Revised on 27th February, 2015

Systematic Pathology 1 – Year 3 Semester 1
2013/14 Batch

Concepts	Objectives	Time	Activity	Department
	The students should be able to;			
2013-3/PATH- SBM-2/01 Clinico-pathological and radiological correlation of the following conditions of the lung a. Consolidation b Collapse c. Fibrosis d. Pleural effusion e. Pneumothorax f. Lung cavity g. Solid masses h. Pulmonary oedema i. Pulmonary embolism **j.** Lung infarction	1. recall processes of general pathology 2. explain the pathogenesis and morphology of each of the conditions 3. describe the clinical features of the basic pathological conditions mentioned above **4**.describe the basic radiological signs of the conditions mentioned	1hr 1hr	Lecture Lecture demonstration	Medicine Radiology
2013-3/PATH- SBM-2/02 a. <u>Pneumonia</u> 1.Etiology 2.Pathology and complications 3. Entities covered: lobar pneumonia, bronchopneumonia, lung abscess, atypical pneumonias	1. recall the infective microorganisms 2.explain the aetiology and pathogenesis of lobar and bronchopneumonia 3.describe the macroscopic and microscopic features of the lung and bronchi in both types of pneumonia 4.describe the pathological and clinical effects of pneumonia 5.describe the sequalae and complications of pneumonia	3hrs	Lecture	Pathology
b. <u>Pulmonary tuberculosis</u> 1.Pathology and complications 2.Aetiology and diagnosis	1. recall the general pathology of chronic inflammation and tuberculosis 2.recall the lesions in the lung in tuberculosis and explain their pathogenesis. 3.enumerate the diagnostic tests for tuberculosis and explain the basis of these investigations.			
c. Respiratory tract infections	1. list the infections which occur in the respiratory tract and			

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	associated organs 2. state the most likely infective agents associated with infection at each site 3. recall the source and virulence factors of the infective agents associated with respiratory tract infection 4. describe the specimen/s, (including mode of collection and transport) a diagnostic tests used to determine the aetiology of infection of the respiratory tract.			Microbiology
d. Obstructive Lung Diseases COPD – emphysema, chronic bronchitis Asthma Bronchiectasis	1. Describe the aetiopathogenesis of COPD 2. Describe the pathology in CPOD disease progression with clinical correlations. 3. List the complications of COPD and causes of death. 4. Describe the pathogenesis of asthma. (Recall type 1 hypersensitivity reaction) 5. Describe the pathological changes in lungs with a person with long standing bronchial asthma. 6. Explain the differences between beonchial asthma and COPD. 7. Describe the atiopathogenesis, clinical manifestations and complications of bronchiectasis.	2 hrs	Lecture	Pathology
2013-3/PATH- SBM-2/03 Interstitial and Industrial Lung Diseases	1. Describe that interstitial lung diseases is a group of diseases that share some common clinico-pathological features 2. Describe the common clinico-pathological features shared by interstitial &industrial lung diseases 3. Explain what is meant by honey comb lung 4. State the common disease entities included in interstitial lung diseases and industrial lung diseases. 5. Briefly outline the clinico- pathological features of these disease entities	1 hr	Lecture	Pathology
2013-3/PATH- SBM-2/04 Neoplasms of the lung , mediastinum and pleura	1. recall chronic inflammation, metaplasia, dysplasia, carcinogenesis & spread of tumours 2. classify epithelial neoplasms of lung and pleura 3.describe the aetiopathogenesis and morphological appearances of tumours of lung and pleura 4. describe the modes of spread of tumours of lung 5. list the paraneoplastic syndromes associated with lung tumours. 6. describe the diagnostic tests available for tumours of	1hr	Lecture Demonstration	Pathology

