



SAVING LIVES - REDUCING RISK

From The Editor

In this issue we turn back to the basics - the failure to diagnose appendicitis. Even with advances in technology, the failure to diagnose appendicitis remains a significant patient safety and physician risk issue. CT scanning can confirm or confound decision-

making. The use of contrast and the failure to visualize the appendix can dramatically delay intervention. As you read through this case, consider if and when you would have intervened with-

out ANY lab or imaging information!

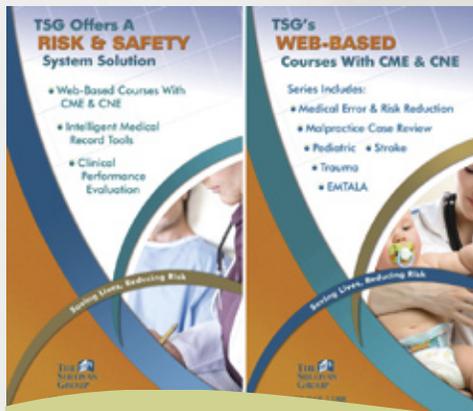
EMTALA Update



There is a recent summary and update regarding EMTALA; it is timely and relevant and should be of great interest to our readers.

Pay particular attention to the proceedings in the sixth federal circuit regarding EMTALA and admissions. [Click here](#) for access to the document.

TSG has asked for and received permission to provide you with access to this material ■



If you plan on attending the ACEP Scientific Assembly, please stop by to see what's new.

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Case Review

A 32-year-old male presented to the ED by ambulance. He was triaged at the bedside at **0130 with the following vitals:** Temp 101.2°F (38.4°C), BP 122/70, P 91, R 16. He complained of right lower quadrant abdominal pain and vomiting.

The emergency physician (EP) saw the patient at 0200. He documented on the record that on abdominal examination, the patient had tenderness in the right lower quadrant with rebound and guarding. The EP's initial impression was appendicitis.

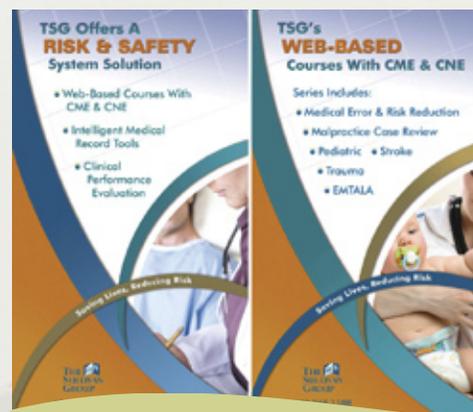
STOP! *Do you need a complete blood count (CBC) and a CT scan? The patient is febrile and the other vitals are within normal limits. The patient has peritonitis. Do you call surgery, or order labs and imaging, or both?*

The EP ordered a CBC, urinalysis, and a CT of the abdomen. At 0230 he ordered an IV of normal saline at 250 cc/hr and Demerol and Phenergan for pain. The nurses completed the administration of contrast at 0400.

The patient's pain improved after the initial Demerol injection, but returned at 0500. The physician ordered another dose of Demerol and Phenergan at 0510.

The primary nurse repeated the patient's **vital signs at 0530:** Temp 100.5°F (38°C), BP 118/81, P 110, and R 20. The CBC revealed a white count of 10.2 with a left shift. The urinalysis was normal.

The day nurse assumed care at 0600; her initial note indicates that the patient was not feeling well and was still waiting for the CT scan. **Vital signs at 0630** were: BP 119/69, P 120. The patient was transported to CT at 0700. The physician ordered antibiotic administration just prior to the patient's transport to CT.



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TSG Upcoming Lectures

ACEP Scientific Assembly

- 1** **Medical-Legal Risks in Times of Everyday Crisis**
Tues., Sept. 28 @ 8:00 a.m.
- 2** **Medical Liability - A Short Cut to Resolution**
Tues., Sept. 28 @ 1:30 p.m.
- 3** **The Mills Lecture - Compassionate Care or Death Panel: The Dilemma of Futile Treatment in The ED**
Weds., Sept. 29 @ 12:30 p.m.
- 4** **Taking the Stand - Real Malpractice Cases - Bad Outcomes? You Decide**
Thurs., Sept. 30 @ 8:00 a.m.

The initial pulse was 91; subsequent readings were 110 and 120. Is there a nursing obligation to inform the physician about a change in condition? There was no such documentation in the record. Could this information have caused the physician to change course? Possibly.

