Morgan W. See

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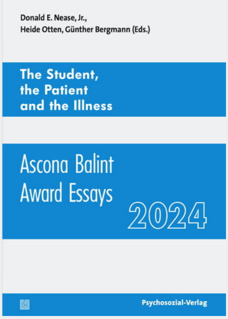

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Virchow’s Legacy: Beyond the Science of Medicine

Reflections from a Rural Australian Medical Student

Morgan W. See

Preface

Rudolf Virchow, a German Pathologist from the 1800’s, has been a great source of inspiration for me since I began medical studies. Virchow’s triad of clot formation is not only a universally accepted cornerstone of medical education, but a foundation principle of most curriculums. *Endothelial dysfunction, hypercoagulability, stasis of blood flow*: this triad epitomises the “science of medicine” and is Virchow’s most identifiable legacy.

Yet, Virchow has another significant legacy in medicine, a legacy which was the focus of my coursework in the social determinants of health, which I completed immediately prior to medical school. In all course readings, Rudolf Virchow is referred to as the “Father of Social Medicine”.

This identity stems from a time of political turmoil in 1800’s Germany when Virchow proclaimed that doctors have a unique role in society to serve as natural attorneys or advocates for their patients. Natural advocacy, according to Virchow, extends beyond the consult room to patients’ home lives and the living conditions which are detrimental to their health.

In the days before patient-centred care was placed at the forefront of medical school curriculums, Virchow was a trailblazer in the “art of medicine”. This legacy and his legacy of the “science of medicine” have endured for the past 200 years and continue to epitomise the balanced perspective that medical practitioners need when assessing patients.

Like many of my contemporaries in medical studies, I strive to embrace both legacies in clinical placement. I am aware that Virchow intended for the science and art of medicine to be woven equally into the mosaic quilt of a doctor’s clinical practice, not for the two domains to be considered dichotomously; yet, my limited experience has highlighted how quickly the balance can tip to favour one domain over the other.

This paper explores my personal experience of the tentative balance between the science and art of medicine which is at the heart of my clinical practice as a medical student. Through an explanation of a clinical encounter with a patient, I will reflect on the insight that I have gained about the importance of embracing both domains when advocating for patients. This balance is what good patient-centred care is all about.

What follows is a detailed explanation of a patient encounter, the context of my approach, my supervisor's feedback and a conclusion which highlights the need for medical students to use Virchow's domains to ensure they advocate for their patients and place them at the centre of all clinical decisions.

Part I: The Science of Medicine

I had just moved from a metropolitan hospital near Sydney to a beautiful rural area of northern New South Wales, where "coast meets country", for a final twelve-month rural placement to round out my medical degree. With pre-clinical years and short-term hospital rotations behind me, this year would be dedicated to understanding the more nuanced approaches to the "undifferentiated patient" in emergency department and primary care settings. It presented a unique environment for me to learn as much as I could about patient-centred care.

Each day, I alternated between a general practice clinic and the local emergency department. The nature of the clinical supervision was referred to as "parallel consulting", which, as I have learned, equates to the privileged position of "junior doctor with training wheels on". The patient was invited to consent to an initial appointment with me as the medical student. Given the shortage of doctors in rural Australia, with sometimes a waiting period of four weeks to see a general practitioner, patients are usually willing to comply with this request for an initial medical assessment. Following the patient's consent, I would undertake a history and examination, then report my findings to my supervisor. Ideally, this would be done in a concise manner and followed up with a proposed diagnostic workup including my differential diagnoses, investigations for consideration and a management plan for the patient.

With every individual patient encounter, I found my supervisor's teaching approach to be both instructional and collaborative. I would explain that "Patient

X has presented with symptoms A, B, C, in the context of D …" Following each case presentation, my supervisor questioned specific findings in my history and exam and suggested modifications to my proposed management plan. To me, it seemed that the number of follow up questions by my supervisor appeared to inversely correlate with the proficiency of my case presentation.

"Are you happy to see the medical student before you go in and see the doctor?"

