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LETTERS TO THE EDITOR

The first study on autologous adipose tissue transfer in the treatment of lichen planopilaris

To the Editor,

Lichen planus (LP) is an inflammatory mucocutaneous disease that mostly affects middle-aged adults in 1%–2% of the population.[1] Follicular lichen planus, also known as lichen planopilaris (LPP), is a rare variant of LP involving the skin and hair follicles of the scalp, axilla, inguinal creases, sacrum, and flexures of the limp. LPP may cause scarring (cicatricial) alopecia by involving the scalp. The main goal of the treatment of LPP is to prevent scaring hair loss at the early stages of the disease.[2] Currently, many techniques are used for alopecia treatment. The efficacy of autologous adipose tissue has recently gained attention for hair loss treatment because it has various growth factors, anti-inflammatory, antioxidative agents, and the ability to angiogenesis.[3] Thus, the promising effect of adipose tissue injection in patients with alopecia, prompting us to conduct the current novel study and for the first time utilize autologous adipose tissue injection in the treatment of LPP. In this study, nine patients aged 45 and 50 with cicatricial alopecia resulting from chronic LPP were recruited. Patients received treatment once, and they were followed up every three months for one year. Liposuction and injection of adipose tissue were undertaken on the same day. Patients received local anesthesia on their upper part of lateral thigh, then, tumescent fluid was injected to the area of interest, and the injection site was marked for aspiration. After 20 min, adipose tissue was aspirated with a 2.4 mm harvesting tulip cannula into a 20-mL syringe from the same location. Adipose tissue without excessive fluids was transferred into an insulin syringe for scalp injection purposes. To provide adequate local anesthesia, the patient's scalp was desensitized with lidocaine 2% plus 1:200 000 epinephrine injectable solution. Consequently, any present fibrosis was detached by the subcision blunt technique. Following the subcision procedure, the whole 20 ml of adipose tissue was utilized, and injection was performed with an insulin syringe (18-gauge) into the scalp (1.0 ml/cm^2). The observation showed a significant increase in hair density and hair diameter after one year in both patients. In addition, all patients showed a significant decrease in the hair-pull test results. Significant improvement was observed by comparing both pre- and post-treatment series of photographs (Figure 1). The LPPAI is an index showing the degree of activity of LPP; the lowest the score, the lowest the disease activity and the better the disease progression. The LPPAI score ranges from 0 to 10, and the index is calculated for each patient based on the signs and symptoms of the disease. Each sign and symptom scores based on severity, including 0 = absent, 1 = mild, 2 = moderate, and 3 = severe. The LPPAI is calculated as follows: LPPAI (0–10) = (pruritus 1 pain 1 burning)/3 1 (scalp erythema 1 perifollicular erythema 1 perifollicular scale)/3 1 2.5 (pull test) 1 1.5 (spreading/2). Similarly, our results show LPPAI scores three months post-treatment, indicating the decrease of LPPAI and the clinical effectiveness of adipose tissue injection (Table 1). To the best of our knowledge, adipose tissue injection in the treatment of alopecia is a relatively novel modality. Similar to our study, other studies have evaluated the effect of autologous adipose tissue injection in variable clinical conditions.[4] In most studies, adipose tissue injection was an effective and safe method to treat variable alopecia and scars, and the results were mainly statistically significant.[3] Adverse effects following this method are not serious and primarily included self-limiting bruising, small hematoma, mild to moderate pain at the site of liposuction, and mild to moderate burning and pain at the site of scalp injection.[5,6] There are limited studies on transferring autologous adipose tissue in treating alopecia resulted from LPP. This study introduced a novel method of autologous adipose tissue injection as a potential treatment for LPP. It is the first time that this technique has been used for the treatment of this type of cicatricial alopecia (LPP) as a single therapy. This study identified that adipose tissue injection could control and reduce the LPP-induced inflammatory process. It can decrease the signs and symptoms of the disease, including scalp and perifollicular erythema, scaling, and hair-pull test. Furthermore, hair density and diameter in the patients were increased after one year of the treatment.

AUTHOR CONTRIBUTIONS

N. MA, R. M, B. E, and G. A performed the research. N. MA designed the research study. H-K.M analyzed the data. BT. B, T. E, S. S, S. F, K.Y, and A. Z collected the data.

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CONFLICT OF INTEREST

The authors declare no conflicts of interest.

