

Hyperdilute calcium hydroxyapatite for treatment of cellulite dimples in the buttock



Ghassan Niaz, MD,^{a,b} Ali Alajmi, MD,^a and Kachiu Lee, MD, MPH^{a,c}

Key words: aesthetics; buttock volumization; calcium hydroxyapatite; cellulite; cosmetics; filler; hyperdilute calcium hydroxyapatite; off-body filler.

INTRODUCTION

The “peau d’orange” appearance of the skin of the buttock and upper thigh area is a common condition, with a prevalence of up to 98% of postpubertal women.¹ The exact mechanism of the development of cellulite is not entirely understood. Due to its high prevalence in women, it is believed that there may be a hormonal component in its multifactorial pathophysiology.¹

Further, magnetic resonance imaging studies have shown that adipose cell chambers in women are larger in height and width compared to those in men, which may allow adipose cells to protrude into the overlying skin. Histopathological studies have shown the variation between the septa orientation. Men’s septa are oriented at 45° in a crosshatch pattern, whereas women’s fibrous septa are thicker and form a 90° angle with the epidermis (Fig 1).¹ Thus, the less crosshatched fibrous septa in women might play a role in cellulite development due to the easier fat protrusion between perpendicular fibrous tissue.

CASE REPORT

A 71-year-old patient presented for improvement in her buttock appearance. She was specifically concerned about the dimpling caused by cellulite. On assessment, she had a cellulite severity scale score of 3 (moderate) on both buttocks on the cellulite severity scale, with a body mass index <30.² The patient was prepped and cleaned with

Abbreviation used:

CaHA: calcium hydroxyapatite

70% isopropyl alcohol, and the treatment area was marked into 4 squares while the patient was standing.

The patient was placed in a prone position during the treatment. Each syringe of calcium hydroxyapatite (CaHA) was diluted in a 1:2 ratio with normal saline (2.7 mL) and 1% lidocaine (0.3 mL). A female-to-female Luer-Lock connector was used to mix CaHA with diluent back and forth for a minimum of 30 times to ensure appropriate mixture. Injections were performed using a 25-gauge 2” cannula. At each insertion point, 1% lidocaine with epinephrine (0.1 mL) was used to anesthetize the entry point. Next, a 21-gauge guide needle was used to make an entry point for the cannula. Finally, the cannula was used to inject hyperdilute CaHA (9 mL per side) into the papillary dermis, using a retrograde fanning technique (Fig 2) The procedure was well-tolerated with mild ecchymosis at the point of entry.

Postprocedure, the patient was instructed to wear compression shorts for 5 days to minimize edema. At 8-week follow-up, the patient reported significant improvement in cellulite appearance and buttocks dimples with a mild lift (Fig 3). Her posttreatment cellulite severity score was 1.

From the Main Line Center for Laser Surgery, Ardmore, Pennsylvania^a; King Faisal Specialist Hospital and Research Center, Jeddah, Saudi Arabia^b; and Department of Dermatology, Temple University, Philadelphia, Pennsylvania.^c

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Correspondence to: Kachiu Lee, MD, MPH, Department of Dermatology, Temple University, Main Line Surgery Center, 32 Parking Plz, Ardmore, PA 19003. E-mail: drlee@dermguy.com.

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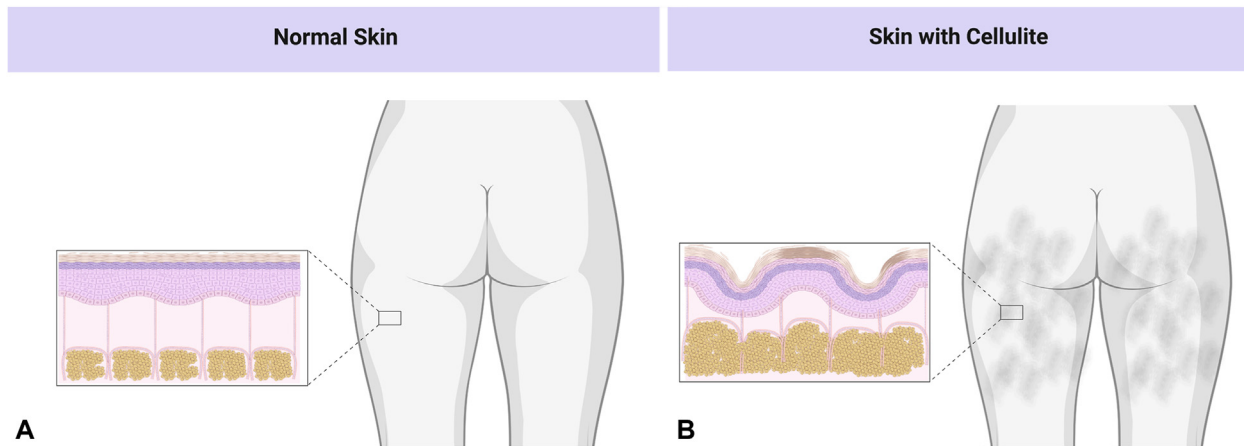


Fig 1. A, Normal-appearing skin in a woman, showing normal size of the adipose cell chambers. The fibrous septa are oriented in a perpendicular fashion to the skin. **B,** Cellulite is the dimpling of the skin on thighs and buttocks, with the dermatopathological findings of a thinner and weaker dermis. The adipose cells chambers showing a specific feature of enlargement in both height and width. The fibrosclerotic septa are oriented perpendicularly to the skin and have an uneven pattern.