Prior to calling in the patient from the waiting room, my approach was to read through the doctor's recent notes and investigations about the patient, along with any hospital discharge summaries which would be flagged through the practice software. Many patients were often long-term patients who needed new prescriptions and were often unaware that I wasn't qualified to prescribe for them just yet. The days were busy at the clinic, and I found myself invested in "patient flow" through the practice to ensure everything was running smoothly and the waiting room wasn't becoming too congested.

Mid-morning on one autumn's day, I was reading through my next allocated patient's notes. Attached was a discharge summary from the small rural hospital's emergency department. As I began to read through the notes, I could hear friendly banter in the waiting room. It was Bob, my next patient, debriefing the waiting room on the weekend's football match. Bob was the maestro, and the rest of the waiting room was his orchestra.

I continued to read Bob's discharge summary from the emergency department. An abbreviated version read as follows:

Bob Jones is a 72-year-old male who presented to the emergency department over the weekend with symptomatic anaemia in the context of two days per-rectal bleeding. Bob's bloods were taken, and his haemoglobin was recorded at 87 g/L, with a microcytic anaemia detected suggesting likely gastrointestinal blood loss given his clinical picture. Bob was treated and stabilised with 2 x units of packed red blood cells and was advised to seek GP advice regarding further investigation.

Before hearing Bob's version of events, I felt I had a grasp of the "science of medicine" in which I was soon to practise. I contemplated the frameworks I would employ once Bob entered the consult room. I would screen systematically for potential sources of gastrointestinal blood loss. My mind bounced around, thinking of questions to elucidate useful information about any colorectal cancer symptoms, other vascular pathologies suggestive of angiodysplasia, any history of haemorrhoids or constipation, or liver disease contributing to possible rectal varices or coagulation disorders. The problem-solving, scientific nature of the medical history and examination was appealing to me; it's in part why I wanted to enter the medical profession in the first place.

Part II: Meeting Bob

"Bob Jones," I called.

Bob approached me as I waited by my consult room door with the adjoining sign "Medical Student".

As Bob approached, I greeted him in the usual way that I greeted all patients.

"Mr Jones, my name is Morgan See. I'm the medical student at the practice. Thanks for your time. Just this way."

I ushered Bob into the room.

Bob was a tall man, with a commanding presence. I could now understand his waiting room enthusiasm about the weekend's game; Bob looked like he might have been a rugby player in his earlier days. He reached out a calloused hand and greeted me with a firm handshake and unwavering eye contact. A typical country greeting. Bob appeared a bit pale in complexion, but that was to be expected given his discharge summary.

It was immediately apparent that Bob truly was a country gentleman with impeccable manners. His description of his time at the emergency department aligned with the discharge summary.

The salient features from my assessment of Bob included:

- 3 weeks of on and off painless PR bleeding, mixed with stool
- Tenesmus for 3 weeks
- Increased frequency of bowel motions in the past 4 weeks
- 5 kg of unintentional weight loss in the past 2 months
- Widespread family history of bowel cancer.

From my examination, the only positive finding was left iliac fossa tenderness on light palpation.

I updated my formulation of Bob's clinical presentation from my assessment; colorectal cancer was my provisional diagnosis at this point.

With Bob still sitting in front of me, internally, I started to consider the implications of such a provisional diagnosis in terms of investigations and management from this rural location. It was at least two hours' drive to the nearest tertiary hospital where a general surgeon remained on call to see emergency cases. With Bob unlikely to qualify as an "emergency case", an additional hour of driving would be needed to reach an outpatient clinic for surgical review, where an appointment may not be available for several months' time. These are the harsh realities of rural medicine in Australia. Irrespective of the challenges of accessibility to specialist medical services, the medical history I ascertained from Bob revealed that the rurality of the health service would only be a minor hurdle to overcome, relative to his daily challenges.

Bob's history of his presenting complaint was interspersed with stories of how these symptoms were affecting his day-to-day life.

Bob continued to run a cattle property just out of town; he was a farmer who "never gets sick". He had been married to his wife for 45 years. Bob's armoured exterior did break momentarily upon me asking about his wife's health. He tearily reported that she had been diagnosed with early-onset Alzheimer's disease 10 years ago and that he was her full-time carer.

