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Editor's Spotlight/Take 5

Editor's Spotlight/Take 5: Death, Taxes, and Trapeziometacarpal Arthrosis

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As is evident from its title, the authors of this report have concluded that if you stick around long enough, you will develop arthrosis at the base of your thumb, implying that radiographic degeneration of the trapeziometacarpal joint is as inevitable as death and taxes. The study by Dr. Stéphanie Becker and colleagues from Dr. David Ring's (Fig. 1) group at Massachusetts General Hospital confirms and extends some earlier work the senior author did on the same topic [7], but in a much larger population. In light of those two studies, it seems that the main conclusion—trapeziometacarpal arthrosis is an expected part of normal aging—almost certainly is correct.

The idea that some orthopaedic conditions increase in prevalence as patients age is not new. We have known for decades that degenerative meniscus tears are more common in older patients [1, 5]. We see similar age-related increases in the frequency of intervertebral disc degeneration and herniation on MRI [2]. These studies have resulted in surgeons generally doing a better job of focusing on the concordance of symptoms, signs, and imaging findings when considering surgery, rather than on using imaging "abnormalities" alone to motivate a surgical decision.

In the studies mentioned above, the patients with imaging "abnormalities" (likely age-related changes) were asymptomatic. This paper on trapeziometacarpal arthrosis differs somewhat from those previous studies. The authors go further, stating that because of the frequency of this condition in older adults, greater consideration should be given to treatments that help patients adapt to the symptoms and disability that basilar joint arthritis can cause.

This strikes me as a subtle, but important, difference. It deals directly with the boundary state between health (defined as normal aging) and disease. To the degree that carpometacarpal arthrosis of the thumb can and does cause pain and disability, we have a tougher question to wrestle with. The authors advocate adaptation to the condition, based on the low frequency with which the patients in these studies underwent surgery. Adapting to the symptoms when they occur probably is fine for most patients, but it may not be sufficient for everyone. By contrast, suggesting that surgery should play a prominent role in the management of normal aging seems unnecessary, impractical, and perhaps hubristic.

Stedman's Medical Dictionary defines disease as "an interruption, cessation, or disorder of body functions, systems, or organs" [8]. According to this, trapeziometacarpal arthrosis, as part of normal

Note from the Editor-in-Chief: In "Editor's Spotlight," *one of our editors provides brief commentary on a paper we believe is especially important and worthy of general interest. Following the explanation of our choice, we present* "Take Five," *in which the editor goes behind the discovery with a one-on-one interview with an author of the article featured in* "Editor's Spotlight."

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Editor's Spotlight/Take 5

aging, is not a disease. But *Stedman's* further states an alternative definition: "Literally, dis-ease, the opposite of ease, when something is wrong with a bodily function" [8]. Painful trapeziometacarpal arthritis certainly does seem to meet this definition. I look forward to exploring this interesting and important gray area—the boundary between health and disease—with the senior author of this fascinating study, Dr. David Ring, in the *Take 5* interview that follows.

Take 5 Interview with David Ring MD, PhD, Senior Author of Death, Taxes, and Trapeziometacarpal Arthrosis

Seth S. Leopold MD: *In general terms, when, if ever, can something that is a normal part of human aging also be considered a disease?*

David Ring MD PhD: I find it useful to consider "disease" as objective pathophysiology and impairment, and illness as the state of being unwell (symptoms and disability). Using these definitions, it is clear that we meet people with substantial disease and minimal illness, substantial illness and minimal disease, and everyone in between. The evidence is strong and consistent that the degree of illness (symptom intensity and magnitude of disability) for a given pathophysiology is determined largely by mindset and circumstances (psychosocial factors) [10].

Fig. 1 Adaptation and resiliency may be two of the most powerful medicines available, according to Dr. Ring.

To answer your question, human aging, or senescence, is a form of pathophysiology or disease. I think the question is: Why is human aging more of an illness for some people than it is for others? Perhaps more importantly: How can we help people depend on their bodies as they age?

