

cells that are responsible for neovessel formation. We process fat with centrifugation to concentrate a higher number of viable cells with regenerative potential in a smaller amount of inoculum, which makes this method ideal for the treatment of retracting scar tissue.

In our clinical experience, autologous fat grafting is associated with amelioration both from aesthetic and functional points of view, showing its effectiveness also in improving scar-associated movement impairment. Moving from our experience, we recently published a series of 36 children affected by pathologic dwarfism treated for postsurgical scars resulting from correction of short stature.

Clinical assessment of the study population was conducted using a modified Patient and Observer Scar Assessment Scale, to which a new item was added in the patient section to investigate scar-related movement impairment. This new parameter has been shown to be the feature most closely related to overall patient satisfaction and therefore to patient quality of life.<sup>3</sup> Furthermore, lipostructure is the unique scar therapy able to control the process of scar-associated neuropathic pain.

In our studies on postmastectomy pain syndrome and on Arnold neuralgia, we demonstrated how fat grafting can reduce pain with a clinical reduction of visual analogue scale scores.<sup>4</sup> We postulate that the described analgesic effect is related to nerve liberation and to an induction of molecular changes in the micro-environment of posttraumatic scar, which is hostile to regeneration of the nervous system because of intrinsic inhibitory factors expressed by the extracellular matrix.<sup>4</sup>

These conclusions are confirmed by our experience in patients affected by postmastectomy pain syndrome after they have undergone radiotherapy. In this clinical setting, we hypothesize that mesenchymal stem cells could also inhibit production of proinflammatory cytokines, which can induce peripheral and central sensitization with a failed nociception system, leading to pain augmentation.<sup>5</sup>

In conclusion, considering its safety, efficacy, and optimal tolerability, we are persuaded that autologous fat grafting is an innovative surgical option for scar tissue treatment. Its regenerative effects are evident not only as an improvement of the skin's complexion, but also as a reduction of pain and as better joint mobility.

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## DISCLOSURE

*The authors have no financial interest to declare in relation to the content of this communication. The principles outlined in the Declaration of Helsinki have been followed in this study.*

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## Reply: Evidence-Based Scar Management: How to Improve Results with Technique and Technology

**Sir:**

We would like to thank Dr. Caviggioli and colleagues for their letter regarding our recently published study, “Evidence-Based Scar Management: How to Improve Results with Technique and Technology.”<sup>1</sup> Dr. Caviggioli and colleagues have extensive experience with the use of autologous fat to improve scarring. They have been able to demonstrate improvement in scar suppleness with fat grafting, using objective measures with a durometer, and subjective measures with the Patient and Observer Scar Assessment scale.<sup>2</sup> In addition, by showing the superiority of fat grafting compared to control saline injection, they were able to demonstrate that the improvement in scar quality was not simply the

result of scar subcision, but that the grafted adipose tissue played a critical role in improving the scar. Other studies have demonstrated similar outcomes.<sup>3,4</sup>

The use of fat grafting is perhaps most useful in the treatment of stiff and damaged irradiated tissue. In addition to the study by Maione et al. demonstrating improved tissue quality and pain after fat grafting to the irradiated breast,<sup>5</sup> a recent study suggested that autologous fat grafting in conjunction with implant-based breast reconstruction may lower the complication rate in irradiated breasts to a rate comparable to nonirradiated breasts.<sup>6</sup> In animal studies, fat grafting of irradiated tissues has been shown to decrease fibrosis and improve vascularity.<sup>7</sup>

Despite the proven efficacy of fat grafting in the treatment of scarring, the safety of fat grafting to oncologic sites remains a topic of contention, given concerns that mesenchymal stem cells in the graft may potentiate the progression of existing tumors.<sup>8–10</sup> However, in a recent large, multicenter study of postmastectomy reconstruction patients, fat grafting was not found to increase the risk of breast cancer recurrence.<sup>11</sup> Similarly, fat grafting has been found to be safe in head and neck cancer reconstruction.<sup>12</sup> In contrast, although fat grafts have not been shown to stimulate dormant breast cancer cells, they have been found to stimulate active breast cancer cells.<sup>13</sup> Clearly, more large studies are needed to fully establish the safety of fat grafting in postoncologic reconstruction sites. DOI: 10.1097/PRS.0000000000003386

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## Not All Clefts Are Created Equal: Patterns of Hospital-Based Care Use among Children with Cleft Lip and Palate within 4 Years of Initial Surgery

Sir:

**W**e would like to congratulate Ligh et al. for their article “Not All Clefts Are Created Equal: Patterns of Hospital-Based Care Use among Children with Cleft Lip and Palate within 4 Years of Initial Surgery”<sup>1</sup> published in *Plastic and Reconstructive Surgery* in June of 2016. The authors demonstrated that children with cleft lip and palate experience a high rate of hospital-based care early in life, and that the degree of medical comorbidity is a significant burden.

In response to this article, we would like to emphasize the importance of the high prevalence of feeding difficulties in children with cleft palate. Ligh et al. demonstrated that feeding difficulties were the most common comorbidity, accounting for 13.4 percent in children with isolated cleft palate. Feeding problems