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Editorial

Editorial: Indications – On the Fringes and in the Mainstream

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The choices that each surgeon makes reflect on all of us. For that reason, we need to be mindful of activities taking place on the fringes of our specialty. But while the professional approaches employed at the periphery of a specialty sometimes represent normative outliers, they can – more troublingly – be a manifestation of a deeper current running through the mainstream.

Certainly you have heard of limb-lengthening procedures utilizing principles of distraction osteogenesis. The techniques employed, including a variety of external fixators and now self-lengthening nails, have become essential tools in the kit of pediatric orthopaedic surgeons and traumatologists. They can improve function in patients with limb-length inequalities and correct deformities associated with an assortment of congenital and acquired conditions.

You might not be aware that these same techniques can be used entirely electively to lengthen the legs of patients who are shorter than they would like to be. These individuals do not have skeletal dysplasias, endocrinopathies, angular deformities, or trunk-limb disproportion. It is possible not to be aware of this, even if you are a regular journal-reader, since some of the terms used for these elective limb lengthenings tend to obscure the fact that they are treating a cosmetic problem. Papers describe "diagnoses" like "constitutional short stature," use acronyms like "LFS" (lengthening for stature) [10, 16], and talk about procedures to "correct" the condition [11]. Our compliments to those others who call it like it is [5, 8].

But far more important than the nomenclature is the superficial way in which the results of this risky procedure have been documented. As one would expect with an uncommon indication, most of the papers on it are small, retrospective case series, and they often mixing patients undergoing the procedure for cosmetic reasons with those undergoing it for other reasons. These reports typically have all of the shortcomings associated with this study design: Selection bias, limited followup and, critically, assessment bias. While some of these studies try to rationalize the decisions to do these procedures by describing the psychological dysphoria experienced by patients [1, 5, 9, 13], it is particularly telling that we found none that presented before-and-after results using validated tools (of which many are available) to assess whether the lengthening helped relieve patients of the psychic burden of being "short."

Quite simply, it is wrong to measure the results of a procedure designed to address psychological symptoms using only a ruler. Surgeons doing this work have a special obligation to deal with the psychological symptoms – and to every extent possible, to do so nonsurgically in collaboration with mental-health providers – and not just to lengthen patients' legs. If the indication

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for the surgery is dysphoria, the metric used in its evaluation cannot be inches.

Going forward, at *Clinical Orthopaedics and Related Research®*, we will ask authors of any study claiming psychological benefits from an orthopaedic procedure to provide evidence that the problem they sought to treat was, in fact, improved by that procedure. If short stature is causing dysphoria or other emotional fallout, it seems essential to define, measure, and evaluate after treatment the psychological impact of that condition and the surgery for it, given that complications often occur with limb lengthening [7]. This may be particularly relevant in elective situations, where the surrounding soft tissues and joints are not "programmed" to tolerate the extra inches regardless of whether old [1, 5, 14] or newer approaches [4, 9, 11, 13, 15] are used. In many important ways – including scarring, contractures, infections, bone healing issues, premature physeal closures, increased stresses at the adjacent joints, trunk-limb disproportion and unplanned additional surgical procedures – these patients can pay dearly for the surgeon's decision to offer this intervention. On the subject of payment, it is also worth noting that because these procedures are considered cosmetic surgery, they generally are cash transactions not covered by insurance, adding another level of complexity to the motivations involved here.

Our biggest concern, though, is not that a few surgeons do a procedure whose results are poorly documented on patients for an uncommon indication, although we suspect those actions someday will reflect badly on all of us if the issues raised here are not addressed. Rather, we are concerned that this represents a specific – if extreme – example of a value set that is widely shared but inadequately evaluated. Consider: (1) Most surgeons have a strong financial incentive to operate, while few systems incent surgeons to achieve a particular result. (2) We lack common indications even for our most-common procedures. (3) Perhaps as a result of this, indications for some of those procedures are surprisingly lax, and results for those indications, like improvement of psychological burdens by limb-lengthening, are poorly documented.

Examples? Shoulder reconstruction to improve velocity on someone's fastball, chevron osteotomy to fit a patient's foot into more-fashionable shoes, and TKA to return an aging athlete to singles tennis. And, of course, perhaps the most common "problem indication" of all is the use of elective orthopaedic surgery – arthroplasty, sports surgery, you name it – to treat a problem that is "making the patient depressed." It is so much easier to operate than to listen empathically and connect the patient with resources to treat the depression.

The fact that we do not know with any great certainty the odds of achieving those results – other than leaving depression untreated in advance of orthopaedic surgery, which indeed rather clearly seems to put patients at high risk of persistent pain and dissatisfaction [2, 3, 6, 12] – does not keep surgeons from offering interventions along those lines, getting reimbursed for the activity, and doing it much more frequently than we do cosmetic limb lengthenings. These are not fringe concerns, they are well in the mainstream of our practices, and they deserve more attention than they have received.

Continue the conversation by sharing your thoughts with us at eic@clinorthop.org.

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