

Complications of Silicone Fillers in Gluteal Augmentation: An Unusual Case of Filler Migration and Granuloma Formation

Hatan Mortada, MBBS*†

Khalid Murrad, MBBS‡

Danah Alkadi, MBBS§

Ahmed AlAbdali, MBBS‡

Hamzah Ali Alhamzah, MBBS,

MPH, FRCS(C)‡

Abdullah Kattan, MD, FRCS(C)¶

Summary: Silicone liquid (polydimethylsiloxane) is an inert material commonly used for cosmetic purposes. A combination of both systematic and local devastating complications can cause end-organ toxicity and multi-organ dysfunction. In this article, we examine the literature and present a case of a patient who presented with lower extremity filler migration and granuloma formation 11 years post gluteal silicone injection. A 31-year-old woman who had received a gluteal silicone injection 11 years ago was experiencing painful erythema, progressive fibrosis, and swelling as the result of the injection. The patient was diagnosed with postfiller autoimmune syndrome. Multiple surgical interventions were conducted to remove the permanent filler from her left knee. As a result of multiple surgical sessions, the patient has been managed successfully with no relapses. This case demonstrated complications of an unusual silicone injection technique for gluteal augmentation. Despite silicone being considered inert, complications can arise years after injection, necessitating extensive medical intervention. This case also raises questions regarding the systemic effects of silicone fillers, warranting further research. Through this report, we aimed to enhance awareness and management of similar future cases. (*Plast Reconstr Surg Glob Open* 2023; 11:e5277; doi: 10.1097/GOX.0000000000005277; Published online 21 September 2023.)

Various types of dermal fillers are available and are used in clinical practice for both cosmetic and therapeutic purposes.¹ Although the application of injectable tissue filler seems relatively simple and safe and has become an attractive alternative to incision-needing cosmetic procedures, such as fat grafting or facelift procedures, reports of serious adverse effects have been reported in the literature.^{2,3} Many potential complications exist, but filler migration with granuloma formation is a common occurrence and should be recognized.⁴ It has

been approved that silicone exposure is associated with autoimmune diseases.⁵ The autoimmune (auto-inflammatory) syndrome induced by adjuvants (ASIA syndrome) refers to a group of immune-mediated diseases caused by chronic exposure to adjuvants.⁴⁻⁶ This report covers a 31-year-old woman's history of repeated operations after permanent soft tissue injections in her lumbosacral, gluteal areas, and thighs.

CASE STUDY

A 31-year-old woman, known to have thalassemia trait, presented with a 9-year history of recurrent admissions and operations for relapsing painful erythema and progressive fibrosis after a permanent soft tissue injection of the lumbosacral area, gluteal area, and both thigh regions done by unprofessional personnel 11 years ago. The patient was admitted after complaining of chronic fatigue, progressive skin discoloration of the buttocks, swelling of the anterior aspect of the left leg, and induration and erythema in the buttocks. Upon examination, her buttocks were hyperpigmented with induration along the lateral edges. Initially, the patient exhibited symptoms of inflammation that were initially misidentified as cellulitis. Despite receiving antibiotics, her condition did not improve. Other potential causes for her symptoms were ruled out, and she was ultimately

From *Division of Plastic Surgery, Department of Surgery, King Saud University Medical City, King Saud University, Riyadh, Saudi Arabia; †Department of Plastic Surgery and Burn Unit, King Saud Medical City, Riyadh, Saudi Arabia; ‡Department of Orthopedics, King Saud University, Riyadh, Saudi Arabia; §Department of Surgery, College of Medicine, King Saud University, Riyadh, Saudi Arabia; ¶Division of Plastic Surgery, Department of Surgery, College of Medicine, King Saud University, Riyadh, Saudi Arabia.

