Histopathology in a Cadaver Population of a Medical School Anatomy Laboratory

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Citation

Abstract
This “mini-study” was conducted to determine how much pathology could be harvested in one month’s time in a modern medical school anatomy laboratory consisting of 38 cadavers. Based only on gross observations, specimens were collected from various organs of selected cadavers to examine microscopically. The cadavers used had only exposed thoracic and abdominal/pelvic cavities during this time period. These were inspected for interesting or “abnormal” findings by a 4th year medical student along with the first year medical students assigned to the table. Therefore, not all organs were sampled, and not all cadavers were selected. This was done purposely to determine if significant pathology could be obtained even under “limited” conditions.

INTRODUCTION
The first year medical school anatomy laboratory is a traditional rite of passage. Observation and dissection of internal human organs and structures are vital to the foundation of medicine. Students painstakingly cut into each body with diligence trying to remember the names of the vessels, nerves, ostia, sphincters, foramina, and fossae. This is a very overwhelming though necessary exercise in acquiring both medical knowledge and skill. Though more schools are leaning toward videos and virtual dissection, it might be argued that the anatomy laboratory itself is a fertile source of information which can supplement other disciplines in medicine such as histology and pathology (1). Each organ has tissues and cells which have a story to tell for each cadaver - the medical student’s first patient.

This “mini-study” was conducted to determine how much pathology could be harvested in one month’s time in a modern medical school anatomy laboratory consisting of 38 cadavers. Based only on gross observations, specimens were collected from various organs of selected cadavers to examine microscopically. The cadavers used had only exposed thoracic and abdominal/pelvic cavities during this time period. These were inspected for interesting or “abnormal” findings by a 4th year medical student along with the first year medical students assigned to the table. Therefore, not all organs were sampled, and not all cadavers were selected. This was done purposely to determine if significant pathology could be obtained even under “limited” conditions.

METHODS
Within four weeks time, a variety of pathology was collected (see Table 1).
RESULTS

Of the 38 cadavers, 27 were sampled in some capacity. The majority of the specimens came from the lung which showed findings such as emphysema, bronchopneumonia, aspiration pneumonia, and small cell carcinoma. The next major organ sampled was the liver which showed findings which included cirrhosis, chronic hepatitis, and good examples of Mallory bodies. Myocardial samples in a few enlarged hearts indicated myocyte hypertrophy and interstitial fibrosis, and two cadaver hearts showed evidence of a possible remote myocardial infarction. Kidney findings included chronic interstitial nephritis with chronic inflammation, interstitial fibrosis, and thyroidization in several separate samples as well as evidence of hypertension in the renal vasculature. The female reproductive system was represented by an endometrial polyp, ovarian stromal hyperthecosis, paratubal cysts, and leiomyomata. There was one sample of a testicle with dilated epididymis and decreased sperm production. Although a few examples of the appendix showed fibrofatty obliteration of the tip, typical in an elderly population, the gastrointestinal system (as evidenced by sections from the stomach) was not amenable to microscopic examination secondary to severe autolysis. However, the pancreas, which is usually very autolyzed had two examples of extensive adenocarcinoma. In one case, the pancreatic carcinoma had metastasized to the omentum and ovaries. Miscellaneous lesions included vascular aneurysms, extramedullary hematopoiesis of the spleen, fibrocystic changes of the breasts, cardiac valves with nodular calcific degeneration and fibromyxoid degeneration, and several intramuscular lipomas.

DISCUSSION

The information gathered from this small, short study allows some elucidation on the opportunities afforded by the medical school anatomy laboratory other than strict gross dissection. Each cadaver not only offers histological review, but different pathologies accessible for learning. Nothing can replace a “hands-on” approach to medical education, and integration of curricula – anatomy, histology, and pathology- by a simple, already in-place process (i.e. the anatomy laboratory), can serve the medical student well. This is something that on-line, computer generated programs cannot reproduce. Each cadaver becomes an important source of anatomy, histology, and pathology with its own story. The original rite of passage thus becomes richer because of its breadth and depth.
References
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