

Interactive Cases using the Medical Stories of a Living Anatomical Donor

Fabian Ortiz, Carrie Elzie, Laurie Wellman, Russ Clark, Craig Goodmurphy

Introduction

Narrative medicine is an important and expanding new field that recognizes the value of storytelling in the acts of doctoring. Narrative competence involves recognizing, absorbing, metabolizing, interpreting and being moved by the stories of illness. Our goal was to incorporate this valuable aspect of medicine into the gross anatomy course with first year medical students. To do so, we have taken the illness stories of one living anatomical donor, Mr. Clark, and transformed them into interactive cases and discussions to teach not only the humanity of medicine, but also the anatomical sciences.

Methods

Five digital interactive cases were generated combining Mr. Clark's personal narratives of his medical encounters, his own medical records and relevant anatomical content using Articulate Storyline. 1st year medical student reviewed the cases prior to attending a discussion session with Mr. Clark facilitated by a physician where students were allowed to ask any questions which ranged from personal feelings to medical details to financial implications.

Interactive Cases

HUMANISM	CASE TOPIC	ANATOMY
Cost of avoiding treatment Special populations (Military) Cost of Care Evidence Based Medicine	Compression Fracture of Back	Parts of a vertebra Dermatomes Appropriate Imaging Modalities
Unexpected complications Dismissal of concerns by physicians Slow access to a specialist	Post-operative Vision Loss	Cranial Nerve Gross Review Arteries associated with the orbit Visual & Light Reflexes
Unknown Heart Attack Last minute surgeon replacement Gratitude	Heart Attack & Bypass	Coronary Arteries EKG Heart Plain Film & Ultrasound
Misdiagnosis Diet & Nutrition Toll of Medical Testing	Cholecystectomy	Referred Pain Abdominal Imaging Surgical Relationships
Communication with physicians Disagreement/doubt with treatment Living with chronic disease	Arthritis and Navicular Fracture	Bones of the foot Arterial supply Imaging & Ultrasound

Prior to ending each session students were asked to submit reflections on what they believed to be principle takeaways from each of the cases. Thematic analysis was completed and the top three responses were recorded.

Weekly focus group feedback was collected and qualitative analysis of the sessions were collected at the end of the course as part of the course evaluations. The following semester students were asked to recall the names of the patients and their diagnoses they completed in the fall semester from both the virtual family cases and Mr. Clark cases.

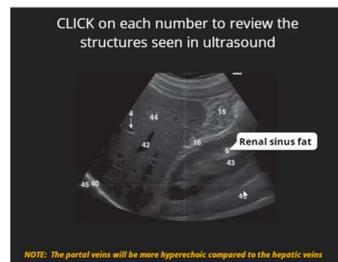


Figure 1: Example screenshot from the Cholecystectomy case. Students learn the ultrasound anatomy by clicking on the structures.

Top 3 Themes Associated with the Cases

1. Chronic pain & suffering
2. "Tough it out" military mentality
3. Compression fractures

1. Shock/Scare of a heart attack
2. Quadruple bypass
3. Positive attitude

1. Fast recovery/Burst of energy
2. Laparoscopic cholecystectomy
3. Diet/nutrition

Figure 2: Top three themes that emerged when students were asked "List three things that you remember most about the case".

Results

Course Evaluations

- I loved the Mr. Clark storylines and sessions! He is terrific and provides us with a truly invaluable learning opportunity. It also really **helped to keep the humanistic aspect at the center** of our education
- **Introduce more people like Mr. Clark** to class, maybe different people for different semesters. It makes all the studying purposeful.
- I really enjoyed having Mr. Clark around this semester, and especially that we got to interact with him outside of the Mr. Clark sessions. Learning from his cases gave us a taste of following a patient through many stories, as well as **learning real-life case studies.**
- **Made it real.** Knowing the person, seeing how operations feel from the patient's perspective. It's pretty cool.
- Having Mr. Clark present was a more consistent **reminder of the fact that we are becoming physicians to treat people,** not just memorize facts and score well on tests
- I greatly enjoyed the Mr. Clark cases which emphasized the importance of **appreciating the whole person and their story, not just a patient with a list of symptoms.**

Case Patient	Patient Diagnosis	% Recall
Rena Pascual	Leukemia	32.55814
Ethan Mansour	Sickle cell	55.17241
Carols Pascual	Hyperammonemia	20.73171
Elizabeth Jones	Osteogenesis Imperfecta	20.22472
Naomi Suzuki	Carnitine def	37.64706
Edwin Moses	Colon Cancer	25.64103
Christine Pascual	Osteoarthritis	10.34483
Jason Snyder	Atrial Fibrillation	7.058824
Charlotte James	Orthostatic Hypo	51.76471
Mr. Clark	Compression Fracture	46.66667
Mr. Clark	Post-Operative Blindness	93.25843
Mr. Clark	Quadruple Bypass	90
Mr. Clark	Cholecystectomy	56.32184
Mr. Clark	Foot Fracture	95.2381

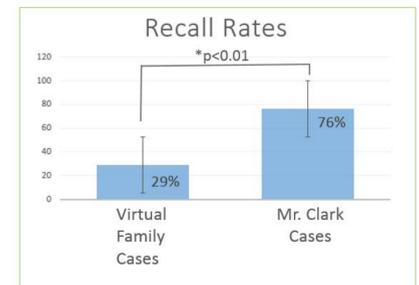


Figure 3: Percent students who correctly recalled the patient and their diagnosis

Conclusions

Shifting the curriculum from cases that used virtual patients to an anatomical live donor has shifted the medical narrative toward a conversation that is more compassion and humanized and aids in student knowledge retention. The relative improvement in the course content and positive reviews is a good indicator to continue to collect more data in the future classes to further qualify the benefit of the live donor. Currently, we do encourage all anatomy programs to reach out to prospective donors, as the addition of their stories, has truly enhanced our anatomy course and our students' learning. The interrelationship built between the class and the live donor has provided a more humane medical narratives that has yet to been achieved in the past with a simulated virtual patient.