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	lung			
2013-3/PATH-SBM-2/05 **Museum class**	Identify the morphological changes in diseases of the respiratory tract using mounted specimens Outline the possible clinical manifestations that these changes can produce	4 hrs	Guided SGLA	Pathology
2013-3/PATH- SBM-2/06 **Respiration**	Describe the clinic-pathological correlations of lung diseases using clinical scenarios.	1hr	SGD	
2013-3/PATH-SBM-2/07 Introduction to ischaemia, infarction, thrombosis – stenosis / occlusion, embolism Atherosclerosis Reperfusion	recall objectives given in FCP			Pathology
2013-3/PATH-SBM-2/08 **Atherosclerosis and peripheral vascular disease**	Pathology: recall , objectives given in FCP • different patterns of atherosclerosis • the clinical significance of atherosclerosis • the epidemiology and risk factors of atherosclerosis • the pathogenesis of atherosclerosis • the macroscopic and microscopic appearances of the atheromatous plaques and fatty streaks • define Pheripheral vascular disease (PVD) • identify those who are at risk of developing PVD describe the clinico-pathological outcomes of PVD	1hr	Lecture	Pathology
2013-3/PATH-SBM-2/09 **Hypertension** **Pathophysiology and end organ effects of hypertension** vascular pathology associated with hypertension • macroscopic appearance of hyaline arteriosclerosis and hyperplastic arteriosclerosis **Hypertensive heart disease** * To be able to describe pathogenesis, and macrosopic appearance of heart in systemic	outline the aetiology of hypertension describe the pathophysiology of hypertension. describe the pathological changes in large and small arteries in benign and malignant hypertension. outline the end organ effects due to hypertensive vascular changers eg. heart, kidney, brain. describe the pathological basis of the clinical symptoms due to involvement of these organs explain the role of imaging in hypertension.	1hr	Lecture	Pathology

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hypertension pulmonary hypertension • Imaging in HT Nuclear Medicine imaging in cardiovascular disease	to provide the student with a understanding of organ physiology and its functions with regards to radioisotope uptake in health and disease by: a. myocardium b. renovascular system correlate the radio isotope uptake with organ function in health and disease with respect to a myocardium b renovascular system			Radiology Nuclear Medicine
2013-3/PATH-SBM-2/10 **Vasculitides** • pathogenesis of non-infectious vasculitidis • the pathogenesis, macroscopic appearance of affected blood vessels in giant cell arteritis, Takayasu arteriris, polyarteritis nodosa, Kawasaki syndrome, polyangitis, Wegeners granulomatosis, thromboangitis obliterance	1 describe the pathogenesis of non-infectious vasculitis 2 describe the pathological changes in vasculitis and describe the clinical outcomes due to these changes. 3 outline the main pathological changes and clinical outcomes in the vasculitic diseases named here	1hr	Lecture	Pathology
2013-3/PATH-SBM-2/11 **Aneurysms** • define and classify aneurysms • list the causes of aneurysm • pathogenesis and macroscopic appearance and clinical course of abdominal aortic aneurysms • pathogenesis and macroscopic appearnce of syphilitic aneurysms aortic dissection	1 define the lesion aneurysm 2 describe the pathogenesis of aneurysms. 3describe different morphological types of aneurysms. 4 describe the possible clinical outcomes and complications of aneurysms and describe their pathological basis. 5 describe pathogenesis, morphology, clinical outcome and complications of aortic dissection.	1hr	Lecture Museum class	Pathology
2013-3/PATH-SBM-2/12 **Diseases of veins and lymphatics** • the pathogenesis of thrombophlebitis and phlebothrombosis • pathogenesis and effects of lymphangitis and lymphodema	1 describe the pathogenesis and clinical outcomes of thromboangitis and phlebothrombosis. 2.describe the pathogenesis of venous thrombosis 3. describe the pathogenesis and effects of lymphangitis and lymphoedema (recall, objectives given in FCP)	1 hr	Lecture	Pathology

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2013-3/PATH-SBM-2/13 **Ischaemic heart disease** • epidemiology, pathogenesis of IHD • role of fixed coronary obstructions, acute plaque change, coronary thrombus and vasoconstriction in coronary heart disease • pathogenesis of different types of angina • pathogenesis and macroscopic and microscopic appearance of different types of myocardial infarction • myocardial response to coronary arterial obstruction • the evolution of morphologic changes in myocardial infarction • consequences and complications of myocardial infarction • macroscopical changes of chronic ischaemic heart disease	1 outline the epidemiology of IHD 2 describe the pathogenesis of IHD 3 describe the role of fixed coronary obstructions, acute plaque change, coronary thrombus and vasoconstriction in coronary heart disease 4 describe the myocardial response to coronary arterial obstruction 5 name different types of angina and describe the pathological basis of them 6 describe the pathogenesis and morphogical changes in different types of myocardial infarctions. 7 describe the evolution of morphologic changes in myocardial infarction 8 describe the consequences and complications of myocardial infarction 9 describe the basis and clinical significance of reperfusion injuries. 10 describe the pathological changes in chronic IHD and the clinical outcomes. 1 Define ischaemic heart disease 2 List the risk factors for ischaemic heart disease 3 List the types of ischaemic heart disease 4 describe the clinical manifestations of ischaemic heart disease 5 list the investigations in IHD 6 describe the electrophysiological changes in IHD 7 list the types of acute coronary syndrome 9 list the complications of acute coronary syndrome	2hrs 1hr	Lecture Lecture	Pathology Pathology Medicine
Heart Failure **Left heart failure** **Bi ventricular failure** **Cor pulmonale**	1. Recall – physiology of pumping action of heart 2. Describe the mechanisms of heart failure 3. Describe how cardiac hypertrophy enhance the risk of developing heart failure 4. Describe the compensatory mechanisms in heart failure 5. Describe the pathogenesis of clinical manifestations in decompensated heart failure. 6. Describe the morphology of heart, lungs and liver in decompensated heart failure. 7. Define corpulmonale. 8. List the casues and clinical manifestation of cor pulmonale.	1 hr	Lecture	Pathology

