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*CASE REPORT*

# Can we suppress excessive post-surgical scar formation: A case report

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## Abstract

*BACKGROUND*

Hypertrophic scars (HSs) formation is a complication that occurs after wounds heal with secondary intention and sometimes after clean surgical incisions. Many treatments are in vogue now with varying successes. Although the mechanism or mechanisms that cause a HS to form are not clearly understood, one thing that is clear is that once scar tissue matures, any intervention will not be successful. In this paper, we report on a case where a patient who was known to develop HS was treated with a new combination of ingredients (Phyto-chemicals + Silicone JUMI) to suppress HS formation.

*CASE SUMMARY*

A 68-year-old female of African descent presented a severe HS post total knee replacement (TKR), which the patient describes as itchy and painful. Due to complications caused by the scar, she was apprehensive about undergoing TKR on her other knee. However, after the TKR of the contralateral side post-removal of skin clips, JUMI anti-scar cream (JASC) was used to suppress excessive scar formation.

*CONCLUSION*

JASC appears potent and efficacious at suppressing excessive scar formation. We believe that this warrants further studies on larger patient groups and on different surgical sites.

**Key Words:** Hypertrophic scars; Photo-chemicals; JUMI; Keloid; Case report

**Core Tip:** Hypertrophic scars are common after surgery and often result in social, emotional, and psychological effects. Many treatments have been tested and the most prominent one is silicone gel. However, this form of treatment has complications related to hot weather. JUMI anti-scar cream is a phyto-chemical based silicone gel that was found to be quite efficacious in reducing post-surgery scars.

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## INTRODUCTION

Hypertrophic and excessive scars are common occurrences that often result in social, emotional, and psychological effects[1], in addition to exorbitant costs to manage such complications[2,3].

Hypertrophic scars (HSs) develop due to excessive collagen formation, which can regress slowly[4], but in certain circumstances may continue to deposit collagen, causing HSs[5]. We observed that scarring post joint arthroplasty occurs commonly and that scars in these areas are devoid of hair follicles and sweat glands; excessive scarring can even feel itchy and uncomfortable. Occasionally, HSs result in keloid formations, indicating that there is a dysregulation of the normal healing process, which results in excessive production of collagen, elastin, proteoglycans, and extracellular matrix proteins[6]. This demonstrates that early HS prevention could prevent keloid formation.

In this paper, we report on a case where a patient who was prone to hypertrophic scarring was treated with JUMI cream, which successfully suppressed the post-surgical scar.

## CASE PRESENTATION

### *Chief complaints*

Excessive scar formation post total knee arthroplasty of the left knee.

### *History of present illness*

A 68-year-old female of African descent presented with pain in left knee, difficulty to walk due to severe osteoarthritis of left knee. Total knee replacement (TKR) was recommended. She was very apprehensive that the post-surgical scar will become hypertrophic and painful as the right side.

### *History of past illness*

She had undergone TKR of her right knee 12 mo earlier and experience HS post-surgery (Figure 1A). She complained of persistent itching and pain in around the scar and sometimes depressed her became depressed because of it. She had many treatments, including using silicone gel to reduce the scar, which all failed. The patient insisted that she needed to delay surgery on her other knee because she was afraid of another scar forming with the same outcome.

### *Physical examination*

Nothing abnormal except she had 15 degrees of varus deformity of the left knee.

### *Laboratory examinations*

All values within normal range.

### *Imaging examinations*

X-rays show Grade IV Kellgren-Lawrence osteoarthritis in left knee.

## FINAL DIAGNOSIS

Suppression of the scar formation post TKR.


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**Figure 1 Post operative picture.** A: Post operative scar after 12 mo of total knee replacement (TKR); B: Post operative picture after removal of surgical clips on the other knee after TKR; C: Post surgery clinical picture after six weeks of use of JUMI anti-scar cream (JASC); D: Post surgery clinical picture after 12 wk of use of JASC.

## TREATMENT

As her pain grew and her mobility deteriorated, she decided to undergo total knee arthroplasty on her left side. During the second surgery, the same procedure and closure methods from the first surgery were used again (*i.e.*, the subcutaneous layer was closed using 2-0 vicryl sutures and the Covidien Appose Single Use Skin Stapler 710 from Medtronic Parkway Minneapolis, MN 55432 United States). Standard rehabilitation hospital protocol for post-TKR was followed after both surgeries.

Two weeks post-surgery, the surgical clips were removed (Figure 1B). The patient was advised to apply JUMI anti-scar cream (JASC) twice a day for 3 mo, which she did regularly.

## OUTCOME AND FOLLOW-UP

After 6 wk of applying JASC, the patient was quite happy with the effect on her scar (Figure 1C). Figure 1D shows the scar at 12 wk post suture removal, which is when she expressed having no pain or itchiness in the scar.

## DISCUSSION

This case report shows that JASC [a combination of silicone gel and Phyto-Extracts (*e.g.*, Centella asiatica extract, Curcuma Longa, lavender oil, marshmallows, Musa Paradisiaca, pineapple extract, and tea tree oil)] was quite effective at suppressing scar formation. After an extensive review, Hsu *et al*[6] reported that the majority of studies that evaluated silicone gel's ability to prevent HS and keloids were poor quality with high risk of biases. Kong *et al*[7] performed a randomized study of scars after TKR and reported that silicone gel had no beneficial effects on scar pain and itching. In addition, when silicone gel was exposed to hot weather, the researchers observed incessant pruritus (80%), skin rash and maceration, and poor patient compliance[8]. HS and keloid management has improved over the years, but has not achieved the zenith of success; therefore, more trials and more effective drugs are required.

Phyto-chemicals from medicinal plants that can be used to treat HSs have been studied and found to be highly effective[9-11]. Centella asiatica extract is an important phyto-chemical used in JASC that has been proven to contain bioactive constituents, such as triterpenoid saponins, flavonoids, phenolic acids, triterpenic steroids, and amino acids. These improve skin health by increasing hydration and decreasing transepidermal water loss with anti-inflammatory effects[12-14]. JASC is a combination of optimum phyto-chemicals and silicone gel, which has been proven to be efficacious at suppressing post-operative scars.

HSs cause great discontentment and psychological and emotional issues when the scars are close to the joint. Our patient was so depressed because of the scar from the previous surgery that she decided to live with the intolerable pain rather than risk another ugly scar. Our case report demonstrates that there are many ways to suppress post-operative scars, and JASC is one of them. We believe more studies are necessary to confirm the efficacy of JASC for all types of post-operative scars.

## CONCLUSION

JASC appears potent and efficacious at suppressing excessive scar formation. We believe that this finding warrants further studies on larger patient groups and different surgical sites.

## FOOTNOTES

**Author contributions:** All authors contributed equally in the work; The literature search, writing was performed by Sadat-Ali M and Al-Mousa SA; Operated by Al-Anii FM and Al-Tabash KW; The patient was followed by Abotaleb MM, Abotaleb MM was blinded what was used for the wound after sutures were removed; All authors have read and approve the final manuscript.

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