year-old male with a history of asthma on occasional treatment. He was referred from his local Hospital with a chief complaint of shortness of breath and syncopal attack for which he was worked up in his local hospital. He did CT chest with angio which showed and no evidence of pulmonary embolism but it revealed considerable dilatation of right atrium and main pulmonary artery, hilar lymphadenopathies and marked septal thickening. He also did cardiac echocardiogram in his local hospital which showed normal left ventricle with preserved systolic function, but severely dilated right ventricle with preserved systolic function and tricuspid regurgitation with estimated systolic pulmonary artery pressure of 50 mmHg.

The patient was referred to King Faisal Specialized Hospital and Research Centre (KFSHRC) for assessment and management.

Past Medical History:

No past medical history. No history of herbal or other medications or recreational drugs use

Past Surgical History:

No past surgical history.

Family History:

No documented similar history among his family.

Physical Examination:

He was conscious, oriented and alert to time, place and person.

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Vital Signs:

- Temperature: 36.5C
- Pulse 81 PBM
- Respiratory rate 22 /minute
- Blood Pressure 117/74 mmHg.
- Oxygen saturation 91% on Room Air

Chest examination	Showed vesicular breathing sound bilaterally, with basal crackles
Cardiovascular examination	Showed normal S1, Accentuated P2, no murmur
Abdominal examination	Showed soft and lax abdomen, no organomegaly.
Lower limb examination	Showed no edema or signs of DVT.
Neurological examination	Showed normal power, reflexes, sensation , cranial nerve and higher function

Investigations

CT Chest Review of Outside CD(18/5/2015)

Findings:

- Lungs are clear of airspace consolidation infiltrates and effusions. There are multiple nodules noted, a 11 mm nodule is noted in the periphery of the right lower lobe, additional peripheral based 5 mm nodule in the right lower lobe. Minimal atelectasis noted. There is note of moderate sub-carinal adenopathy estimated at approximately 31 x 33 mm in size. Moderate perihilar adenopathy is noted; largest on the right measuring approximately 20 x 8 mm. Cardiac contour has normal appearance, no pericardial effusion noted. There is note of a moderate pre-aortic superior mediastinal node measuring approximately 31 x 21 mm. Multiple additional lymph nodes present between the elements of the great vessels, and a right paratracheal/pretracheal node is present measuring 20 x 33 mm in size. Small thymic remnant is noted.
- No evidence of supraclavicular or axillary adenopathy. Normal appearance of the airway and the thyroid.
- Normal appearance of visualized bony elements.

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- There is normal configuration of the liver, no hepatic masses noted. The spleen, pancreas, adrenal glands and visualized kidneys have normal appearance. Extra renal pelvis bilaterally greater on left than right. Gallbladder is contracted. No calcifications noted. No evidence of retroperitoneal or mesenteric adenopathy in the visualized abdomen.

Impression:

- Several small pulmonary nodules noted however significant mediastinal adenopathy. Although reactive changes are a consideration, the size and distributed of enlarged lymph nodes is suspicious of a nodal based disease process. Sequelae of lymphoproliferative disorders are a consideration.
- No focal infiltrate consolidation or effusion noted.
- No adenopathy or mass is identified in the visualized upper abdomen.
- Review at KFSH: strongly suggestive of veno-occlusive disease.

Whole body CT/PET scan Review of Outside CD(22/11/2015) :

Impression

- The mild FDG-avid mediastinal lymphadenopathy is likely related to underlying inflammatory etiology, for correlation and followup. Lymphoma is less likely.
- The bilateral pulmonary septal thickening is suggestive of underlying congestion/edema, for correlation.
- The dilated pulmonary trunk is in keeping with pulmonary hypertension, for correlation.
- No significant FDG-avid disease elsewhere.

MRI Cardiac for Morphology (29/11/2015)

Findings:

Left Ventricle:

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- The left ventricle is D shaped with normal wall motion. The calculated left ventricle volumes and function are as following; end-diastolic volume 98 mL, end-systolic volume 47 mL with ejection fraction of 51%. Normal mitral valve. Normal left atrium. Cine images of the left ventricle outflow tract demonstrate normal aortic valve with no evidence of regurgitation or stenosis.