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2013-3/PATH-SBM-2/14 **Rhematic carditis and other valvular heart disease** • valvular abnormalities caused by congenital and acquired conditions	1. Describe the aetiopathogenesis of rheumatic fever and its implications. 2. Describe the morphological changes acute and chronic rheumatic heart disease. 3. Describe the clinical outcomes and complications of acute and chronic rheumatic heart disease and describe the pathological basis of them. 4. Pathogenesis, macroscopic appearance, clinical manifestations and complications of other valvular heart diseases e.g., that has calcified (calcific Aortic stenosis) and in myxomatous degeneration (MVP) 5. Describe common congenital valvular diseases.	2hrs	Lecture	Pathology
Infective Endocarditis **Sub acute infective endocarditis** **Acute endocarditis**	1. State the risk factors for infective endocarditis 2. describe the aetiopathogenesis of infective endocarditis 3. Describe the clinical manifestation of infective endocarditis and their pathological basis. 4. Describe the cardiac and systemic complications of infective endocarditis 5. List the investigations for infective endocarditis 6. List the non infective casues of cardiac vegetations	1 hour	Lecture Museum class	Pathology
2013-3/PATH-SBM-2/15 **Myocardial disease** **Myocarditis** **Hypertrophic cardiomyopathy** **Dilated cardiomyopathy** **Neoplasms**	1. Describe the causes, pathogenesis macroscopic and microscopic appearance of myocarditis 2. describe the pathological basis of clinical outcomes and complications of myocarditis 3. describe the different types of cardiomyopathies 4. describe the aetiology and pathological changes in these cardiomyopathies and their clinical significance. 5. list the common tumours of heart and blood vessels.	1hr	lecture	Pathology
2013-3/PATH-SBM-2/16 **Pericardial disease**	1 describe the pathogenesis of pericardial effusions and haemopericardium 2 describe the pathogenesis and pathological changes changes in serous pericarditis, fibrinous and serofibrinous pericarditis, purulent or suppurative pericarditis, haemorrhagic pericarditis and caseous pericarditis. 3 describe the pathological basis of clinical outcomes in these conditions. 4 describe the pathogenesis, macroscopic appearance and clinical manifestations in constrictive pericarditis.	1hr	lecture	Pathology

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2013-3/PATH- SBM-2/17 **Museum class** **Heart diseases**	Identify the morphological changes in diseases of the GI tract using mounted specimens Outline the possible clinical manifestations that these changes can produce	**4 hrs**	**Guided SGLA**	**Pahtology**
Cardiovascular diseases	Describe the clinic-pathological correlations of lung diseases using clinical scenarios.	**1 hr**	**SGD**	**Pathology**
2013-3/PATH-SBM-2/18 Bone and cartilage - III				
(a) Injury and repair – Fractures	1. Recall general pathology on fracture healing and repair 2. Apply the principles of wound healing to bone and cartilage 3. Describe the immediate and late complications of fracture healing	1hr	Lecture	Pathology
(b) Metabolic and endocrine and remodeling disorders (Osteoporosis, osteomalacia/rickets, Paget's diseases, hyperparathyroidism)	1. Recall normal bone metabolism 2. Describe aetiology,pathogenesis and complications of Osteoporosis, osteomalacia/rickets, Paget's diseases and hyperparathyroidism 3. Explain the basis of pathological fractures and clinical manifestation of complications mentioned in objective 2.	1hr	Lecture	Pathology
(c) infections	1. Recall general pathology of acute and chronic inflammation 2. Describe aetiopathogenesis, morphology and clinical manifestations of acute and chronic osteomyelitis 3. Describe the complications of acute and chronic osteomyelitis.	1hr	Lecture	Pathology
(d) Neoplastic (Primary and secondary)	1. Recall general pathology of carcinogenesis and spread of tumours 2. Enumerate the primary cartilaginous and osseous tumours 3. Describe the pathological features and correlate the radiological signs of common bone tumours 4. Describe the pathological features of metastatic bone tumours	1hr 2hrs	Lecture Specimen class (SGLA)	Pathology
(e) Congenital bone disorders	Describe the aetiology, pathology and clinical manifestations of congenital bone diseases	1hr	Lecture	Paediatrics
(f) Imaging in bone diseases	1. recognize basic radiological signs of bone diseases with a pathological basis (periosteal reaction, bone destruction/ lytic lesions (osteoclastic activity) and sclerosis (osteoblastic activity) 2. recognise a simple fracture and the types of fractures on plain radiographs in adults & children 3. differentiate simple from pathological fracture 4. recognize major manifestations of following conditions Hyperparathyroidism, Rickets, osteomalacia, osteoporosis, Acute and chronic	1hr	Lecture	Radiology