In Bob's own words, "I have a full dance card at the moment". This is an old Australian expression, one which my grandmother has often used. It describes the old school hall dances where each attendee was given a "dance card". A maximum number of "dances" with other attendees was permitted, at which point the card would become "full". For Bob to have a full dance card, meant life was very busy.

To share the company of patients like Bob is a real privilege. Along with discussing his symptoms, home life and history living in the region, Bob asked me about my own career thus far and the odds of me returning here one day as the doctor at the practice. Bob was one of those gentlemen who shook hands on arrival and departure. Graciously, he thanked me for my time and I assured him that it was I who owed him the thanks. I left Bob with a parting remark that the doctor would call him in shortly.

After Bob returned to the waiting room, I took a moment to reflect on the encounter. I probably had only five minutes before I was expected to knock on my supervisor's door, thankfully only the next room along, to give my "case presentation".

From a clinical standpoint, grounded in my understanding of the "science of medicine", I felt my clinical assessment had been thorough and suggested an underlying colorectal cancer may have contributed to Bob's symptoms and recent hospital visit.

Considering the "art of medicine" and the extent of my advocacy for Bob, I felt that the interaction itself was patient-centred and that I had understood Bob's "context" or life outside of his immediate symptoms. Even so, I was already wondering about the implications of Bob's health on the care of his wife, the effect on the farm's operation, their geographical isolation and lack of nearby service provision.

With all the complexities of Bob's case in mind, I believed that on this occasion I had utilised both the science and art of medicine, which together supported my satisfaction with a patient-centred interaction with Bob.

It was time for me to present the case to my supervisor.

"Ready for me to discuss Bob?" I asked my supervisor.

"Go for it. Tell me about Bob," my supervisor replied.

After taking in a big breath, I momentarily considered how I wanted to execute this presentation seamlessly.

I began.

"Bob is a 72 year old male who has presented for review following a visit to the emergency department over the weekend for symptomatic microcytic anaemia, with a measured haemoglobin 87 g/L. With no active bleeding found, he was treated with two units of packed red blood cells and discharged with haemoglobin at 107 g/L. This is in the context of 3 weeks intermittent painless PR bleeding mixed in with the stool, increased frequency of bowel motions and tenesmus for the same time. Bob confirms he had 5 kg of unintentional weight loss in the past 2 months. Bob had not experienced anything like this before, with no history of haemorrhoids or history of constipation over the past year. He denies abdominal pain. On examination, Bob is hemodynamically stable but appears grossly pale in appearance. He examined well, with the only salient feature being left iliac fossa tenderness on light palpation. Despite no medical history of his own, nor regular medications or known allergies, Bob has a widespread family history of bowel cancer. He has never undertaken colorectal cancer screening. He is normally very well and lives an active life as a cattle farmer just out of town, and is also a full-time carer to his wife who was diagnosed with early-onset Alzheimer's disease 10 years ago. Bob has never been a smoker and never consumed alcohol. My provisional diagnosis is colorectal cancer. Other differentials include angiodysplasia or haemorrhoids being less likely. I think that whilst Bob's symptoms can continue to be treated with blood transfusions, from my assessment I would recommend Bob to have an urgent gastroenterology referral for colonoscopy to investigate a suspected malignancy for the cause of gastrointestinal blood loss."

I exhaled. The case presentations always are a bit of a mouthful; I glanced intermittently at my supervisor for reassurance that my provisional diagnosis was sound. He remained engaged throughout the presentation, a promising suggestion that I had completed the task at the expected standard.

My supervisor nodded, contemplatively.

He began, *"From what you've told me, it sounds like a scope is on the cards. I'll see him now."*

As I returned to my desk, part of me did feel like I was making a positive contribution to this clinic. I was even bold enough to think that perhaps I had made my supervisor's job easier through Bob's case presentation.

Bob was now seeing my supervisor and I had another patient to see in the interim.

During the next break between patients, my supervisor would call me in to discuss Bob's management plan, including additional factors to be considered from his own clinical assessment.

Part III: Beyond the Science

A knock on the door from my supervisor.

"So I just saw Bob … I don't think we will be referring him for a scope."

