REFLECTION

Indication

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ABSTRACT

Should the indications for therapies differ from one nation to the next? What are the reasons behind controversial therapeutic variations? What roles do cultural history and authoritarian conflict among clinicians play in the adoption of therapies? When I worked at a rural hospital in Kenya, a woman experiencing obstructed labor made me ponder many questions—but only after our emergency ended in the death of her newborn son. In recounting and learning from this episode, I listened to the disparate Kenyan voices of the patient, the hospital's director, the consultant obstetrician, and to the even more controversial voices of evidence-based medicine. In reflecting on this process, I have learned at least 3 lessons—about the transmissibility of arrogance, the role of guests in other countries, and the nature of science.

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Saturday hospital rounds on all the wards were finally finished as the equatorial sun reached its noonday zenith. Rainy season had begun. Toddlers, now febrile or even comatose from malaria, filled the children's ward. In the adult wards rural folks recovering in traction from trauma or post-op from typhoid perforations were joined by their less fortunate friends, village neighbors diminished by AIDS, manifest most often as tuberculosis.

By noon I had finished rounds for all the patients. The clinical officers would cover admitting at the Casualty Department of this 80-bed Lugulu Friends' (Quaker) Hospital in rural western Kenya. As the only doctor on the station, I looked forward to a restful afternoon, punctuated only, I hoped, by the predictable late afternoon tropical downpour, a staccato snare-drummer on the zinc roof, interrupted at intervals by the kettle-drum—a mango tumbling from its tree above the doctor's house.

At 12:30 pm the rain was still hours away when Mrs C, a 21-year-old farmer's wife, emerged on a makeshift stretcher through the sliding door of a *matatu* (minivan). I could find no referral note from her health center on the lower slopes of Mount Elgon near the Uganda border. But Mrs C told us this was her first pregnancy, and that she was 9 months along—and more than ready to have her baby!

WHAT MRS C SAID

Mrs C said her waters broke at 8 pm, followed by labor pains at 10 pm on Friday, the night before. Heeding the nurse-midwife's advice to first-time mothers that she heard at all 4 of her prenatal visits, she and her husband came promptly, arriving just before midnight at the Mt Elgon health center. Mr C told us that the midwife used her hands and ears to monitor his wife's contractions, and, after her vaginal examinations, she had put a circle and an X on a paper graph every 4, and then every 2 hours. But at 10 am, after 12 hours of labor, the midwife had told them to go the Lugulu Friends' Hospital.

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On arrival at Lugulu, Mrs C's vital signs were all normal. She seemed tired from her lengthy labor and the jostle of the *matatu* journey, but calm in the knowledge that now she would soon become a mother. Lugulu's certified midwife, the best of all external fetal monitors, with her hand on Mrs C's uterus, reported fairly strong contractions, lasting 50 seconds about every 3 minutes.

The midwife and I agreed that our findings during the patient's abdominal examination were normal. The baby's head was vertex (down), and we heard its heartbeat best in the mother's right lower quadrant at 140 to 150 beats per minute with good variability. Still, as the midwife felt the next contraction, pressing her Pinard ear trumpet firmly to the lower uterine area, she heard the fetal heart rate at 90 to 96 beats per minute late in the contraction. And again with the next contraction… and the next.

By Leopold's maneuvers, used in Commonwealth and other nations to determine descent of the baby toward the birth canal, I judged only two-fifths of the head to be above the pelvic brim, and, thus, engaged in the pelvis. External examination showed thin meconium at the swollen vaginal outlet, but no bleeding.

On an internal vaginal examination, the cervix was fully dilated, the fetal head was right occiput anterior and had descended to the ischial spines, confirming engagement—all reassuring findings. During the infant's journey though this first stage of labor, however, its skull had become considerably molded, conforming to the birth canal. More ominously, there was not the least descent with the strong next contraction…or the one after that. The molding and failure to descend, coupled with Mrs C's long, exhausting labor, made it unlikely that motherhood would come without help. And the deceleration of the fetal heartbeat near the end of each contraction made rapid help imperative.

WHAT I SAID

Mrs C fulfilled all the classical criteria for symphysiotomy, a procedure in which, after local anesthesia, the clinician uses a scalpel to cut through the cartilage of the pubic symphysis while 2 assistants hold the mother's legs, allowing the pelvis to open 2 to 3 cm, leading to prompt delivery of the baby.[1,2] I first checked the vacuum extractor, which might have helped me to pull the baby's head through the birth canal. It leaked. Not an auspicious time to repair it—and with the skull molding, I judged vacuum extraction unlikely to be successful. Meantime the ward midwife started intravenous fluids and placed the urethral catheter, the first essential step for symphysiotomy. If the carefully defined criteria (indications) are met, symphysiotomy, which is relatively rapid and simple,[3,4] can be done in the labor ward in an emergency.[5,6] In contrast, in some facilities where cesarean section is available, it may take considerable time to assemble the operating team. This was certainly true here in Lugulu—and especially on a Saturday. To be optimally prepared to resuscitate her baby, however, we wheeled Mrs C to the nearby operating room. With the indications for symphysiotomy clearly fulfilled, I now expected that her baby would soon be born and, I hoped, despite the late decelerations, would be healthy.