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	osteomyelitis 5. differentiate benign from malignant bone tumour 6. recognise various manifestations of metastatic bone disease 7. place of MRI in bone disease 1. understand organ (bone) physiology and its function with regard to radio isotope intake 2. understand when and how to use skeletal scintigraphy			
2013-3/PATH-SBM-2/19 Muscles – III				
Atrophy & hypertrophy	Recall		Lecture (Foundation)	Pathology
(a) Mechanisms of dysfunction of muscles	1. Recall the physiology of the motor unit and its neural control 2. outline how disorders at different levels in the control mechanisms affect muscle function	1hr	Lecture	Medicine
(b) Diseases of muscle	1. Classify muscle diseases on an aetiological basis 2. Describe the pathology and basic clinical features common to all muscle diseases 3. Describe the clinical features of common muscle diseases	1hr 1 hr	Lecture Lecture	Medicine Pathology
(c) Manifestations as a consequence of systemic, neural and joint disorders	Covered in 3 above			Medicine
2013-3/PATH-SBM-2/20 Joints – III				
(D) joint diseases	Describe the aetiopathogenesis of common joint diseases	1 hr	Lecture	Pathology
Skills				
1. Identify fractures and dislocations by physical and radiological examination - II				
2. Perform a clinical examination of muscle groups in each joint - III				
3. Perform a clinical examination of joints (knee, hip, shoulder) - II				
4. Examine the spine - I				
6. Carry out first-aid in bone and muscular				

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injury - I				
Musuem class – skeletal diseases	Identify the morphological changes in skeletal diseases using mounted specimens **Outline the possible clinical manifestations that these changes can produce**	2hrs	Guided SGLA	Pathology
Skeletal diseases	Describe the clinic-pathological correlations of skeletal diseases using clinical scenarios.	1hr	SGD	
2013-3/PATH- SBM-02/21 **Endocrine diseases** a. Pituitary diseases	1. Recall actions of hormones of anterior pituitary / Posterior pituitary 2. List the common diseases related to the anterior/Posterior pituitary gland 3. Describe the clinical manifestation of each disease you mentioned and their pathological basis	3hrs	Lecture	Pathology
b. Parathyroid diseases	1. Recall actions of parathyroid hormones 2. State diseases related to the parathyroid gland 3. Describe the clinical manifestation of each disease you mentioned and their pathological basis			
c. Adrenal diseases	1. Recall actions of hormones secreted by adrenal cortex and medulla 2. List the common diseases arising from adrenal cortex and medulla 3. Describe the clinical manifestation of each disease you mentioned and their pathological basis			
d. Pancreatic islet cell diseases	1. Recall types of hormones secreted by pancreatic islet cells and their actions 2. Describe diseases that occur due to dysfunction of these hormones. 3. Outline the tumours arising from pancreatic islet cells and their clinical outcomes			
2013-3/PATH- SBM-02//22 **Thyroid diseases** Hypoparathyroidism, Hyperparathyroidism Goitre Thyroid manifestations in iodine deficiency Thyroidits Neoplasms	1. Recall anatomy, histology and hormone production of the thyroid gland 2. Recall the regulation of thyroid hormone production 3. Describe the clinical manifestations of hypothyroidism and hyperthyroidism 4. List the common causes of hypo and hyper thyroidism 5. List the types of goiters and causes for each type 6. Describe the thyroid manifestations of iodine deficiency	2hr	Lecture	Pathology