Right Ventricle:

- Severe dilatation with severe global hypokinesia and significant wall thickening. Calculated right ventricle volume and function are: end-diastolic volume 197 mL, end-systolic volume 136 mL with ejection fraction of 31%. There is moderate tricuspid regurgitation. The right atrium is severely dilated.

Aortic Valve Flow Measurements:

- Peak velocity 1 m/s. Forward volume 52 mL. Reverse volume 1.4 mL.
- Pulmonary valve forward volume 59 mL.
- Qp:Qs equals 1.1. This excludes shunting.
- Multiple cine images show no evidence of VSD or ASD.

MRA Findings:

- Dilated main pulmonary artery with dimension of 3.9 cm. Normal pulmonary artery branching with right pulmonary artery measuring 2.3 cm and left pulmonary artery measuring 1.8 cm.
- The ascending aorta measures 2.3 cm. Normal arch and branching. Normal descending aorta. No evidence of coarctation.

Impression:

Known case of pulmonary hypertension with:

- Severe right ventricle dilatation and impaired function.
- D-shaped left ventricle with normal ejection fraction.
- Qp:Qs of 1.1, which excludes shunting.

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- Dilated main pulmonary artery with normal pulmonary artery branches and normal aorta.

NM Lung Aerosol v. Perfusion (30/11/2015)

Findings:

Both perfusion and ventilation lung scans show homogeneous radiotracer distribution throughout both lungs with no defects. There is no extra pulmonary activity to suggest right to left cardiac shunting.

Impression:

Normal V/Q scan. No evidence of pulmonary embolism.

TTE-Adult . Echocardiography (1/12/2015)

Findings:

- The right ventricle is mild to moderately dilated. A moderator band is seen in the right ventricle. There is mild right ventricular hypertrophy. The right ventricular systolic function is moderate to severely reduced. Basal segments are the best contracting; marked hypokinesis versus akinesis of mid apical segment ;Hyper trabeculated RV. Contrast study no evidence of ASD or VSD . An NMR is recommended
- There is mild tricuspid regurgitation. Right ventricular systolic pressure is elevated at >60 mmHg. (TR max vel: 350.1 cm/sec)
- The left ventricle is normal in size. There is no ventricular septal defect visualized. Left ventricular systolic function is normal. Flattened septum.
- The left atrial size is normal. The right atrium is moderately dilated. IVC looks dilated and non collapsible with inspiration.
- Injection of contrast documented no interatrial shunt. The interatrial

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septum is intact with no evidence for an atrial septal defect.

- Mild pulmonary artery dilation. PDA not seen.

Right Heart Catheterization (3/December/2015)

Condition: Room Air

Pressures

Site	Systolic mmHg	Diastolic mmHg	Mean mmHg
RA	10	7	6
RV	75	2	12
PA	80	36	54
PAWP	10	9	8

Hemodynamic Data

Fick CO 3.39 L/min AV-O₂ Difference ml/dl

Fick CI 1.9 L/min/m O₂ Consumption Predicted 167.6 ml/minxm

Thermo CO 3.4 L/min AV-O₂ Difference ml/dl

Thermo CI 1.91 L/min/m O₂ Consumption Predicted 167.6 ml/minxm

RESISTANCES

PVR : 13.5 WU

- Condition: Nitric Oxide

Pressures

Site	Systolic mmHg	Diastolic mmHg	Mean mmHg
PA	67	29	41

PAWP /COP/CI/PVR could not be measured due to hemodynamic changes during the procedure

Pulmonary Function Tests

	Predicted	Observed	% Predicted
FVC (L)	3.79	4.37	115
FEV1 (L)	3.15	3.52	111

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FEV1/FVC (%)	83.81	80.53	96
MMEF 75/25 (L/S)	3.62	3.43	94.7
RV (L)	1.07	0.93	86.2
TLC (L)	4.90	5.07	103.96
RV%TLC (%)	23.62	18.23	77.2
DLCO _C SB (mmol/min/kPa)	8.31	3.93	47.3

6 Minutes Walk Test (6MWT) (with Oxugen supply of 2L/M Nasal Canula.)

	Baseline	End of Test
B/P (mmHg)	104/62	98/58
Oximetry (%)	93	90
HR (BPM)	96	72
Borg Scale	0	2
Distance (m)	230	