She and her husband would not fear to bear her next child at the small health center near their isolated farm, secure in the knowledge she had no cesarean section scar on her uterus that might rupture if the next delivery were as prolonged and difficult as this one. Indeed, as I briefly explained to Mrs C, her next delivery might well be much easier, with the slightly, yet definitely, larger pelvis that results from symphysiotomy.[7]

On our arrival in the operating room, the lone surgical technician on duty was incredulous at my explanation of how few and simple are the instruments needed for symphysiotomy. Having carried from the labor ward a routine delivery pack, I asked now only for lidocaine, a 10-mL syringe, a number 20 scalpel, and 2 assistants to stabilize Mrs C's thighs in the stirrups, preventing them from coming together after the division of the symphysis.[7] Instead, with some bewilderment, the surgical technician began to open a cesarean section pack.

At this point, the on-call nurse left for the adjacent room, where there was a telephone.

WHAT MATRON SAID

Within a few minutes, the hospital's head nurse—the Matron—appeared and recommended a cesarean section (C-section). When I again explained extremely briefly these classic indications for this simple procedure, Matron responded that if a mother has difficulty delivering vaginally, we are to perform a C-section—and that she had just sent out a call for the full weekend operating room team. This firm and apparently immutable policy, Matron said, emanated from the medical director of the hospital, who a few years before had completed his residency in surgery at Kenyatta National Teaching & Referral Hospital at the University of Nairobi. We worked together daily but had never discussed this scenario. He was away in his hometown for the weekend.

With little to do while the operating room team slowly assembled, I weighed Matron's measured words, the authority they calmly conveyed. Silently,

I reviewed the indications. I considered Mrs C, her baby, her husband, their arduous journey, their trust. I knew that I was a welcome guest, yet still a stranger, in this land. Should I "speak in the house of my hosts?"[8]

I did not speak. We proceeded with the C-section.

The anesthetic technician, on call instead of the nurse anesthetist, chose to use inhalational general, rather than a spinal anesthesia. With the aid of a nursing assistant pushing up the head vaginally, we delivered from the lower segment incision an infant boy, who appeared to be full-term. He was blue and floppy with an Apgar score of 3. I handed him to the anesthetist and his nursing assistant. All the items for neonatal resuscitation were at hand; however, neither nurse appeared to be as competent in neonatal resuscitation as the regular weekday operating room team.

I waited in vain for a cry, any sign of activity from Kenya's newest citizen on this stultifying Saturday....

Had we done a symphysiotomy, I knew in my heart, the procedure would have delivered this child many minutes earlier.[9] I could then have turned to assist the nurse in reviving the baby.

Instead, I was at the operating table trying to control the considerable uterine bleeding. The hemorrhage abated somewhat with ergotamine and fundal massage. Still, Mrs C's blood pressure fell to 90/70 mm Hg. Her pulse rose to 150 beats per minute. Fortunately, instead of the chronic anemia of many mothers in the tropics, her admission hemoglobin had been 15.9 g/dL. Likely, this high concentration resulted from a combination of the effects of dehydration from her long labor and the mild anoxia of the 7,500-foot elevation of her village, well above malaria transmission. She was strong and healthy, without the "maternal depletion" that often develops with serial pregnancies. This full-term baby boy was Mrs C's first.

He died.

Some bleeding continued as I closed the lower segment uterine incision. By this time I estimated a blood loss of 1,500 mL, which we replaced with 2 units of blood and 500 mL of saline. Further fortified by oxytocin and more ergometrine, the vital signs of Mrs C, the would-be mother, now stabilized near normal. As I closed her abdominal incision, I inflicted on myself the only needle-stick injury of my year in Kenya. The patient's blood drawn at that point had a hemoglobin of 12.9 g/dL—nearly normal.

I awaited the results of her human immunodeficiency virus (HIV) test.

Mrs C vomited as her breathing tube was being removed. The anesthetist, with his full attention back on Mrs C after the failed resuscitation, successfully suctioned her airway. Now conscious enough to see her dead firstborn son, Mrs C was wheeled on a gurney back to the postpartum ward, "in stable condition." Or so I wrote.