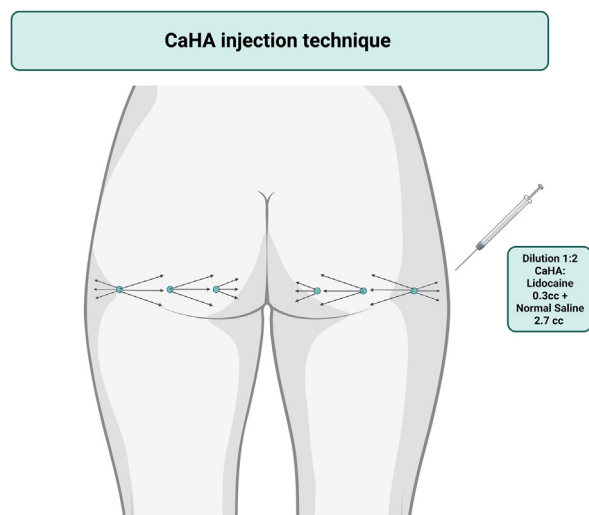


Fig 2. Injection technique for the lower buttocks area using a 1:2 calcium hydroxyapatite (CaHA) dilution.

In addition to the dermal remodeling effect of CaHA, it is also possible that the physical technique of inserting a cannula in a retrograde fanning manner, which is a form of subcision, may have improved the appearance of the cellulite dimples. However, this is less likely, given that the blunt type of a cannula has less shearing ability to tear cellulite septa compared to a sharp-tipped instrument.³

DISCUSSION

Hyperdilute CaHA is currently used off-label to improve cosmetic skin conditions, such as skin

laxity, cellulite dimples, and volume depletion on the body.^{4–6} CaHA induces dermal remodeling, thus improving skin's firmness and appearance.⁶ This minimally invasive procedure can be effectively and safely used on nonfacial areas as well. We present our technique for improving buttock appearance and contouring using hyperdilute CaHA.³

Current consensus papers recommend treating the buttocks for gluteal sagging and skin irregularities using hyperdilute CaHA with a 1:2 to 1:6 dilution, depending on the quality of the skin. Common methods include using a 22–25-gauge cannula for easier passage through the plane of subcutaneous-dermal junction, using a horizontal crosshatch injection technique in the lower buttock region with 3 treatment sessions, separated by 3 to 4 months.⁵ Other techniques include using 1:1 diluted CaHA to treat focal cellulite depressions when injected directly into the dimple.^{3,6}

In our practice, we recognized that lower buttock treatment with hyperdilute CaHA can lead to concurrent improvement in skin sagging, cellulite, and dimples. With the increase in the demand for a less invasive procedure to achieve multiple goals, we believe that our technique should be considered for improving skin quality and dimples in the buttock.¹

In properly selected patients, CaHA can achieve significant improvement in overall skin quality in the buttock area, especially if cellulite is the main complaint, with no complications. In the authors' experience, CaHA can be an optimal choice for cellulite treatment with as minimal as 1 session.

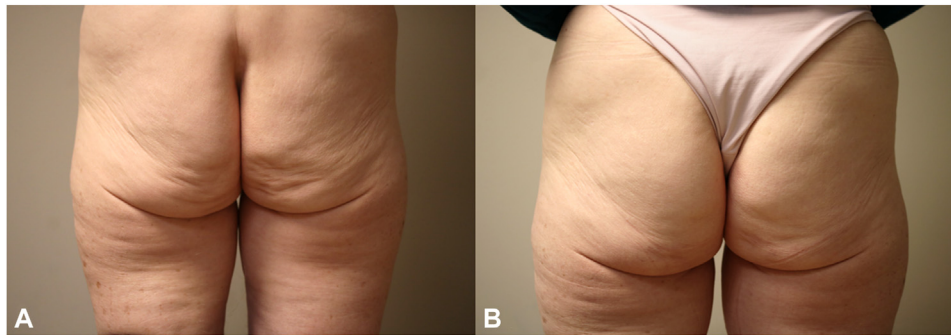


Fig 3. **A**, Before the treatment. **B**, Eight weeks after first treatment with 9 mL of hyperdiluted calcium hydroxyapatite 1:2, per buttock, in a 71-year-old woman with moderate cellulite and buttocks dimples.

Conflicts of interest

None disclosed.

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