Symposium: 2013 Meetings of the Musculoskeletal Tumor Society and the International Society of Limb Salvage

CORR Insights®: What Is the Use of Imaging Before Referral to an Orthopaedic Oncologist? A Prospective, Multicenter Investigation

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Where Are We Now?

Definitive care of musculoskeletal neoplasia remains primarily the purview of orthopaedic surgeons with specialty fellowship training in oncology.

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Indeed, it is likely that a larger portion of this care is provided by the burgeoning cadre of fellowship-trained oncologic orthopaedists than ever before. Years ago, when only a few such surgeons dotted the broad landscape of North America, each at major, academic, quaternary referral centers, more tumor-related care was provided by local, general orthopaedic surgeons. The local surgeons cared for a broader assortment of clinical problems than many do now, and the specialists were further away. As a field, how can orthopaedics best manage this current referral care pattern for nearly all neoplasia of the limbs and skeleton? Miller et al. [3] found one focal point for improvement: The imaging ordered before referral of bones suspected of neoplastic lesions often included unnecessary studies.

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Where Do We Need To Go?

In order to provide good, efficient care for patients with neoplastic or mimicking lesions, we need to become more resourceful with our imaging, only utilizing the most expensive imaging modalities when they are necessary for clinical decision making purposes. Because the breadth and depth of available orthopaedic oncologic expertise includes some breadth of opinions on which imaging modality is best for each tumor or tumor-like entity, no single algorithm is likely to be sufficiently simple or widely enough adopted to fix the problem. The referring community surgeon may read and follow a different algorithm than that to which the consulting surgeon adheres.

Can the broader orthopaedic community generate an algorithm — or better yet, a practice guideline — from sufficient evidence that satisfies both community and tertiary practice surgeons? There are already many algorithms for bone lesions, but each differs slightly. Even the evidence behind each is heavily biased by the

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opinions and practice of those setting and testing each guideline. Evidence derives from questions asked, which in turn derive from opinions and experience.

Importantly, Miller et al. did not find that imaging modalities employed prior to referral were medically inappropriate; they only reported that some were not used or deemed necessary by the consulting orthopaedic oncologist. This highlights variation in the definitive practice standards as much as in the referring practice, likely prompting Pavlovian salivation in the evidence-based medicine gurus in our midst. However, gathering the evidence required to remove variation from the cottage industry definitive practice of orthopaedic oncology at the same time period during which it becomes increasingly parceled out into smaller and smaller referral centers seems a bit overly hopeful. Perhaps, an overall practice algorithm is more readily applicable than a diagnostic imaging algorithm for every specific musculoskeletal neoplastic entity. Any surgeon who feels comfortable managing musculoskeletal neoplasia might very well order his or her own diagnostic imaging evaluations. For any who prefer not to manage these entities, a

simple and optimally practical solution for the current situation may be earlier referral to this growing army of specialists, practicing in centers of closer proximity to each community referral physician.

How Do We Get There?

At the core of any adopted change in practice is education. Of course, this must include education to all community orthopaedic practitioners, as well as family doctors, pediatricians, and internists. The key to education is information. In the 1980s [1], and again in the 1990s [2], Drs. Mankin and Simon led members of the Musculoskeletal Tumor Society to decry prereferral biopsy of malignant bone neoplasms. They encouraged community surgeons to avoid performing biopsies by reporting the poor outcomes that often resulted. Now, thoroughly embedded within the era of value, a group of young and collaborative orthopaedic oncologic surgeons, none of whom practices in one of the ivory tower quaternary practices of yesteryear, has gathered data and appealed instead to our frugality above

and beyond our fear of poor outcomes. Perhaps community orthopaedic surgeons and primary care physicians will respond better to this admonition than they did initially to the related warning three decades ago. When they identify a lump, bump, or skeletal lesion, they may choose to check the referral box in their EMR before they order additional imaging.

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