Laboratory work up

CBC

WBC	7.45x 10 ⁹ /L
RBC	4.87x 10 ¹² /L
Hb	135 g/l
Hct	0.411 L/L

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Platlets	205x 10 ⁹ /L
----------	-------------------------

Coagulation Profile

PT	14.7
INR	1.1
PTT	36.8

Chemistry

Urea	5.4 mmol/L
Creatinine	88 umol/L
e-GFR	>60 mL/min per 1.73 m ²
K	4.2 mmol/L
Na	139 mmol/L
Uric Acid	461 umol/L
Albumin	44
Total Bilirubin	8.9
Pro-BNP	654 pg/mL
Troponin	<0.003

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ALT	33.4 mmol/L
AST	24.9 mmol/L

Thrombophilia work up

Mixing Study PT	14.2 (Normal)
Protein C, Functional	0.75 (Normal)
Protein C, Functional	0.96 (Normal)
Protein S, Functional	1.3 (Normal)
Protein S, Total	0.93 (Normal)
Protein S, Free	1.12 (Normal)
Sickle Cell	Normal
Paroxysmal Nocturnal Hemoglobinuria(PNH)	No phenotypic evidence of Paroxysmal Nocturnal Hemoglobinuria (PNH).
Peripheral Blood Morphology	Red blood cell morphology normocytic normochromic cells with m polychromaisa WBCs show mainly neutrophils. Platelets are essentially unremarkable.
Heamoglobin Electrophoresis	Normal

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Serology

Hepatitis Bs Ag	Non-Reactive
Hepatitis C Ab	Non-Reactive
HIV 1-2 Antibody Screen	Non-Reactive
Schistosoma Antibody	Negative

Autoimmune/Immunology

Anti-Nuclear Antibody(ANA) screen	Negative
Anti Sjgren syndrome-A Antibody (Anti SS-A / Anti-Ro)	<3.1
Anti Sjgren syndrome-B Antibody (Anti SS-B / Anti-La)	<3.1
Anti cardiolipin IgA	5.5
Anti cardiolipin IgG	<8
Anti cardiolipin IgM	5.6
Anti-Phosphatidylserine IgG	<6.3
Anti-Phosphatidylserine IgM	<6.3
Anti B2 Glycoprotein IgA	5.2
Anti B2 Glycoprotein IgG	4.3
Anti B2 Glycoprotein IgG	<3.1

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PATIENT: HASHEM, OMAR HAMMAM ABDLZ
MRN: 5172215
FIN: 16081522
DOB: 09 February, 1997
AGE: 18 years
SEX: Male
ADMISSION: 05 January, 2016
DISCHARGE: 05 January, 2016

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C-ANCA	<3.1
P-ANCA	<3.1
Cyclic Citrullinated Peptide Antibodies	<15.6
Lupus Inhibitor	Negative

Hospital Course:

- The patient was referred to Lung Transplant team for work up.
- The patient was started on furosemide 20 mg daily then sildenafil was added to his treatment regime (20 mg TID), the patient showed initial positive response, but after few days he started to complain of shortness of breath, so sildenafil was discontinued and the furosemide dose was increased to 40 mg BID, again patient responded well to diuretics then bosentan was introduced to his medication (62.5 mg BID then 125 mg BID) and the patient is tolerating this combination. he is also complaining of recurrent cough and given antihistamine for possible post nasal drip.

Current Medications:

- Furosemide 80 mg (morning dose) and 40 mg (evening dose) Tab
- Spironolactone 25 mg Tab Daily
- Bosentan 125 mg Tab. BID

Recommendation:

- This is a case of pulmonary veno-occlusive disease on Medical therapy and possible Lung Transplant in future.
- **Recommending that the patient medical condition to be reviewed by DR Nazzareno Galie (University of Bologna, Italy)**

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KFSH & RC Riyadh P.O. Box 3354 Riyadh

Chart Request Id: 4876910



مستشفى الملك فيصل التخصصي ومركز الأبحاث
King Faisal Specialist Hospital & Research Centre
مؤسسة عامة Gen. Org.