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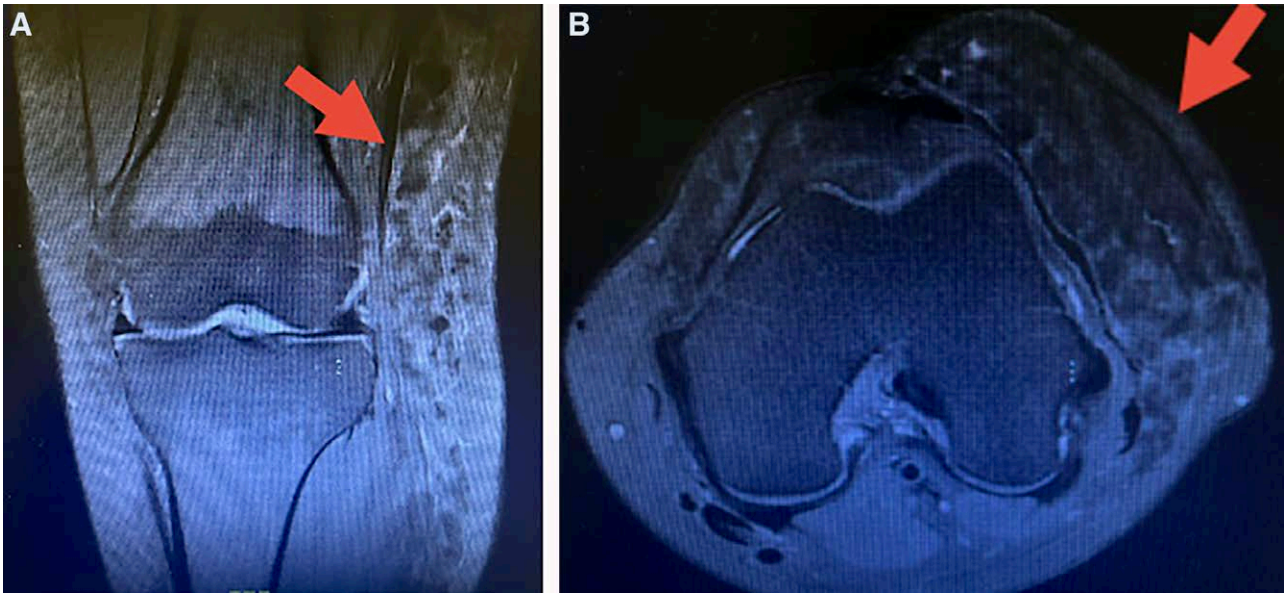


Fig. 1. Magnetic resonance images showing extensive areas of fat stranding around filler material injections involving the knee (A-B). Based on the findings, mild inflammation, lymphatic obstruction, or cellulitis is suspected.

diagnosed with postfiller autoimmune syndrome (ASIA syndrome). Following her diagnosis, she was prescribed 10 mg of oral prednisolone twice daily for 21 days. However, even after completing the medical treatment, the patient's symptoms persisted, leading to the consideration of surgical intervention as a viable option. Preoperative magnetic resonance imaging (Fig. 1) was performed to evaluate gluteal areas, which revealed significant fat stranding and inflammatory-like changes that extend deep to the posterior aspect of the gluteal muscle and multiple enlarged bilateral inguinal and external iliac lymph nodes. She underwent three operations in total. To remove the permanent fillers, the first operation was done to excise bilaterally infected gluteal areas, and she was discharged after 5 days. Two months later, the patient presented to the emergency department with intermittent pain since her initial surgery. She also had a new issue of swelling and heat over her right buttock that started a few days prior and caused her to limit her daily activities. An ultrasound was performed, which identified small cysts and diffuse subcutaneous edema with no drainable collection. She had a second surgery a week later to remove deep filler material from both thighs. She was discharged after two days. Years later, she presented to the emergency department with erythema and swelling over the lower back and knees for 5 days; she was conservatively managed with antibiotics, amoxicillin-clavulanate. Further examination revealed migration of permanent filler to the left knee. The patient underwent surgery to excise the permanent filler in her left knee, which was performed in collaboration with orthopedic surgeons (Fig. 2). The excised tissue consists of multiple fragments of irregular tan-gray to yellow firm tissue, ranging from 2.5×2.0×0.5 cm to 17.0×8.0×1.5 cm (Fig. 3). Histopathology confirmed the diagnosis of sclerosing lipogranuloma, liquid silicone migration, foreign body granulomatous reaction, and secondary fibrosis. She was discharged the following day. She was seen in the clinic a month later,

and she seemed to be in good health. After 6 months of follow-up, the patient expressed satisfaction with her outcome and did not encounter any relapses, as she remained free of symptoms, and no further imaging was performed. Informed consent was obtained from the patient.

