PBLD – Table #3

"This Kid Just Doesn't Look Right" - Gut Feelings in a World of Evidence Based Medicine

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Objectives:

- Support the role of the preoperative clinic as a "home" for the surgical patient

- Examine the role of the anesthesiologist as an advocate in the modern medical structure and critique the appropriate degree to which an anesthesiologist should advocate for the patient.

- Appraise the role of "gut feelings" in a culture of evidence-based medicine

- Illustrate an example of a case where expertise leads to a clinical concern when objective measurements are reassuring

Case history:

A 3 year old previously healthy boy presents to the preoperative clinic for evaluation prior to an elective T&A for sleep disordered breathing. An experienced nurse pulls you aside and states that she is concerned about him - he has cervical lymphadenopathy and seemed winded when he ran down the hall. When you see him he is happy and playful, but something about him just doesn't seem right to you.

Questions:

What are the main reasons why children have T&As at this age? Do you see these kids in the preoperative clinic at your institution, or just on the day of surgery?

What does being "winded" mean in an otherwise "healthy" 3 yo child presenting for surgery?
Why is he winded and why should we, as anesthesiologists, worry?
Is this finding due to airway obstruction (upper vs lower) or cardiac disease?
Can it be a normal finding?

What weight do you give to the "gut feeling" of the experienced nurse? What weight would you give it if it were a new nurse? What weight would you give it if it was a trainee?

Do you trust your "gut feelings"? Why should you trust them? Why shouldn't you?

Case history and physical examination (continued):
On examination, he has marked cervical lymphadenopathy. Through an interpreter the mother states that he is having trouble breathing at night. He has been in and out of the emergency department and received several courses of antibiotics and dexamethasone for tonsillitis without improvement. The mother is concerned about his general health, but is unsure if he has had any weight loss.

Questions:
What would you do next for this child?

Are there any cardiovascular consequences to sleep disordered breathing?

Is there anything on your differential diagnosis other than adenotonsillar hypertrophy for this child?

Would you send this patient for any further work-up?
What labs would you want?
What imaging would you want?

Does the mother's level of concern change your level of concern? Why or why not?

Preoperative studies:
You ask another anesthesia colleague to see this patient and they are equally uneasy about this child. You are unable to get in touch with the attending surgeon so you send the patient to the ED for further work up - the ED physician calls you and you state that you are concerned that the child may have increased pulmonary pressures from severe OSA and that you are also concerned about the degree of lymphadenopathy. This concern is not shared (the child is happy and playful and the other physician is not impressed by the lymphadenopathy), but you request that at the very least a CXR and a blood panel for CBC, differential and LDH be performed.

The CXR reveals an abnormal right heart border and subsequent ECHO is normal. CBC reveals a slightly elevated WBC count with differential revealing only mild changes, but no blasts. The LDH is slightly elevated (the lab slip mentions this could be from hemolysis) and the Uric Acid is borderline elevated. The child is sent home from the ED.

Questions:
What is your responsibility to this child? You have just met them, are not their primary care provider, not their surgeon, and not likely the anesthesiologist that will care for them?

Should the preoperative clinic become more of a "surgical home" where concerns can be brought to bare by surgeons, primary care providers, consultants and other anesthesiologists?

With an abnormal CXR and normal ECHO, what are you concerned about at this point?

What further imaging tests would you want?

What would you do if the ORL fellow who saw the child in the ED was also unimpressed with the cervical LAD? Would you call an attending surgeon?

Should the child have further consults? Is it your place to order these consults? Which consults would you want?

Preoperative progression:
You speak with the attending ORL surgeon who knows you - when you state that you are concerned it causes him concern. The child returns for a sedated CT scan, which reveals that the enlargement is merely enlarged normal appearing thymic tissue. Lab work is repeated, which is similar to that previously obtained in the ED. The ORL team "curbsides" Hematology who state that the constellation of finding likely represents a viral response, but that an oncology visit should be scheduled. You assume that this means that the case of postponed.

Questions:
Is an enlarged thymus normal in a 3-4 year old child? Is this a reassuring finding?

In this situation, the "gut feeling" of one physician was meaningful to another physician. What is the role of established relationships among care providers in the complex medical arena? When is it helpful? When is it not helpful?

The ORL team is organizing care at this point - they are ordering tests, "curbsiding" teams and arranging followup care. Do you have a continued role in the care of this patient? To what degree should you "follow up" on his evaluation? If you disagree with management, do you have a right to express this to the patient? Do you have a responsibility to do this?