Dr. Leopold: *We know that there are other orthopaedic conditions whose prevalence increases with age, including meniscal tears and some kinds of spinal pathology, yet we also know that those conditions cause morbidity, and sometimes benefit from surgery. Again, in general terms, how should surgeons approach those kinds of conditions as we consider creating reasonable surgical indications for them?*

Dr. Ring: You are essentially asking, "What is the best rate of discretionary surgery for pathology that is an expected part of aging?" In other words, when you say "morbidity," I take you to mean symptoms and disability (low back pain), rather than objective pathophysiology and impairment (palsy or paralysis). For me, the observation that a large proportion of people (I believe it is safe to assume most people) are able to depend on their bodies as conditions like trapeziometacarpal arthrosis develop with age. This leads to the realization that adaptation and resiliency may be two of the most powerful medicines available.

Psychologists measure, coach, and train adaptation and resiliency as "self-efficacy" (the confidence that one can achieve one's goals). Self-efficacy may be a stronger and more effective healer than surgery for many painful musculoskeletal conditions. One can see this in the power of the placebo effect. The placebo effect is essentially one's "inner healer"—an intervention improves our health by enhancing our self-efficacy (see the interesting video at: http://www.youtube.com/watch?v=yfRVCaA5o18) [4]. It gives us permission to be well. The key to optimal health may be to learn how to bring out our inner healer on our own.

Dr. Leopold: *More specifically, it now appears we can add trapeziometacarpal*

Editor's Spotlight/Take 5

arthritis to the list of orthopaedic conditions whose prevalence increases with age. Your conclusion: "It appears that patients who live long enough will get trapeziometacarpal arthrosis" is very dramatic, though also very well substantiated. How does awareness of the extraordinarily high prevalence of trapeziometacarpal arthritis (100% in women aged 91 years or older, and 93% in men older than age 81) inform and guide your approaches to its treatment, both nonoperatively and surgically?

Dr. Ring: Humans are programmed to respond to pain with catastrophic thinking: we feel protective (hurt = harm) and we prepare for the worst (if I do not do something I will not be able to rely on my hand). People with trapeziometacarpal arthrosis often feel this way. They place their hope in medicine, injections, or surgery. The fact that nearly all the people aged 80 years or older on the planet (healthier and more active than ever) have trapeziometacarpal arthrosis reminds us that (in this case) the natural human response to pain is a false alarm (smoke, not fire). We can count on our hands even as they become arthritic.

Dr. Leopold: *Why might this joint, of all the joints in the body, seem to be one of a very few that cannot "go the distance" in patients who are fortunate to enjoy longevity? I recognize that your answer will be somewhat speculative.*

Dr. Ring: My guess, based on current data, is that the cervical spine, rotator cuff, triangular fibrocartilage complex, and perhaps hips and knees would show similar findings in epidemiological studies. An understanding of why this is the case might lead to disease-modifying treatments. We should keep looking. But we will be healthiest if we understand how our machine operates in the meantime.

Dr. Leopold: *How have patients responded to your philosophy that an arthritic hand, even if painful and somewhat limited, can still be a reliable hand, and that adapting to it (rather than fixing it) may be the right approach in many circumstances?*

Dr. Ring: It is important that we use the information we have to guide patients to good decisions, even if the recommendations come across initially as not intuitive or even unexpected. This is a frequent and important part of clinical practice. Another common situation where this comes up in many of our practices is the treatment of pain with opioid medications. Limiting opioid use often is the correct, but unpopular thing to do [6, 11].

As evidence accumulates that coaching and training in effective coping strategies is one of the most effective alleviants for pain and disability, healers of all types should share this information with their patients. Patients deserve these options. The tricky part is that the patients that stand to gain the most (for instance a patient with substantial symptoms of depression) often have little realization that their mindset and circumstances are responsible for so much of their illness. Psychologists say that such patients have little "insight." Whether the message is that opioids use should be limited or that it may not be healthy to place all hope in surgery, these unexpected, counterintuitive, and even unwelcome messages must be delivered with empathy, using carefully crafted and practiced communication strategies.

The observation that pain intensity and disability for a given pathophysiology vary by country and culture [3] suggests that we should work together as a society to optimize self-efficacy. The Australian government, for one, has realized this and developed a public awareness campaign (http://www.youtube.com/watch?v=4b8oB757DKc) [9]. But cultural change is difficult, and I expect it will take time. To make that change will require surgeons who understand and agree with the need for it, and who are willing to explain the message to patients in terms they will understand.

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Editor's Spotlight/Take 5

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