Evolution of the Bedside Exam

Guys Hospital - Sir Harold Ellis, Professors Standring, Barry, Bannister, G.H. Tressider – Multiple Countries

Science, Anatomy and Clinical Medicine

Jagiellonian University

Guys Hospital
Reverse Translational Research COMP-NW

Digital Clubbing

Hippocrates Hand & Foot
  Have we lost it clinically???

Critical thinking
  Culture!
  Thought process!
  Way of life!

Digital Clubbing

5th BC
1937
Digital Clubbing

Can result from cardiovascular, respiratory, gastrointestinal and endocrine conditions.
Can be familial in normal subjects.
May develop rapidly, as can be the case with empyema (a few weeks), however, its onset is generally gradual
Mechanism is not fully understood. Bones of the phalanges in the hand and foot are normal.

When underlying cause is successfully treated, clubbing usually resolves.

erenally gradual.
GI – Inflammatory Bowel disease - Crohns - Ulcerative colitis
Cirrhosis
Coeliac
Familial
Endo – Thyroid acropachy

Anatomical Transcendentalism
The highest degree of anatomy
after details have been ascertained, then
advances to the consideration of the type or plan of structure
the relations between the several parts, and the theoretical problems thus suggested.

3000 years of physical diagnosis
7 crucial developments

Hippocrates
Vesalius
Hippocrates established medicine as a profession declared medicine has foundation with rational basis
Vesalius published accurate human anatomy text in 1543, Dissection of human bodies for educational purposes
Morgani established morbid anatomy (pathology) in 1761.

Sydenham's defines disease 1666-1683.

Auenbrugger invented percussion diagnosis in 1760.

Corvisart further expanded percussion diagnosis in 1808, personal physician to Napoleon Bonaparte.

Laennec invention of stethoscope in 1816, student of Corvisart (rolled paper).

Muller created foundation for experimental laboratory science 1830-1900.

Osler applied previous 6 developments to medical education at John Hopkins in 1893, revolutionizing medicine.
From 1880 to date, physical examination was replaced by
Laboratory tests
Imaging studies

Birth of modern physical examination was in 1761
Leopold Auenbrugger initially described the
technique of percussion – father - casktapping

After 30 years of refining percussion, Corvisart
republished percussion treatise in 1808 which
brought France, its hospitals to an eminent level
Physicians were perceivers of pathophysiological
signs
Rene Laennec student of Corvisart, rolled paper to
chest & created first stethoscope
Percussion required a trained technique a
experienced ear
Auscultation with a stethoscope produced immediate
sounds never before perceived

In the latter half of 19th century, medical innovation
moved from hospitals of Paris to Germany
Johannes Muller published Handbook of Phys 1st to
include chemistry & comparative anatomy
Beginning of 20th century, physical sign reached an
apex of clinical importance
For more then 100 years physicians had impressed
patients with their perception of regions of the body,
heart murmurs, tendon reflexes, BP, retinal vessels
Role of physician as an exceptional perceiver began in
1761 with Auenbrugger and percussion, not 1895
C.W. Rontgen
Working up patients in the ER these days involves shotgunning multiple unnecessary tests (everybody gets a CT!) despite the fact that we know they don’t need them, and being aware of the wastefulness of it all really sucks the love out of what you do.

Patients are unhappy because their doctors don’t touch them.

Physical Diagnosis

Rise of technology initially did not separate the patient and physician
On the contrary, Stethoscope brought the 2 closer together
X-ray changed how physicians related to their patients
X-ray technology made physicians value vision over hearing and touch
In time the x-ray and laboratory specimens separated the physician and patient

Triple feedback
1. Surface anatomy
2. 3-D internal anatomy
3. Motion anatomy

Global, Dynamic-Motion, Illustrative layering
Anterior – Posterior - Lateral

Preparation Technology
Triple feedback

Synthetic touch classic ultrasound
- Novel finger probes
- Google Glass
- Palpation & Visual
- Stethoscope

Triple feedback equipment
- Novel transducer
- Classic transducers
  - a) Sonosite HFL 50
  - b) Fukuda Denshi LA38
- Novel transducer
Glass with novel ultrasound finger probe with Glass image – Triple feedback

Supraspinatus

Triple feedback – Glass & novel ultrasound finger probe

FAST Thorax Exam
3 point FAST exam targeted at the thorax
4 areas viewed

Mitral Valve

Triple feedback – Biplanar array
Richard Cabot

Believed in student participation
Andragogy approach
Restless souls who cannot be made to the common mold,
Valuable in keeping their communities and professions in a ferment by their constant challenge to the existing order of ones thought and actions

Vision & Passion
Triple Feedback