Utilization of Ultrasound Simulation to Teach Students
Pregnancy location, Fetal biometry & Counseling

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Background

- Medical student teaching curricula rarely teach students the art of obtaining informed consent for common procedures from patients, counseling particularly if abnormalities are detected.
- In Obstetrics & Gynecology clerkship, ultrasound skills are rarely taught.
- Students are not adequately taught how to appropriately counsel a patient regarding abnormal blood test results / fetal ultrasound findings.
- To remedy this, a minimester course was devised for second year medical at University of Texas Medical Branch (TMH), Galveston

Methods

- First week of minimester course included lectures and background knowledge on certain pregnancy complications such as miscarriage, preterm labor, preeclampsia, and major anomalies detected on fetal ultrasound.
- Their problem based learning (PBL) case was about fetal gastrochisis, which is an abdominal wall defect in the fetus detected by ultrasound during second trimester.
- During 2nd week, the process of counseling, the ethics behind it and how to foster the best physician-patient relationship was demonstrated.
- Students received hands on experience with ultrasound simulation models to learn fetal biometry and detect intra-uterine and ectopic pregnancies. They saw ultrasound images of major anomalies and learnt how to counsel patients.
- A student survey was performed with specific questions regarding their comfort level in counseling patient regarding an abnormal quad screen test result, performing abdominal and transvaginal ultrasounds.

Results

- Twenty four students participated.
- 83% agreed course helped to identify gaps in their knowledge.
- 96% felt it allowed integration of scientific information with clinical medicine topics.
- A voluntary survey asked the student on Likert scale of 1 to 5:
  - Q1: Can you counsel patient with abnormal quad screen?
  - Q2: Can you counsel patient with fetal ultrasound showing abdominal wall defect?
  - Q3: Can you measure early fetal biometry in viable pregnant patient?
  - Q4: Can you diagnose early intrauterine pregnancy by transvaginal ultrasound? Results shown in graph below.

![Likert Scale](Image)

Ultrasound simulators used: fetal biometry & transvaginal

Discussion

- There are limited studies reporting use of ultrasound simulation in Obstetrics & Gynecology (1). Most studies utilize simulation to teach invasive procedures (2). Earlier, ultrasound images of previous cases were utilized to help training physicians to gynecologic pathologies (3). These did not address student communication skills and professionalism which was stressed in this minimester course.
- The AAMC requires obtaining consent and counseling as a core objective which needed to be met in our curriculum. This course facilitates that requirement.
- Further research is warranted on the best content and format to achieve these targets.
- The ultrasound simulation models will be used in resident, medical student and nursing student training workshops to help develop basic ultrasound skills in Obstetrics & Gynecology.

References

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We report an interesting case of drug interaction between warfarin and vaginal miconazole preparation, presenting as a small bowel intra-mural haematoma necessitating surgery.

The incidence of intramural haematoma of the small bowel in the setting of anticoagulation is a rare but dangerous complication estimated to be 1 in 2500.

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**Methods**

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**Aim**

To investigate the effect of selective activations of the D3 receptor (D3R) on gastric motility in the rat.

**Results**

**D3R is present in the rat stomach**

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**Conclusions**

- Our data show that activation of D3R impairs pyloric relaxation of D3R impairs pyloric relaxation
- We report an interesting case of drug interaction between warfarin and vaginal miconazole preparation, presenting as a small bowel intra-mural haematoma necessitating surgery.
- The incidence of intramural haematoma of the small bowel in the setting of anticoagulation is a rare but dangerous complication estimated to be 1 in 2500th.
Contamination from oral flora and polymicrobial endocarditis should be considered in an IVDA with anaerobic bacteremia. We emphasize the importance of obtaining a detailed history of the intravenous drug abuse.

**Right sided involving tricuspid valve**

- Persistent fever and pulmonary symptoms
- Most common cause is *Staphylococcus aureus*

**Unusual Organisms & Unusual Practices**

- Neisseria sicca found to cause IE in IVDA who licks blood off needle of an unsuccessful stick before next attempt.1
- Haemophilus parainfluenzae found to cause IE in IVDA who blows into and sucks on needles to ensure patency.2
- Pseudomonas species found to cause IE in IVDA who washes needle in contaminated water.3

**Causative Organisms in Our Patient**

- Actinomyces odontolytica, Veillonella species and Prevotella melaninogenica are oral anaerobes.
- Anaerobes cause peridental disease, dental plaque, pleuropulmonary disease, abscesses, genital tract infections.
- A part of a cluster of organisms on the dorsal and lateral surfaces of the tongue as compared to other organisms and other locations.4

**Patient was re-interviewed regarding his IV drug use habits.**

- The patient admitted to reusing needles and routinely licking the needle to dorsum of tongue before inserting it into his arm.
- The numbing effect of the cocaine on his tongue allows him to determine the quantity of cocaine that he will inject into his bloodstream for desired effects.

**BLOOD CULTURES**

- Actinomyces odontolytica, Veillonella species, Prevotella melaninogenica
- HACEK organisms negative after 6 weeks incubation

**Endocarditis in IV Drug User**

- Right sided involving tricuspid valve
- Persistent fever and pulmonary symptoms
- Most common cause is *Staphylococcus aureus*

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