DISCUSSION

In Saudi Arabia, the Ministry of Health prohibits liquid silicone injection use for gluteal augmentation due to its high complication risk, favoring approved procedures like fat transfers or temporary fillers like hyaluronic acid injections. This case report details a 31-year-old woman who developed filler migration and granuloma 9 years post silicone injection, leading to a diagnosis of ASIA syndrome, a rare silicone filler complication. In a recent study, Mortada et al found that 64.61% of 503 patients had complications with permanent fillers 1–5 years postinjection.² Complications surface within 6–12 months for approximately 5%–10% of patients, after 5 years for 25%–50%, and after 10 years for a staggering 75%–100%.² This aligns with our patient's presentation of a filler-related complication 11 years postinjection. It has been noted that even medical-grade silicone can lead to granuloma formation, particularly when injected in large volumes.⁴

Although silicone implants are deemed inert materials, they have been linked to the development of ASIA syndrome in individuals with certain genetic predispositions.⁷ Studies suggest that interventions like prednisolone administration or surgical removal of silicone have been utilized in these cases.^{8,9} The literature on liquid silicone-induced granulomas and complications is limited, with a few case reports and case series.^{2,7} Despite incomplete understanding of the pathogenesis, granulomas have been associated with serious infections preceding their development. Therefore, patients with permanent filler implants



Fig. 2. The intraoperative image illustrating the extensive fibrosis caused by the filler.



Fig. 3. Multiple fragments of irregular tan-gray to yellow firm tissue have been excised, ranging in size from 2.5×2.0×0.5 cm to 17.0×8.0×1.5 cm.

are advised to take antibiotics during infections that occur within the first 10 years post-implant placement. Surgical excision can potentially resolve a granuloma, though success is not guaranteed because the inflammation site might not include all the injected filler, which could spread subclinically. Moreover, excisions leave permanent scars and carry a risk of unpredictable deformity.⁷

This case highlights the importance of a multidisciplinary approach and thorough postcare and monitoring for patients receiving silicone injections. It underscores

the need for research on long-term effects of silicone fillers to enhance treatment protocols and outcomes.

CONCLUSIONS

Permanent fillers carry significant risks. As understanding of these complications improves through global case reports, future research should focus on observational studies to understand long-term outcomes of treatment strategies for filler-related complications.

Hatan Mortada, MBBS

Division of Plastic Surgery
Department of Surgery, King Saud University Medical City
King Saud University
Riyadh, Saudi Arabia; and
Department of Plastic Surgery and Burn Unit
King Saud Medical City
Riyadh, Saudi Arabia
E-mail: hatanmortada@gmail.com

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REFERENCES

1. Sánchez-Carpintero I, Candelas D, Ruiz-Rodríguez R. Dermal fillers: types, indications, and complications. *Actas Dermo-sifiliográficas* (English Edition). 2010;101:381–393.
2. Mortada H, Al Saud N, Alaithan B, et al. Complications following permanent filler injection: a prospective cohort study and protocol of management. *Plast Reconstr Surg Global Open*. 2022;10:e4687.
3. Leyva A, Tran T, Cibulas AT, et al. Filler migration and granuloma formation after gluteal augmentation with free-silicone injections. *Cureus*. 2018;10:e3294.
4. Watad A, Sharif K, Shoenfeld Y. The ASIA syndrome: basic concepts. *Mediterr J Rheumatol*. 2017;28:64–69.
5. Tervaert JWC, Kappel RM. Silicone implant incompatibility syndrome (SIIS): a frequent cause of ASIA (Shoenfeld's syndrome). *Immunol Res*. 2013;56:293–298.
6. Watad A, Sharif K, Shoenfeld Y. The ASIA syndrome: basic concepts. *Mediterr J Rheumatol*. 2017;28:64–69.
7. Nasser E. Gluteal augmentation with liquid silicone of unknown purity causes granulomas in an adult female. *J Cutan Med Surg*. 2016;20:72–79.
8. Becerra-Gonzales VG, Alarcon-Calderon A, Saint Croix G, et al. Autoimmune/autoinflammatory syndrome induced by adjuvants (ASIA) after a silicone injection. *BMJ Case Rep*. 2020;13:e234832.
9. Baldwin Jr, CM, Kaplan EN. Silicone-induced human adjuvant disease? *Ann Plast Surg*. 1983;10:270–273.