I was perplexed. Perhaps, I had missed something quite critical in my clinical assessment of Bob. Was there something in exploring the presenting complaint that I had missed?

Had I not considered other causes of anaemia at play other than the PR bleeding?

Was this more an issue regarding rural referral pathways for colonoscopies?

My supervisor's next statement could not have been more clear and direct.

"Bob said he doesn't want to go looking for a cancer, and that if there is a cancer, he would rather it find him than vice versa".

I was quick to ask my supervisor whether Bob understood the implications of not having a colonoscopy and not "finding" a malignancy to resect or treat with other modalities. Then my mind jumped to Bob's role as carer for his wife, then to the farm itself. Did Bob really have informed consent to make such a decision? And did my supervisor have a duty to convince Bob to have a colonoscopy? My supervisor explained that Bob understood the risks of not looking for this cause of bleeding, along with the implications this may have on prognosis and his ability to care for his wife and the farm.

Bob was only 72.

I still had many questions for my supervisor about why Bob would take this course of action, but they were left unsaid and unanswered. There wasn't time for a thirty minute debrief in this busy country medical practice; however, I couldn't help but take some personal time to contemplate how I had perhaps fallen short of Virchow's patient advocacy that I had always aspired to emulate. When I have reflected upon the weeks preceding my encounter with Bob, I realise I may have been chasing a "diagnostic win", a correct scientific explanation and provisional diagnosis of a patient's presentation, at the time of discussing Bob's story with my supervisor.

An accumulation of external pressures and challenging experiences in the weeks leading up to meeting Bob tipped the scales of my clinical approach and formulation towards the science of medicine. It seemed that Bob had a medical condition that I believed needed treatment, regardless of the complex factors in his life. My learnings, and the reflections that follow, demonstrate the need to always strike a balance right between the science and art of medicine.

Part IV: Chasing "Diagnostic Wins"

For context, I'll describe the weeks leading up to meeting Bob.

I experienced my first cardiac arrest resuscitation on one unusually quiet morning in the emergency department. While examining a nine-year old for a suspected swimmer's ear infection, I received a knock on the consult room door.

The nurse unit manager calmly whispered, "*Morgan, we have a 30-year-old male patient arriving in a minute who will need you on chest compressions.*"

I suppressed an adrenaline surge and nerves I was experiencing, removed the otoscope and with my best composure at that moment, asked the young boy and his mother to excuse me for a moment.

After numerous cycles of advanced life support, the patient did not survive. There was a "hot debrief" immediately following with the eight team members at the resuscitation. While this was helpful, it did not exactly eliminate the harsh reality that no amount of study or simulations can prepare you for the loss of human life. I returned to examining the nine-year old's ear canal, my composure somewhat intact. In reality, my mind was swimming with thoughts of the young man's life that had been lost only moments earlier. I am sure that will always stay with me.

Teaching days also brought their fair share of awakenings, with no way to predict how each day would eventuate. Outside of clinical placement, the year-long rotation included scheduled teaching on a Wednesday. These days generally kicked off with an "academic ward round". This involved a group of medical students closely shadowing a general physician and resident around a medical ward with narrow hallways and tightly packed rooms.

A rural physician, one of the finest I have come across, directed questions to the five of us medical students. Despite endless hours dedicated to study, sometimes I finished a ward round without having the opportunity to provide a single correct answer to the physician's questions. In the weeks prior to my encounter with Bob, I became increasingly eager to demonstrate my clinical knowledge.

Undoubtedly, medicine is a journey of learning from mistakes. When gaps appear in clinical assessment, it makes you study harder to consolidate your knowledge for the future; I find this to be a healthier practice as opposed to feeling deflated by the experience. This is a mindset that is easier to desire than achieve.

Ward rounds, resuscitations and challenging viva voces can make medical students feel uncertain about their progress. My natural response was to attempt to become more competent with each patient experience and to gain some "diagnostic wins" when quizzed during ward rounds or case presentations to my supervisor. I recognise now that the internal pressures that I was placing on myself did not align with the dispositions of self-compassion and acceptance that are required for professional personal growth in a sustainable medical journey.