The patient returned from CT at 0730; the radiologist noted that the appendix was not seen and recommended a repeat scan with rectal contrast. The EP discussed the CT results with the on-call surgeon. The on-call surgeon also requested a CT with rectal contrast.

The second CT scan was performed at 0950 and showed right lower quadrant inflammatory changes and probable localized appendiceal rupture. The radiologist called and discussed the results with the EP. The EP called the surgeon with the new CT results at 1030, but the surgeon was in surgery and could not come to the emergency department.

- **1030 vitals:** Temp 101.2°F (38.4°C), BP 116/69, P 152, R 38
- **1130 vitals:** BP 112/67, P 144, R 38
- **1230 vitals:** BP 123/73, P 156, R 36

The on-call surgeon finished his surgery and saw the patient in the ED at 1300. He diagnosed an acute abdomen and recommended emergent surgery. The patient coded several times in the ED before he could be trans-

Proven Reduction in Medical Errors

Proven Reduction in Claims



ported to the OR. He was resuscitated and sent to the ICU, but he arrested again and died. The CBC ordered just before the patient expired revealed a hemoglobin of 4.7. The preliminary autopsy report showed a perforated appendix and massive intra-abdominal hemorrhage.

Discussion

1. **The Failure to Diagnose Appendicitis.**

The failure to diagnose appendicitis and the delay in diagnosis of appendicitis and appendiceal rupture remain common causes of patient injury and malpractice litigation. Although this case involved the emergency department, this presentation touches many medical specialties. Advances in technology have not solved or managed this problem. In this case, technology probably contributed to the patient's demise.

2. **What Was the Key Mistake?** There are so many issues in this case, but there is one key issue. The emergency physician recognized that this patient had an acute

abdomen. The patient was febrile, had a left shift, and had abdominal findings of an acute abdomen. The next step had to be either rapid CT and surgical evaluation or skip the CT and call for immediate surgical evaluation.

3. **Was Ordering the CT Within the Standard of Care?** That is an issue for the jury. This case obviously could not go to a jury, and it was settled out of court, so there is no answer to the standard of care question. Medical experts would



argue both sides on this issue. The fact is that many patients with a similar presentation get a CT scan. It is hard to second-guess the emergency physician without standing in his shoes. Many emergency physicians

and surgeons would order a CT in this setting.

4. **Delay in CT.** The other obvious problem here is the delay of several hours for

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contrast administration as well as the wait for transport to CT. Then, when the patient was clearly deteriorating and needed operative intervention, the surgeon asked for a repeat CT. The fault on this issue is shared between the emergency physician and the hospital. The patient's vital signs were deteriorat-

ing and the delay in CT was unreasonable. The emergency physician had to intervene at some point and either get the CT done or get the surgeon in to evaluate the patient. The emergency physician should not have allowed the second CT order. At that point, the patient clearly needed operative intervention. The delay for the second CT was a medical error.

COMING SOON OB/Gyn E-Learning Courses

TSG is very excited to announce the addition of Dr. Henry Lerner to our National Risk and Safety Collaborative. **Dr. Lerner is a nationally recognized expert in shoulder dystocia** and has been focused for over a decade on patient safety and risk mitigation in the practice of Obstetrics and Gynecology. Together with TSG, Dr. Lerner has developed an entire cycle of risk and safety in OB/Gyn called the OB Risk Initiative. The E-Learning courses are listed below. We will report on the full cycle of risk and safety in the OB Risk Initiative in our next newsletter. Welcome Dr. Lerner!



OB/Gyn E-Learning Courses

- Anatomy of Medical Negligence Lawsuit
- Appendicitis
- Case 07: A 27 Year-Old Female With Abdominal Pain
- Cognitive Errors in Obstetrics & Gynecology Part 1
- Cognitive Errors in Obstetrics & Gynecology Part 2
- Ectopic Pregnancy
- Medical Assault & Battery



OB/Gyn E-Learning Courses

- Neonatal Asphyxia
- Peripartum Cardiomyopathy
- Pitfalls and Liability in Labor
- Pitfalls and Liability in Prenatal Care
- Postpartum Hemorrhage Part 1
- Postpartum Hemorrhage Part 2
- Pulmonary Embolism Part 1
- Pulmonary Embolism Part 2
- Shoulder Dystocia



- 5. Pulse-Temperature Disparity.** The medical literature is clear on this issue. Pulse and temperature are related and rise together in a linear relationship. The pulse increase in this case was significantly out of proportion to the patient's temperature. This often signifies severe disease, which in this case was sepsis. It is surprising how often sepsis will increase the pulse well before the white count becomes



elevated or there is a significant increase in body temperature. Physicians often are not aware of the pulse-temperature disparity issue, but it is a common finding in sepsis-related medical malpractice litigation.