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Investigations	and their progression 7. Describe the aetiopathogenesis and clinical manifestations of Graves disease 8. List the types of thyroiditis and describe the aetiopathogenesis and clinical manifestations of Hashimoto thyroiditis. 9. Describe the common benign and malignant neoplasms of thyroid 10. List the investigations performed in thyroid diseases and their applications in common thyroid diseases			
2013-3/PATH- SBM-02/23 **Diabetes mellitus** i) Aetiologypathogenesis of Diabetes ii) Mechanism of acute complications/ Hypo and hyperglycemia iii) Diagnostic criteria of diabetes mellitus	1. Understand the beta cells and the secretion of insulin 2. Understand the glucose transporters in different tissues 3. Describe the actions of insulin 4. Know the definition of diabetes mellitus 5. Know the classification of diabetes 6. Describe the pathogenesis of Type 1 diabetes 7. Describe the pathogenesis of Type 2 diabetes 8. List the risk factors for insulin resistance 9. Describe the pathogenesis of gestational diabetes 10. List the secondary causes for diabetes mellitus a. Regulation of normal blood sugar - hypoglycemia - hyperglycemia a. Diagnosis in symptomatic patients b. Diagnosis in asymptomatic patients c. Use of FBS d. IGT/IFG	1hr	Lecture	Pathology
2013-3/PATH- SBM-02/24 Measuring of metabolic control of Diabetes	Describe the relevance of following analysis in measuring of metabolic control of Diabetes a) blood glucose b) glycosylated hemoglobin c) C- peptide	1hr	Lecture	Biochemistry
2013-3/PATH- SBM-02/25 **Complications of diabetes** Acute complications Long term complications	1. List the acute complications of diabetes 2. Describe their pathogenesis, clinical manifestations with pathological basis 3. List the investigations and outline their interpretations 4. List the long term complications of diabetes 5. Describe the possible mechanisms responsible for these 6. Describe the different pathological manifestations of long term diabetes complications	2 hr	Lecture Museum class	Pathology

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	7. Describe their clinical manifestations 8. List the screening tests and other investigations performed to detect these complications			
2013-3/PATH- SBM-02/26 Common endocrine problems in childhood	Diabetes mellitus /Hypoglycaemia Hypo and hyperthyroidism adrenocortico insufficiency obesity and growth abnormalities	1hr 1hr	Lecture Lecture	Paediatrics
2013-3/PATH- SBM-02/27 Measurements of endocrine dysfunction	a. Recall the basis of testing endocrine functions and clinical relevance b. List routine tests that are available to detect endocrine malfunction c. Recall - i. hypothalamic – pituitary function ii. thyroid gland function iii. adrenal gland function iv. gonadal (male/female) function d. Correlate clinical features with laboratory investigations of the pituitary, thyroid, adrenal, gonadal disfunctions.	3hrs	2hrs Lecture 1hr tutorial	NMU
2013-3/PATH- SBM-02/28 Inborn errors of metabolism	Inborn errors of metabolism Investigations	1hr	Lecture	Paediatrics
2013-3/PATH- SBM-02/29 Obesity and Metabolic syndrome	1. Understand the diagnostic criteria for obesity and metabolic syndrome 2. List the co-morbidities of obesity 3. Understand the pathophysiology of obesity, insulin resistance and metabolic syndrome 4. Explain the benefits of weight loss 5. Outline the management strategies of obesity and metabolic syndrome	1hr	Lecture	Pathology
2013-3/PATH- SBM-02/30 Lymphoreticular systems 1. Spleen 2. Lymphnode	1. to describe the causes, pathology and clinical features of splenomegaly 1. Describe the causes Pathology, clinical associations and diagnosis of lymphadenopathy 2. Outline the common types of lymphomas	1hr 2hr	Lecture	Pathology
2012-3/PATH-SBM-02/31 Museum class – endocrine diseases, spleen and	**1** Identify the morphological changes in diseases of endocrine organs, spleen and lymph nodes of the respiratory tract using	4hrs	Guided SGLA	Pathology

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lymph nodes	mounted specimens **Outline the possible clinical manifestations that these changes can produce**			
2013-3/PATH- SBM-2/32 **Endocrine diseases**	Describe the clinic-pathological correlations of endocrine diseases using clinical scenarios.	1hr	SGD	Pathology

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