Like many medical students, I strive for excellence in all that I do, knowing that upon graduation in a year's time, I will be fully relied upon in the ecosystem of a hospital. For now, as a medical student in a rural town with a stretched workforce, there was a practical need for me to already be relied upon, just as I had been in my encounter with Bob.

What did I learn from my encounter with this country gentleman?

Part V: The Art of Medicine

When there were a few spare moments, my supervisor gave me a lesson in clinical assessment that I will never forget. He told me that Bob felt he had already lived a full life. His wife had not known who he was for the past five years due to her Alzheimer's disease. He had no other family and an aged-care bed had been secured for his wife. My supervisor said that the past ten years had clearly been demanding for Bob and considerable time had already been spent in hospitals and doctors' clinics.

Irrespective of my own personal opinion as to what course of action I would take if I were in Bob's position or some of the ethical challenges involved, the clinical encounter with Bob, and resultant discussion with my supervisor, had exposed a far more significant issue for me as a medical student. I had overlooked my role as a patient advocate. I had rushed to the science of medicine, the pathology of likely colorectal cancer, without really checking how Bob felt about the various investigative and treatment modalities at his disposal.

When my supervisor left my consult room to return to his busy schedule he remarked:

"Sometimes, the patient perspective is the most valuable part of any clinical assessment."

The weight of those words will stay with me for a long time, as they should. My empathy was what Bob needed during my consult with him. He needed me to "walk a mile in his shoes" just for that brief moment, so that I could understand his perspective on the potential diagnosis and options for investigation, treatment and prognosis. On that day, my supervisor was the better advocate for Bob, whose values were importantly integrated into my supervisor's diagnostic workup. My supervisor established a special relationship between doctor and patient, one which I have learnt much from and will carry with me. The art of medicine was what my supervisor had so seamlessly integrated into his practice.

Since this encounter many months ago, I have continued to reflect upon my clinical assessment of Bob. It was paramount that I could identify where I had lapsed in understanding the balance between the science and art of medicine.

When I met Bob, I felt that I had built rapport with him. While learning about his symptoms during the medical history and examination, I also learned about Bob's experience of illness in the context of his role as a carer for his wife and helping in her day-to-day life with early-onset Alzheimer's disease. On reflection, I think that sometimes building rapport with patients can lull medical students at my stage into a false understanding that we are acting in a "patient-centred" way; I understand now that empathy and compassion for patients do not necessarily translate into true "advocacy" for their perspective about management decisions. They certainly didn't for me when I met Bob.

In hindsight, there is no doubt that I was chasing a "diagnostic win". I had endured a testing few weeks as a medical student. I wanted to feel more competent and contribute to the practice, particularly in a rural setting where medical student contributions are relied upon. I embraced the clinical encounter, applied my understanding of the signs and symptoms of malignancy and built rapport with Bob; that was easy as he was such an affable man. My shortcoming was that I had not sought Bob's opinion about what he thought was the best way forward for his clinical care. In terms of the science and art of medicine, I had embraced the former at the expense of the latter. The culmination of intrinsic and extrinsic pressures to master the "science of medicine" and appear "competent" perhaps created an environment in which I neglected Virchow's full legacy.

Whilst medical school is full of learning experiences such as these, perhaps medical training could re-frame the way students consider "investigations" of suspected diagnoses to ensure patients remain advocated for and both of Virchow's legacies continue to be preserved. Regardless of what changes may lie ahead in medical training, I am now very invested in finding a way to bring patient values to the forefront of my diagnostic formulation in future clinical encounters. I have certainly learned a very big lesson from meeting Bob and realise now that my parting words to him that I owed him thanks were truer than I realised at the time.

Part VI: A Virchow-inspired Safety Net for Patient Advocacy

There will be many times in a medical student's journey where external pressures lead them towards the science of medicine, but there must be a safety net to ensure that balance is achieved between the science and art of medicine. This notion of balance in patient advocacy is what Virchow has left for us as a beacon for patient-centred medical care.

My own clinical encounter with Bob and its resultant reflections have shifted my behaviour in three major ways, which hopefully will safe-guard against any future imbalance in my patient care.