- 6. Who Breached the Standard of Care?** The emergency physician breached the standard of care in delaying definitive management (surgical management). Unless the evidence indicates that the surgeon completely took over the care of this patient, the emergency physician clearly breached a standard of care. If the surgeon was aware of the patient's clinical condition, then he or she also

breached the standard of care. Whether the surgeon was aware or not will depend on what transpired during communications with the emergency physician. If the surgeon was not made aware of the patient's condition, then he or she may not have delayed management.

- 7. The Emergency Department Nurses.** It appears that the emergency nurses failed to adequately evaluate the patient through the emergency department stay. In particular, there is a period of time from 0630 through 1030 when there was no documentation of the patient's condition or vital signs. Since the 0630 vital signs were significantly abnormal, the emergency nurses were required to monitor vital signs on a more regular basis. In the intervening time period, the patient's pulse went from 119 to 152, indicating a significant change in condition. During that same time period, there were no nursing progress notes describing the patient's condition. It appears as if the patient was in 'hold' status and was not evaluated by either the nurse or the physician.
- 8. The Surgeon Was in Surgery. What to Do?** When the emergency physician contacted the surgeon following the second CT, the surgeon was busy and could not respond. What should have occurred at that time? The patient's condition was



obviously critical; he had an acute abdomen with very abnormal vital signs and needed operative intervention. The emergency physician's obligation was to get the patient to surgery. He should have attempted to enlist the help of another surgeon or get the patient to another hospital with an available surgeon. This delay is unacceptable. The emergency physician should have either used the medical staff chain of command to make something happen or transferred the patient.

- The Delay Probably Caused Injury.** One of the key issues in malpractice cases or in peer review is whether a physician's conduct caused injury. This is one of the four essential elements of a malpractice action. On arrival, the patient had normal vital signs other than the elevated temperature. It was not until several hours after arrival that his pulse began to increase; however, it was not until approximately 8 hours after arrival that the pulse was measured as dramatically abnormal. This delay certainly appears to have resulted in this patient's death. It is pos-



sible that the patient would have died anyway, but it seems likely that earlier intervention would have saved this patient's life.

Conclusion

The failure to diagnose appendicitis remains a significant problem for emergency medicine and other medical specialties. Advances in technology typically result in rapid diagnosis and a decrease in the failure to diagnose. Ironically, the increased use of CT scans to rule out appendicitis may actually delay the diagnosis and result in increased morbidity and, as in this case, mortality.

Controversy remains over optimal CT technique. However, that is not the key point in this case. Contrast is often used, but the emergency physician must monitor time to CT and avoid significant delays. The delay in CT may well have resulted in this patient's death.

While the patient waited for the CT scan, the combination of the physical findings plus the worsening vital signs was adequate to call for emergent surgical evaluation. The emergency physician must be aggressive in this setting and get the surgeon on board early. Appendicitis remains a clinical diagnosis.



WHAT'S NEW

The Texas Medical Board has approved four courses for two hours of Ethics CME.

[Learn More](#)

Ten Reasons Your Emergency Department May Not Be As Safe As You Think It Is.

[Learn More](#)

CT may augment physician decision-making, but it should not replace it.

Once the nurses recognize that the patient's condition is critical or there are significant abnormalities in the vital signs, there is a continuing obligation to

re-evaluate. This obligation must be reflected in the progress notes and vital sign record. The failure to provide and document ongoing evaluation is a common criticism in malpractice litigation.

This patient's death was probably avoidable. Good teamwork may have avoided this outcome. The physician could have intervened

earlier; the nurses may have questioned the delay in CT or facilitated more rapid transport to CT. The nurses could have brought worsening vital signs to the physician's attention and documented that fact in the record. Finally, continuing education focused on patient safety and high-risk diagnoses, clinical decision assistance at the bedside, and ongoing performance evalu-

ation can help bring the emergency department team together and avoid morbidity and mortality ■

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