"My Belly Hurts": Approaching Abdominal Pain in the Pregnant Patient
Problem Based Learning Case
Instructor's Guide

Goal, Objectives, Background and Materials

Goal

The purpose of this PBL module is for third year medical students in their OBGYN clerkship to evaluate a patient presenting with abdominal pain during pregnancy as well as review the diagnosis, physiology, complications, and management of acute pyelonephritis in the pregnant patient.

Educational Objectives

1. Students will be able to generate a differential for abdominal pain in a pregnant patient that accomplishes the following:
    a. Includes both OBGYN and non-OBGYN causes of pain
    b. Considers timing of presentation in pregnancy
    c. Distinguishes urgent conditions from non-urgent conditions

2. Students will be able to list and explain the timing and purpose of routine prenatal labs and studies, as well as make predictions about which studies have been completed based upon the patient's gestational timing.

3. Students will be able to define asymptomatic bacteriuria, explain its clinical significance in pregnancy, and describe its management in the pregnant patient.

4. Students will be able to explain methods of diagnosing and management of acute pyelonephritis in pregnancy, as well as identify risk factors and complications.

5. Students will be able to compare and contrasts systemic inflammatory response syndrome, sepsis, shock and severe shock.

6. Students will be able to describe microbiological/biochemical nature of the elements of urinalysis that aid in diagnosis of urinary tract infection, as well as identify factors that limit the effectiveness of UA in diagnosing UTI. Examples of elements include: nitrites, leukocyte esterase, Microscopic WBC & bacteriuria, urine culture

7. In addition to identifying physiological changes to the urinary system that occur during pregnancy, students will be able to explain how these changes place pregnant patients at risk for UTIs.

Background

Traditionally, the third and fourth years of medical school are dedicated to developing clinical knowledge. In these years, the focus of study shifts toward learning management and diagnosis of disease, and away from the basic science of disease and its treatment. This problem-based learning (PBL) case is designed with the idea of maintaining focus on relevant basic science content as students advance their clinical science training. Returning to basic science concepts serves to strengthen the clinical reasoning fostered during the latter half of medical school.

At Case Western Reserve University, the third year curriculum includes a weekly session featuring PBL cases designed to aid students revisit basic science concepts they may encounter on their rotations. As part of the School of Medicine's curriculum, students design and present cases. This PBL case originated for this purpose. We, the authors, initially developed and presented this case to peers. The case grew out of inpatient OBGYN experiences. During this experience, we came to appreciate that there are many aspects of medicine that seem "routine," but become more complicated in the pregnant patient. For example, the topics of urinalysis and UTIs, of which students may be tempted to presume mastery, assume a different significance when considered during pregnancy. Similarly, abdominal pain, treatment of infection, and even routine care take on different meanings in the pregnant patient. The case reviews basic science concepts around changes in physiology in pregnancy and urinalysis to help students improve clinical knowledge about pyelonephritis, a serious condition in pregnancy.

Timing, Format and Materials Needed

Total Time: approximately 3 hrs
Reflection Trigger Discussion: 30-45 minutes
Case: 2hrs 15min- 2hrs 30min (including a 10 min break)

The PBL styled case is designed for use in groups of 8 to 12 third year medical students, currently on their OBGYN clerkship, and a facilitator. Ideally, the facilitator should be an OBGYN resident or clinical faculty member.

- A small group room for each group of 8 to 12 students
- Access to white board, or large poster paper, with markers
- Computer with Microsoft PowerPoint and projector/large monitor

Resource Files Included

- Instructor's Guide
- Facilitator's Guide
- Case Presentation (including reflection trigger)
- Student Feedback Form

Thoughts About Roles During the Case

Facilitator

Facilitators play a delicate, but critical role as a resource in the PBL case experience. Facilitators assume the common "referee" roles one might expect, such as time keeper, attendance taker, keeper of documents, and of course, maintaining group focus on the case. However, the real strength of a proper facilitator is in his/her ability to allow students to take ownership of the case and lead their own discussion as a group. The facilitator is a resource, with expert knowledge that can and should be shared, but only when the group needs clarity to proceed. The facilitator should not freely provide answers, but first challenge students to use their own knowledge. Later the facilitator can tie up loose ends should there be any

Students

Student should drive the case. They respond to prompts throughout the case with discussion and drawings. The goal of this format is for students to share their expertise and learn together. Students propel the case with responses, questions and examples generated around the case's content. This requires students to take turns being teachers and learners. The key to a successful session rests in the students' ability to take ownership of the case and work with the content to create their own learning experience.

Pitfalls and Tips to Deal with Them

- **Facilitators dominating discussion:** Students should lead the case discussion. Facilitators can be the experts that they are and share their knowledge, but only after the group seems to be at a loss.
- **The presentation dominates the session:** The presentation has plenty of information for students to think about, and at times, sections within the presentation are miniature lectures. However, these sections are offset by a plethora of opportunities for student to discussion questions, generate differentials, ask original questions, and draw diagrams on board. The break down should be 60/40 with 60% of time being student conversation
- **Students are reluctant to participate:** This session is designed to be a group activity and no one student is expected to know everything that will be discussed. Facilitators can help set a climate of teamwork by making it clear that students benefit by participating in any capacity—be it asking or answering questions, writing on the board, or summarizing thoughts. Also, facilitators can try using more wait time after asking questions before feeling compelled to intervene. Students may be thinking in that short pause after the question, so give them a chance to finish that thought.
- **Failing to collect feedback:** Collect feedback from student before they leave the session. Regardless of how the session went, feedback will inform the next attempt with the case.

- **Getting stuck on unanswered questions or unclear details:** Moving on from sticking points in order to cover the remainder of the material is the responsibility of both the group and the facilitator. It's appropriate to discuss difficult questions, but to a reasonable extent. A decision must be made to acknowledge the loose end and move on. No group (even with an expert) will have an answer for all questions. The facilitator's guide includes supplementary information, beyond what the case strictly requires, for the purpose of addressing potential student questions. However, the guide cannot anticipate all questions, and good teamwork is needed to move on.
- **Students can struggle with generating a differential diagnosis**. It's important to identify a systematic approach to thinking about a differential diagnosis. A suggested "bucket" approach is outlined in the facilitator's guide. Having a system will help focus student thinking. The authors suggest having a scribe track suggestions on a board. This allows students to hear and understand all suggestions offered by peers and afford opportunities for questions. Keeping the group focused and organized is both the group's and the facilitator's role. Facilitators can make suggestions about process and content as they feel is needed. The facilitator's guide has supportive information about relevant diagnoses, and facilitators should judiciously share this information to support the process.

Feel Free to Customize to Your Own Need

This module is designed to be a self contained PBL style activity for 3rd year medical students in the conditions described above. The authors of this module would like to encourage users to think about their own ways to enhance the educational value of this activity, or any adopted activity, to fit the needs of their own learners. For instance, the authors of this module worked with faculty of the Anatomy Department at Case Western Reserve University as well as faculty of OBGYN department at University Hospitals Case Medical Center to create associated activities that suited our student population. We built skills and basic science activities around the module included here. One session reviewed pelvic anatomy relevant to abdominal pain. As this module was very early in the clerkship cycle, we also included a pelvic exam review with trainer models. The entire experience, including both additional sessions and the module, took about 4 hours. The authors describe this only as an example of how to expand upon the experience of this module, should a user wish to do so.