Firstly, and ironically a consequence of writing this paper, is that regularly engaging in pursuits that facilitate reflective practice will continue to be a cornerstone of my own personal and professional maturation as a medical student. Specifically, the process of writing detailed clinical logs and journaling an analysis of my approach and emotions during clinical placement have helped me understand the context in which certain clinical formulations have been made. In essence, to create a "safety net" for patient advocacy in clinical encounters, I believe clinicians must embrace reflective practice. In terms of my own emotional endurance, reflective writing has clarified the results of patient encounters and my inevitable questions about the rights and wrongs of each experience. It seems that medical school curriculums are encouraging reflective practice more than ever and I appreciate why this shift has occurred. By understanding the context to our clinical encounters and reflecting on them – not in a fleeting way, but through extensive journaling – we can better learn from and shape our behaviours to become the clinicians we aspire to be. At the very least, such a mindset will make us open to change, a pre-requisite to embrace Virchow's sense of patient advocacy.

Secondly, from my experience with Bob, I believe that before proposing any means of investigating a patient's symptoms, with colonoscopies for instance, medical students should be encouraged to ask themselves, "does the patient know why we want to select this investigation?" In other words, encouraging dialogue with patients about investigations and their purpose may create a more precise form of patient advocacy by medical students. This attitudinal and behavioural approach may then evolve into Virchow-inspired clinical practice for medical students as doctors in the future.

Often, the "fork in the road" for patient values to be integrated into their care presents at the time of selecting treatment options. Perhaps encouraging medical students to always discuss "investigation options" with patients would provide a "safety net" for incorporating patient values into any decisions regarding their care. This was particularly relevant in Bob's case given his rurality and the disruption that investigations such as a colonoscopy may have on his daily life.

Regardless of the various external pressures or vulnerable dispositions a medical student may be experiencing, patients should be advocated for from the outset of a diagnostic work up. If this is achieved, medical students would have a better grasp of who their patients really are and what they value, so that in any case presentation, patient values can be made very clear for supervisors.

Since meeting Bob and reflecting on my initial clinical assessment involving his history and examination, I have changed my approach to patient care, so that it includes a deliberate commitment to openly discussing investigation options with patients in emergency and primary care settings. I now do this prior to every case presentation with my supervisor. This change in approach has helped me to understand the relevance of patient values in determining their care. It is one thing to enquire about a patient's "home life" during a medical history, but it is more powerful to take the time to truly understand a patient's perspectives on how they want to manage their diagnosis.

What is important to me now is to gain a fulsome understanding of the context of a patient's symptoms so that I can formulate their clinical assessment to ensure I can better advocate for their wishes. My supervisor was able to do this seamlessly with Bob. No doubt, this comes with experience, but it needs to come much sooner in medical school training. Again, with this practical form of a "safety net" for patient advocacy, I feel I can practise medicine in closer alignment to Virchow's notion of patient-centred care.

The third and final cornerstone of this "safety net" really comes down to the clinician whose legacy is at the forefront of this paper: the late Rudolf Virchow. I think that medical practitioners would benefit from following Virchow's teachings more closely. By extension, their patients would also benefit. In my studies, I have not found a physician in history who truly mastered the science and art of medicine like Virchow. For me personally, his teachings have led to very challenging reflections and honest conversations with myself about how I may have neglected my role as a patient advocate in clinical encounters such as my meeting with Bob. Ultimately, "Virchow's triad" of clot formation should not be his only legacy for medical students. Virchow's legacy as the "Father of Social Medicine" and his emphasis on doctors being advocates for their patients need to be central to medical school curriculums if graduating medical students are to provide patient-centred care.

While medical students may always feel under pressure to "earn their stripes" on ward rounds or in clinical placements and embrace the science of medicine or the legacy of "Virchow's triad", my reflections reveal that this approach in isolation, stymies patient advocacy. Medical students will undoubtedly continue to grapple with balancing the science and art of medicine. My completion of this paper has afforded me the opportunity to reflect on the importance of Virchow's teaching for me as a future clinician. Importantly, Bob will also be a personal reminder that both the science and art of medicine should be woven together. If medical students are cognisant of the balance between these two domains, Virchow's legacy and patient advocacy will be in safe medical hands in the years to come.

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