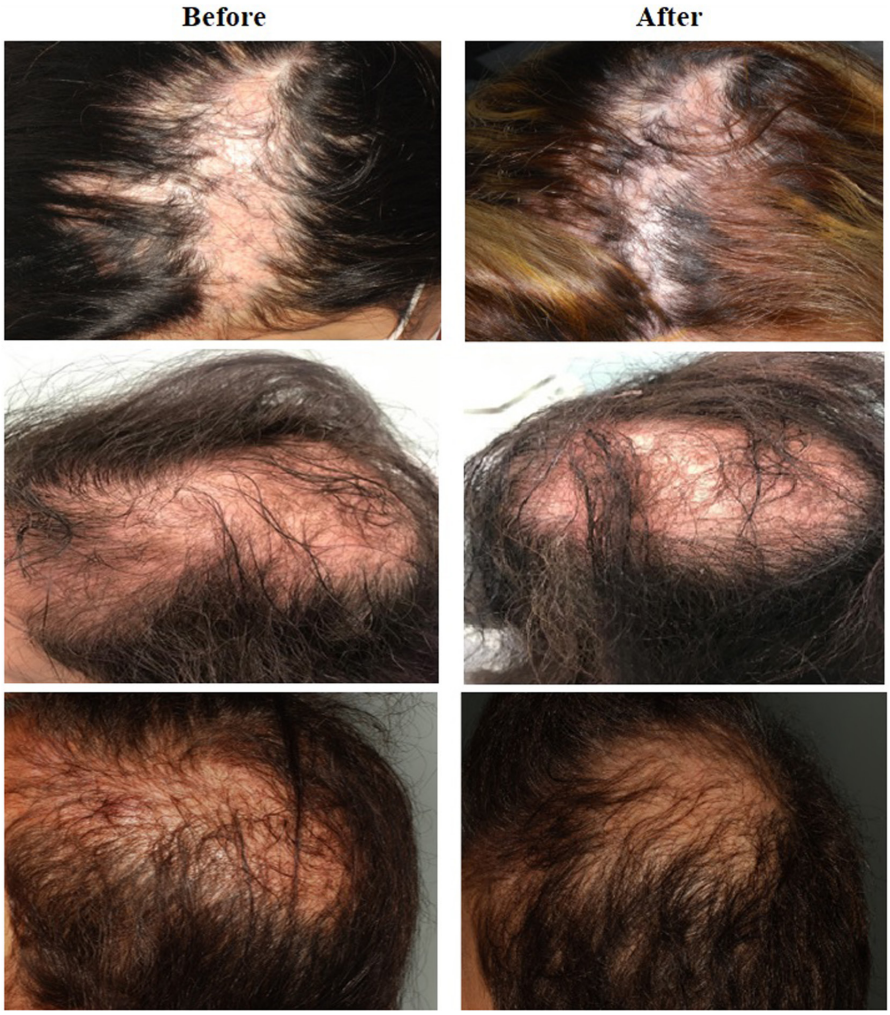

FIGURE 1 Study patients before the treatment and 12 months after the treatment, showing increase in hair density on the previously alopecia patch

TABLE 1 LPPAI scores before and three months after the treatment

No.	Age	Pain B/A	Burning B/A	Pruritus B/A	Scalp erythema B/A	Perifollicular erythema B/A	Perifollicular scaling B/A	Spreading B/A	Hair-pull test B/A	LPPAI B/A
1	45	2/0	3/0	3/0	2/0	2/0	3/0	1/0	1/0	8.25/0
2	50	2/1	3/0	3/0	3/0	3/0	3/0	2/0	2/0	8.91/0.33
3	46	2/0	2/0	2/0	2/0	2/0	2/0	1/0	1/0	7.25/0
4	45	2/0	3/0	3/0	2/0	2/0	3/0	1/0	1/0	8.25/0
5	50	3/0	3/0	3/0	2/0	3/0	3/0	1/0	2/0	8.91/0
6	45	2/0	2/0	2/0	1/0	2/0	2/0	1/0	1/0	6.91/0
7	50	3/1	3/0	2/0	2/0	3/0	3/0	2/0	2/0	8.58/0.33
8	48	3/1	2/0	2/0	1/0	2/0	2/0	1/0	2/0	9.75/0.33
9	47	2/0	2/0	2/0	1/0	2/0	3/0	1/0	2/0	9.75/0

Abbreviations: A, After; B, Before.

ETHICAL APPROVAL

The authors state that the patients have given their informed consent for contribution in the study.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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