Pediatric Heart Sounds
Michael E. McConnell
with contributions by Alan Branigan

Pediatric Heart Sounds
Why another book to teach auscultation? Isn’t the use of the stethoscope a “lost art”, totally unnecessary in the age of echocardiography and “hand held” imaging “stethoscopes”? The answer is that there is perhaps no other physical examination skill that a physician making patient care decisions must have that is more important, even now. If a patient complains of fever and a cough, a chest radiograph interpreted by someone else will either confirm or rule out the diagnosis of pneumonia, and a quick look in a textbook can tell the physician the next course to take. When a patient comes to the office with no complaints, and on auscultation has a soft systolic murmur, only good physical examination skills will allow the examiner to reassure the patient that the murmur is non-pathologic. There is unfortunately ample evidence that auscultatory skills are very poorly taught to medical students and residents [1]. Research does show that intensive instruction, followed by reexamining patients with known lesions, will improve the diagnostic accuracy. Unfortunately, in busy practices, the ability of the learner to listen, discuss the findings with the preceptor, and to listen again is often lacking [2]. The inability to appreciate abnormalities of precordial activity, to critically listen to the first and second heart sounds, and to discern the difference between a pathologic murmur and a functional one often leads to unnecessary testing, and potentially leads to missed diagnoses.

There are ample sources to help improve physical examination skills, many written by the true great teachers of medicine. Yet, in spite of these, auscultation skills are poorly learned. With the advent of new “multimedia” technology, perhaps auscultation can be more effectively taught. Unfortunately, recent evidence with some multimedia teaching tools suggests that the learning is still ineffective [1]. The CD-ROM that accompanies this text uses a novel approach to educate the learner about auscultation skills. It is not meant to be an exhaustive “encyclopedia”, listing every possible abnormal sound that the heart can make. The goal is to get the learner more comfortable using the stethoscope in an organized fashion, and once they have the organized system of auscultation, to improve their ability to tell pathologic from normal heart sounds. The cardiac sounds on the CD-ROM were recorded from patients with the specific cardiac abnormalities listed, and the specific pathology was confirmed using echocardiography. The programmed nature
of the CD-ROM forces the learner to critically evaluate all aspects of the cardiac examination. By placing the findings in the spread sheet, and getting immediate feedback on correct and incorrect responses, the learner’s ability to listen critically should improve.

References


Contents

Natural History ........................................ 60
Surgical Options ........................................ 61
  Auscultation ........................................ 61
Subacute Bacterial Endocarditis Prophylaxis Recommendations (SBE) .................. 62
References ........................................ 63

6 Aortic Stenosis ........................................ 65
  Introduction ........................................ 67
  Anatomy ........................................ 67
  Physiology ........................................ 68
  Natural History .................................... 69
  Auscultatory Findings .............................. 69
  Subacute Bacterial Endocarditis Prophylaxis Recommendations (SBE) .................. 71
  Summary ........................................ 71
  References ........................................ 71

7 Pulmonary Stenosis .................................. 73
  Introduction ........................................ 75
  Anatomy ........................................ 75
  Physiology ........................................ 76
  Natural History .................................... 79
  Auscultatory findings .............................. 80
  Subacute Bacterial Endocarditis Prophylaxis Recommendations (SBE) .................. 82
  References ........................................ 83

8 Mitral Valve Insufficiency ........................... 85
  Introduction ........................................ 87
  Anatomy ........................................ 87
  Physiology ........................................ 89
  Natural History .................................... 89
  Surgical Options ................................... 89
  Auscultatory Findings .............................. 90
  Mitral valve regurgitation from a cleft mitral valve ................................. 90
  Mitral valve regurgitation from a prolapsing mitral valve ......................... 91
  Subacute Bacterial Endocarditis Prophylaxis Recommendations (SBE) .................. 92
  References ........................................ 93

9 Tetralogy of Fallot .................................. 95
  Incidence ........................................ 97
  Anatomy ........................................ 97