Intraoperative care:
Despite your assumption that this case was to be delayed, it proceeds as scheduled. The anesthesia team caring for this child is not aware of the concerns for malignancy - they see that there was a concern for cor pulmonale, but that this was adequately addressed preoperatively. They also see that the followup CT was read as normal thymic tissue, not a mediastinal mass. During the case the surgeon notes grossly abnormal tonsillar tissue and is concerned enough that he sends it to pathology for flow cytometry. Repeat labs are drawn, which return near the end of the case. The repeat labs reveals a child with a platelet count in the 80's, elevated WBC with 58% blast cells, an LDH of 1300 and a significantly elevated uric acid level. He is admitted to the oncology service and treatment is initiated.

Questions:
Why was this situation dangerous for this child?

What is Tumor Lysis Syndrome? Why did the perioperative period potentially exacerbate the problem? Are there drugs routinely given for T&A that should have been avoided?

Postoperative care:
That patient had an uneventful operative course, but his platelets continued to drop and he needed multiple transfusions in the next few days to keep them up postoperatively. He was treated with several doses of raspirucase as well as hyper-hydration for TLS. He was diagnosed and treated for Acute T-cell Lymphoma and is currently in remission.

Discussion:
Tonsillectomy and adenoidectomy is one of the more common procedures we encounter as anesthesiologists. These children often present with symptoms of fatigue, sleep disordered breathing and recurrent viral infections involving lymphadenopathy. We present a case of a child with undiagnosed T-cell lymphoma who presented to the preoperative clinic. He had symptoms that were not far from the usual for children presenting for T&As, but something about him piqued the interest of members of the preoperative staff. Ultimately his evaluation began, which was not normal but was no so abnormal as to warrant a more aggressive investigation. He had intraoperative blood work repeated, which revealed a life threatening blast crisis with tumor lysis syndrome (TLS) that would have not been picked up as quickly without his preoperative evaluation.

The Tumor Lysis Syndrome is a medical emergency that occurs most frequently in children with non-Hodgkin's lymphoma or leukemia. It is caused by the massive release of tumor cell contents and can occur both spontaneously and as the result of chemotherapeutic treatment, including dexamethasone. In fact there is a case report of intraoperative dexamethasone leading to fatal TLS in a child receiving a tonsillectomy who did not have a preoperative evaluation by anesthesia.[3] This cell death can lead to significant hyperkalemia, hyperuricemia, hyperphosphatemia and hypocalcemia. If left unchecked, these disturbances can lead to cardiac arrythmias, seizures and renal failure. Ultimately, if left untreated, these effects can lead to multi organ system failure and death.[4]

We present this case as a leading point for a discussion of the role of the anesthesiologist as a patient advocate and the degree to which this role should be invoked. Recently, the ASA has proposed the concept of a "Perioperative Surgical Home" with the anesthesiologist as the "perioperatist" as a means to provide more standardized and streamlined care, and with the ultimate goal of reducing morbidity and mortality. This is viewed as an expansion of the current scope of practice for most anesthesiologist as they become a "perioperatist". Given the number of anesthesiologists who have also trained in a primary care specialty (internal medicine, family medicine or pediatrics) it may also offer an avenue through which they can

utilize a broader swath of their skill set.[6] Groups like the UAB perioperative Surgical Home Group are currently investigating the efficacy of a Perioperative Surgical Home in improving overall patient care.[7]

This case also brings up the concept of "gut feelings", which are sometimes present even in the absence of overt clinical findings. The idea that "this kid just doesn't look right" is reason enough to pursue a clinical course may seem to go against the culture of evidence based practice. However, there is evidence in the medical literature that "gut feelings" are frequently used in the diagnostic process.[5] One study even explored the hypothesis that non linear decision making, including "gut feelings", often led to correct decisions.[1] An observational study of clinicians caring for pediatric patients found that the clinician's intuition that a child was more ill than their objective assessment indicated was a strong predictor of severe illness. Two of the strongest independent predictors were the overall response of the child and the level of concern of the parent, both of which were present in the case presented.[2]

With a growing body of data for each clinical encounter and the increasingly complex environment of medical care, "gut feelings" are sometimes undervalued. We discussed a case where "gut feelings" played a substantial role in the evaluation of a child with an undiagnosed, severe illness.

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