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Medical Evaluation

Dictated By: WEHEBA, IHAB 05 January, 2016 15:49:38
Authenticated By: Zeitouni, Mohamed Omar 07 January, 2016 14:42:15
IW/69654/DD:05-01-2016 04:21:15 PM/DT:05-01-2016 04:57:49 PM/Doc ID: 67186030

Electronically Signed by: Zeitouni, Mohamed Omar
Sign Date/Time: 07.01.16 02:42 PM

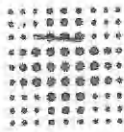
Electronically Signed by: WEHEBA, IHAB
Sign Date/Time: 06.01.16 10:48 AM



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**SERVIZIO SANITARIO REGIONALE
EMILIA-ROMAGNA**
Azienda Ospedaliero - Universitaria di Bologna

Policlinico S. Orsola-Malpighi

Dipartimento Attività Integrate
Cardio - Toraco - Vascolare
Unità Operativa Cardiologia - Prof. C. Rapezzi



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

Bologna, February 10th, 2016

Dear Colleague,

today we discharge **Mr. Haschem Omar Homam**, admitted to our hospital on February 8th due to assessment of suspected Pulmonary Veno-Occlusive Disease (PVOD).

DIAGNOSIS at discharge: Pulmonary arterial hypertension related to PVOD. NYHA class IV (due to syncopal episodes).

Cardiovascular risk factors: not present

Brief history of clinical events:

- History of asthma until eleven years old
 - No past surgical history
 - Since about 4-5 months progressively worsening dyspnea on effort, associated with coughing and different episodes of syncope. He was referred to his local hospital (Saad) in the November 2015; a chest CT scan with contrast medium was performed with no evidence of pulmonary embolism but it showed considerable dilatation of the right atrium, the right ventricle and main pulmonary artery; marked smooth septal thickening and hilar lymphadenopathies were also present. He performed echocardiogram which confirmed severe dilatation of the right ventricle, tricuspid regurgitation with estimated systolic pulmonary artery pressure of 50 mmHg (normal left ventricle with preserved systolic function).
 - November 26th- December 13th 2015: hospitalized in King Faisal Hospital in Riyadh. A complete medical evaluation was performed:
 - Chest CT scan review: strongly suggestive of PVOD
 - CT/PET scan: mild FDG avid mediastinal lymphadenopathy likely relates to underlying inflammatory etiology (Lymphoma is less likely); no significant FDG-avid disease elsewhere
 - MRI cardiac: severe right ventricle dilatation and impaired function, D-shaped left ventricle with normal ejection fraction, Qp:Qs 1:1, which excludes shunting, dilated main pulmonary arteries and normal aorta
 - Right heart catheterization: pressure RA s/d/m 10/7/6 mmHg, RV s/d/m 75/2/12 mmHg, PA s/d/m 80/36/54 mmHg, PAWP s/d/m 10/9/8 mmHg, Fick CO 3.39 l/min, Fick CI 1.9 l/min/m², PVR 13.5 WU, after infusion of Nitric Oxide PA s/d/m 67/29/41 mmHg
 - Pulmonary Function test: FVC 4.37 l (115% predicted), FEV1 3.52 l (111% predicted), FEV1/FVC 96%, DLCO 47.3% predicted
 - 6 minute walking test with oxygen supply of 2l/min nasal canula: distance 230m, Borg 2, oximetry 93 to 90%
- The patient was discharged with diagnosis of PVOD and was started therapy with sildenafil, bosentan and furosemide. The patient was also referred to Lung Transplant team for work up.
- After initial positive response he started to complain shortness of breath a few days later and sildenafil was discontinued while furosemide and bosentan doses were increased. The patient was then referred to our Institute.

