Anatomy Treasure Hunt:  
Introducing Geriatrics Concepts in Anatomy

Faculty Guide  
November 2011

This enhancement for Anatomy was developed by Dr. Richard Besdine at the Warren Alpert Medical School of Brown University as part of the Donald W. Reynolds Foundation grant to improve education of medical students concerning care of older persons. This faculty guide was developed as part of this initiative and adapted with permission. The program involves 3 components:

(1) A brief introductory lecture introducing first year medical students to geriatrics and normal changes due to aging using the old age of their cadavers and their death certificate diagnoses as a window to the importance of aging.

(2) Independent prep module which students review prior to the Anatomy lab sessions with geriatricians which introduces the concept of homeostenosis and reviews changes associated with aging in the renal system using histological and gross specimens.

(3) Two workshops in the anatomy lab in which geriatricians review the gross anatomical findings of the cadavers and provide important clinical perspectives.

Goals of the program:

1. To introduce geriatrics early in the medical education curriculum.
2. To use the demographic information and the gross anatomical findings of the cadavers as teaching points for normal aging and common medical problems in aging.
3. To provide a medical and clinical context for students about how their cadavers may have lived and died.

I. Anatomy Lab Workshop Session:

a. Faculty members will be assigned to specific cadaver tables, each with 4-5 students. The # of tables for each faculty will be dependent on the # of faculty participating in the lab. Faculty should spend about 15-20 minutes with each cadaver group, reviewing organ findings and making clinical correlations.

b. Format:

i. Keep discussions very basic (avoid complicated discussions, abbreviations or medical jargon), as students are very early in their medical education.

ii. Consider showing interesting findings to other groups.
iii. Start with the overall assessment of the cadaver: size, atrophy of muscles, overt signs of medical interventions (e.g., tracheostomy holes, radiation therapy, tattoos, peg tube sites, surgical scars, pacemakers).

iv. Review thorax organs (usually in bags under the table) – heart (size, left ventricular hypertrophy, scars, fatty tissue, aneurysms), lungs (blebs, color, tumors, impact of pollution or smoking), vessels (calcification, plaques, thickening).

v. Review abdominal organs (usually still attached to the body) – liver and gallbladder (surgical resection, gallstones, tumors, fibrosis, fatty infiltration), stomach (surgical interventions, ulcers), intestines (surgical resections, diverticuli, polyps/tumors), pelvic organs (resection, size, ovarian cysts).

vi. Consider reminding students and reviewing information contained in the prep module which illustrates normal changes of aging in the renal system and the concept of homeostenosis.

vii. Before finishing with each table try to summarize the findings and your interpretation of who this person was and how they may have lived and died.

II. Key Teaching Pearls:

a. Muscle Atrophy or Sarcopenic Obesity – typically, cadavers have muscle atrophy, whether there is a lack of or an abundance of fat. If the cadaver is thin, you can discuss failure to thrive at the end of life, cachexia, etc. If the cadaver is obese, you can talk about functional limitations with obesity and the implications of sarcopenic obesity.

b. Effects of Tobacco Smoking – This is an excellent opportunity to see the impact of tobacco, especially on the lungs. You can demonstrate the discoloration from tar in the cigarettes, and the gross findings of COPD such as blebs, bullae, loss of tissue density.

c. Cardiac – Students have not had much physiology at this point. They have had some introduction to basic cardiac function in the thorax unit. This is an opportunity to view pathology of the heart. If the heart is not dilated and there is LVH but the diagnosis is CHF, you can talk about diastolic CHF and how that could impact their life. If there is evidence of ischemia (scarring), then you can discuss systolic dysfunction in its basic form.

d. Renal Atrophy – A common finding in the cadavers is renal atrophy. You can discuss the implications with hypertension control, anemia, and vitamin D production.

e. Osteoporosis – Many cadavers have hip replacements, and this provides an opportunity to discuss that most of the cadavers probably had osteoporosis and may have had a hip fracture, which affected their function and may have reduced their life expectancy. Although fractures and hip replacements won’t be revealed until much later in the course this would be a useful prelude to later dissection. Osteoporosis is often
seen during hemi-section of the pelvis (scheduled later) in both lumbar vertebrae and sacrum.

Dissection schedule:

Wed 11/30/2011 3:00-5:15 Viscera in situ and celiac trunk
Thurs 12/8/2011 10:00-12:45 Posterior abdominal wall

Anatomy Lab Geriatrics Treasure Hunt Examples:

1. LVH
2. Cardiac dilatation
3. Myocardial infarction
4. Brain atrophy
5. Aortic valve sclerosis or stenosis
6. Aortic calcification
7. Stroke
8. Brain tumor
9. Shrunken kidneys, renal artery atheroma causing renovascular HTN
10. Hip fracture, hip or knee replacement, osteoarthritis of joints
11. Pneumonia
12. Pulmonary embolus
13. Solid cancers-i.e. colon, lung, breast, liver, stomach Gallstones
14. Diverticulosis
15. BPH
16. Enlarged lymph nodes
17. Skin cancers
18. Foreign bodies: pessary, stent. Implant, valve, joint replacement, pacer, graft, IVC filter
19. Subdural hematoma
20. Lung disease