

Paper II: Technical subject

1. Basic Principles of Cardiothoracic and Vascular Surgery

- 1.1. Applied basic medical sciences relevant to the field: Anatomy, Biochemistry, Microbiology, Pathology, Pharmacology and Immunology pertaining to the Cardiovascular and Thoracic organs and systems
- 1.2. Evidence based for cardiovascular and thoracic surgery
- 1.3. An ability to understand and evaluate surgical reports from literatures
- 1.4. Mortality, morbidity and survival following surgical treatment of common thoracic malignancies
- 1.5. Principles of intensive care
- 1.6. Insertion of monitoring lines – arterial line/Central Venous lines/Swan ganj Catheter
- 1.7. Complication of Cardiovascular and Thoracic surgeries
- 1.8. Clinical investigations including cardiac catheterization, echocardiography, nuclear medicine and imaging including thoracic imaging technique
- 1.9. Vascular Doppler and angiography
- 1.10. Cardiopulmonary Resuscitations
- 1.11. Techniques of Cardiopulmonary bypass
- 1.12. Principles of myocardial protection

2. Thoracic

- 2.1. Epidemiology, genetic signatures, presentation and diagnosis of Thoracic diseases
- 2.2. Staging including all staging tools (CT, CT/PET, EBUS, EUS, Mediastinoscopy)
- 2.3. Multimodality management of thoracic malignancy
- 2.4. Non-resection techniques (SBRT, RFA, etc)
- 2.5. Survival and recurrence patterns
- 2.6. Postop complications (BP fistula, space problems, empyema, prolonged air leak)
- 2.7. Surgical palliative techniques (stents, RFA, etc.)
- 2.8. Secondary and metastatic neoplasm of the lung
- 2.9. Chest trauma and its management
- 2.10. Staging for common thoracic malignancies.
- 2.11. Benign and malignant tumors of trachea, bronchus, lung
- 2.12. Esophagoscope
- 2.13. Bronchoscopy- Rigid and Fibreoptic
- 2.14. Tracheostomy
- 2.15. Technique of pleural aspiration and drainage including rib resection and intercostal drainage
- 2.16. Thoracotomy and Sternotomy – open and close
- 2.17. Pulmonary vascular disease
- 2.18. Lung resection for benign and malignant disease
- 2.19. Empyema and Decortication
- 2.20. Correction of pectus deformities

- 2.21. Mediastinal Mass
- 2.22. Mediastinal exploration by cervical mediastinoscopy and anterior Mediastinotomy
- 2.23. Thymectomy for Myasthenia Gravis and tumours
- 2.24. Thoracic Outlet Syndrome
- 2.25. Pulmonary Metastasectomy
- 2.26. Oesophageal Surgery for benign and malignant conditions
- 2.27. Tracheal resection for benign and malignant disease
- 2.28. Principle of management of pleural collection such as pneumothorax, effusions, chyle and pus
- 2.29. Pleurodesis
- 2.30. Congenital and acquired Diaphragmatic Lesions
- 2.31. Basic principles of Video Assisted Thoracoscopy and its implications in Cardiothoracic diseases

3. Cardiac, Adult

- 3.1. Principles and Institution of cardiopulmonary bypass and deep hypothermic circulatory arrest
- 3.2. Insertion of IABP and mechanical circulatory support
- 3.3. Principles of Myocardial protection
- 3.4. Postoperative care of cardiac surgical patients
- 3.5. Anticoagulation and antiplatelets in cardiac surgical practice
- 3.6. Pericardial diseases and Pericardiectomy
- 3.7. Surgery for ischemic heart disease and its complications
- 3.8. Coronary Artery Bypass Graft Surgery (CABG): Indication and Techniques
- 3.9. Surgical treatment of complications of acute myocardial infarction: Post operative ventricular septal defect, free wall rupture, ischemic mitral regurgitation, left ventricular aneurysm
- 3.10. Rheumatic Heart Disease
- 3.11. Types of Prosthetic Valves
- 3.12. Pathophysiology of mitral valve disease
- 3.13. Mitral valve repair and valve replacement : Indication and Techniques
- 3.14. Pathophysiology of aortic valve disease
- 3.15. Aortic valve replacement and Repair
- 3.16. Tricuspid valve disease; Indication and Techniques of tricuspid valve Repair and Replacement
- 3.17. Minimally invasive cardiac surgery
- 3.18. Surgical management of endocarditis, prosthetic valve endocarditis
- 3.19. Trauma to great vessels
- 3.20. Aortic dissection
- 3.21. Aortic aneurysms
- 3.22. Endovascular management of thoracic aortic disease
- 3.23. Cardiac tumors

4. Cardiac, Pediatric

- 4.1. Embryology of Heart, Lungs and Blood vessels
- 4.2. Circulatory change at birth
- 4.3. Management Principles of common congenital cardiac conditions like ASD, VSD, Tetralogy of Fallot, Coarctation of Aorta, Patent Ductus Arteriosus, Transposition of Great Arteries, Atrioventricular Septal Defect, Ebstein's anomaly, total anomalous pulmonary venous drainage
- 4.4. Functional single ventricle and Fontan's pathway
- 4.5. Palliative Operations of Congenital Heart Disease
- 4.6. Perioperative care in pediatric cardiac surgical patients
- 4.7. Extracorporeal Life Support (ECMO)
- 4.8. Percutaneous catheter interventions in congenital heart disease
- 4.9. Vascular conduits: autograft, homograft, xenograft and prosthetic grafts

5. Vascular

- 5.1. Diagnosis, evaluation and treatment of arterial, venous and lymphatic disease
- 5.2. Peripheral arterial and venous cannulation technique
- 5.3. Angiograms, venography
- 5.4. Exposure of named arteries and veins
- 5.5. Knowledge on great vessel disease including aneurysm and dissections
- 5.6. Spinal cord, cerebral protection during Cardiovascular Surgeries
- 5.7. Bypass and non-cardiopulmonary bypass strategies for major aortic surgeries
- 5.8. Abdominal aortic and iliac artery surgery
- 5.9. Recognition and management of visceral ischemia
- 5.10. Arterial aneurysm and pseudoaneurysm
- 5.11. Lower extremity bypass surgeries
- 5.12. Fundamental techniques of endovascular surgery
- 5.13. Knowledge and technical skills in carotid artery disease and carotid body tumor
- 5.14. Knowledge on atherosclerotic arterial disease
- 5.15. Knowledge of vascular and trauma and its management
- 5.16. Technical skills on exposure of arteries, vascular anastomosis, embolectomy, thrombectomy, endarterectomy, fasciotomy, amputation
- 5.17. Hemodialysis access creation
- 5.18. Recognition and management of Deep Venous Thrombosis
- 5.19. Varicose vein and vascular malformations
- 5.20. Venous insufficiency
- 5.21. Diabetic foot and vascular management