WHAT BOAZ SAID

Some weeks later, I was back at Moi University in Eldoret. Now it was near the end of my year in the fledgling Family Medicine Division at Kenya's newer medical school, on the western edge of the Great Rift Valley. I narrated this experience to the head of the Department of Reproductive Health (obstetrics & gynaecology), Dr Boaz Nyunya-Otieno. Like all Kenyan obstetricians, and indeed all Kenyan specialists, he had completed his residency training at Kenyatta National Hospital in Nairobi. Familiar with the medical literature and the indications for symphysiotomy, and certainly experienced in situations such as Mrs C's, Dr Nyunya recounted why, despite his qualifications and experience, he had never performed the procedure.

When the University of Nairobi medical school, Kenya's first, was founded in 1967, 4 years after independence, its founding faculty members were virtually all expatriate, mostly British. Some of the enduring advances in obstetrics had emanated from this university and others like it in Africa. Among the most well-known contributions of the British professor and head of the Department of Obstetrics-Gynaecology at Nairobi was his refinement of the technique, indications—and contraindications—for symphysiotomy.

So why, I asked, given their renowned mentor, were the graduates of his obstetrics department loathe to perform his signature procedure, even when all the well-defined indications were met?

The reason, responded Dr Nyunya, had little to do with evidence, experience, or opportunity, and everything to do with human relationships, power, and authority, particularly as Kenyan professionals emerged in those early years after independence. The professor's obstetrics residents (registrars) read the same medical literature as did he. In contrast to the professor, however, they questioned why they should be learning symphysiotomy, long abandoned in Europe—and considered by some in the developed nations as outmoded, or even barbaric.

When the professor retorted, citing his experiential evidence for the procedure's utility when presented with indications such as Mrs C's, his understudies saw him as high-handed, inflexible, and authoritarian—in short, colonial. But the prestigious authority of professors, at least in that time and place, had the virtual force of fiat, and to a degree it still does. So the rising stars among these new Kenyan obstetricians, chafing under these pronouncements, bided their time.

Not many years later, the professor and most of his expatriate faculty colleagues moved on to other

British Commonwealth nations or returned home to the United Kingdom. Thus did symphysiotomy suffer its reversal of fortune in East Africa. Shortly after the departure of that professor, the senior Kenyan obstetrician, now the new professor, issued an edict. No less authoritarian than that of his resented mentor, he pronounced symphysiotomy a primitive procedure forced upon Africa by the colonialists—and unworthy of his new and advancing nation.

WHAT DOES THIS STORY SAY?

That was what Boaz told me. What did he teach me? As I now reflect, I believe this story is not about Africa; it's not about gurus—good or bad; ultimately it's not even about symphysiotomy.

It's a Story About Attitudes—Not Africa

Most who read this likely will not work in Africa, but the issues raised by this experience are not about any specific place, person, or period. Authoritarian attitudes, arrogance, and the acrimony they engender can be vertically transmissible to the next generation anywhere in the world. They can poison the waters of collegiality and enlightened enquiry.

It's a Story About Being a Guest—Not a Guru

Being a guest in another nation—or on anyone else's turf—is more challenging than being a guru, however enlightened or expert. Faced with the situation just described, what is a guest to do? Act in what we may believe to be the best interest of the patient involved, or respect the edict of our host? Do guests over time earn the right, or even incur a duty, to disagree with their hosts? If so, how long might that take to evolve? It took me 6 years as a general practitioner working for the community's hospital board in Papua New Guinea, before I felt I had perhaps earned a duty to disagree.[10]

It's a Story About Science—Not Symphysiotomy

If universal evidence undergirds so-called best practices, why do our clinical decisions differ, dependent, it would seem, on time, place, and person? Why does science have controversies rather than universal agreement?

The 2010 Cochrane analysis, recognizing the "controversy surrounding the use of symphysiotomy" but finding no randomized trials, calls on "professional and global bodies [to] provide guidelines."[11] Meanwhile, according to the best international meta-analyses,[12,13] the advantages of symphysiotomy are incontrovertible when specific, well-defined indications are present.

Is it merely incidental that, like much of evidence-based medicine, these reviews were assembled by physicians from developed nations? Was the new Kenyan professor of obstetrics right when he pronounced symphysiotomy a primitive procedure invented by colonialists for the colonies?

Among the most recent examples of this symphysiotomy dichotomy is the 2010 publication by the American Academy of Family Physicians of a new adaptation of the respected course and guide to emergencies in childbirth, *Advanced Life Support in Obstetrics* (ALSO), widely used by resident and practicing family doctors in North America. This adaptation of ALSO, for use in developing nations, is called *Global ALSO*. *Global ALSO* has a chapter on symphysiotomy.[14] The North American version does not. Although there are highly defensible reasons for both versions, a divide does persist.

Did a baby die in Kenya because I did not insist on symphysiotomy?

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