Summary of investigations carried out during hospitalization

- **Echocardiogram:** moderate to severe dilatation and hypokinesia of RV; flattened IV septum; moderate dilatation of RA; IVC appears dilated and not collapsible in inspiration; pulmonary artery dilatation (3.9 cm); normal size and systolic function of the LV (EF 67%)
- **Chest CT scan with contrast medium:** millimetric centrilobular areolas with ground glass appearance, involving almost all lungs areas, associated with marked smooth thickening of the interlobular septa. Some solid parenchymal nodules are found to lower right lobe, the largest of

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about 8 mm in the apical segment. No pleural effusion. Moderate amount of pericardial effusion. Multiple lymphadenopathies in hilar-mediastinal areas with confluent aspects. Sub-centimetric axillary lymph nodes bilaterally. Dilatation of the main pulmonary artery (3.8 cm); no significant dilatation of the more distal pulmonary arteries branches, bilaterally. Absence of intraluminal filling defects indicative of acute or chronic thromboembolism in the main pulmonary arteries neither in the lobar and segmental branches. No signs of mosaic oligoemia. Hypertrophy of the bronchial arteries. Right ventricular overload signs. No obvious congenital cardiac abnormalities, in particular normal venous returns. In conclusion: the pictures are highly suggestive of PVOD.

- **Right Heart catheterization (with oxygen supply 2l/min by nasal prongs):** pressure RA mean 7 mmHg, PA s/d/m 72/27/45 mmHg, PAWP mean 6 mmHg, TD CO 3.9 l/min, TD CI 2.3 l/min/m², PVR 10 WU. Not responder to vasoreactivity test (after NO: pressure RA mean 7 mmHg, PA s/d/m 57/17/37 mmHg, PAWP mean 7 mmHg, TD CO 4.1 l/min, TD CI 2.4 l/min/m², PVR 7.3 WU).
- **6 minute walking test** (performed with Oxygen supply of 4l/min nasal prongs, no self stroller): 1st test distance 335 m, Borg 4, HR from 93 to 123, oximetry from 98% to 86%. 2nd test distance 380m, Borg 4, HR from 92 to 147 bpm, oximetry from 97% to 81%.
- **Laboratory Work up:**

Azotemia mg/dl	Creatinine mg/dl	Kalemia mEq/L	Natremia mEq/L	Uric Acid mg/dl	Haemoglobin g/dl	WBC/mmc
32	0.84	3.7	138	8.9	11.9	9.240
MCV	Platelet/mmc	RBC/mmc	ALT U/L	AST U/L	Total Bilirubin mg/dl	CPK U/L
81	244.000	4.570.000	30	38	0.85	43
LDH U/L	TSH microU/mL	Cholesterol tot. mg/dl	HDL cholesterol mg/dl	LDL cholesterol mg/dl	Triglycerides mg/dl	BNP pg/ml
201	2.60	85	13	43	115	606

- Autoimmune/immunology screening, thrombophilia work up: normal.

In conclusion

The diagnosis of PVOD is almost certain and therefore there is a clear indication to urgent listing for double lung transplantation. Empirically we continued treatment with high doses of oral furosemide (despite no signs of RV failure at rest) associated with Bosentan. We have also suggested to the patient a fluid intake no greater than 1l per day. This strategy induces as side effect a low blood pressure with possible orthostatic additional hypotension. We have suggested to the patient to progressively stand up after sitting a while to limit the symptoms of hypotension. The reason why we adopted this strategy is to try to reduce the fluid content of the lung interstitium. Obviously, the patient has limited exercise capacity as assessed by 6 minute walking distance. For this reason we have suggested to abandon for the moment the attendance to university to avoid additional episodes of syncope which are very dangerous in this setting. The final objective of the treatment is to achieve as soon as possible lungs transplantation because medical treatment in PVOD has a very limited role. After the implementation of the above medical strategy and the addition of central cough sedatives we observed a marked reduction of a very fastidious coughing and satisfactory general conditions at rest.

Therapy at discharge

- Bosentan 125mg BID (8-20)
- Furosemide 50mg BID (8-16)
- Potassium Canrenoate 50mg daily (20)
- Dihydrocodeine (Paracodin) 15 drops QID (8-12-16-22)
- Allopurinol 150mg daily (16)
- KCL retard 600 mg 1 cp after breakfast, lunch and dinner
- Oxygen 2 l/min at rest, 5 l/min during walk 24H PER DAY (withdraw even for few seconds may cause relevant symptoms)

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Additional recommendations

1. Limit water intake (no more than 1l per day)
2. Avoid physical activities in addition to those related to home living

Faithfully,

Dr.R.Narducci

Prof. Nazzareno Galiè

