*Asian Journal of Case Reports in Surgery*

*5(2): 23-26, 2020; Article no.AJCRS.60270*

# Koebner's Phenomenon in Psoriasis Post Nipple Sparing Mastectomy with Immediate Silicone Implant Breast Reconstruction

**Y. L. Tan[1*], R. A. Raflis[2], N. A. Hakim[2], E. N. Aina[2] and A. Daphne[3]**

*[1]Department of Breast and Endocrine Surgery, Hospital Putrajaya, Jalan P9 Presinct 7, 62250 Putrajaya, Malaysia.*
*[2]Department of Breast and Endocrine Surgery, Hospital Kuala Lumpur, Jalan Pahang, Malaysia.*
*[3]Sime Darby Medical Centre, Subang Jaya, Malaysia.*

***Authors' contributions***

*This work was carried out in collaboration among all authors. Author YLT Conceptualized and wrote the manuscript. All authors read and approved the final manuscript.*

***Article Information***

Editor(s):
(1) Dr. Luis Ricardo Martinhao Souto, Universidade de Marília, Brazil.
Reviewers:
(1) Sudha Kiran Das, JSS Medical College and Hospital, India.
(2) Ashraf Noureldin, Cairo University, Egypt.
(3) Saurabh Chawla, National Institute of Science Education and Research, India.
Complete Peer review History: http://www.sdiarticle4.com/review-history/60270

***Case Study***

***Received 15 June 2020***
***Accepted 19 August 2020***
***Published 05 September 2020***

## ABSTRACT

The 'Koebner's phenomenon' is a rare clinical response that occurs in patients with pre-existing cutaneous diseases like psoriasis. The phenomenon is triggered by skin incisions, causing an acute development of isomorphic pathological lesions along the lines of the skin trauma in an otherwise normal healthy area. Its occurrence following an immediate silicone implant breast reconstruction could result in severe morbidities. The awareness of this clinical entity and its complications is of paramount importance in preoperative decisions for breast reconstruction; given that they are rare but preventable.

*Keywords: Koebner's phenomenon; nipple sparing mastectomy; silicone implant reconstruction; psoriasis with breast cancer.*

**Corresponding author: E-mail: mail2yeeling@gmail.com*

## 1. INTRODUCTION

In the era of emerging oncoplastic breast surgery, nipple sparing mastectomy and immediate silicone implant breast reconstruction is a justified one-stage procedure for breast cancer patients who wish to preserve cosmetic appearance following cancer surgery. However, patients with pre-existing chronic skin condition like psoriasis should be counselled with caution for silicone breast implant reconstructive procedure. We report our experience in diagnosing and managing 'Koebner phenomenon' following a skin sparing mastectomy with immediate silicone breast reconstruction in a patient with psoriasis in remission.

## 2. CASE REPORT

A 64-year-old Chinese lady had an incidental breast lump diagnosed during a breast cancer screening at Hospital Kuala Lumpur. She was diabetic for the past five years and was on diet control but denied other medical illnesses. She was post-menopausal and had three children with no other identifiable risk factors for breast cancer. She was working as an executive clerk and she was a non-smoker. On examination, the right breast skin appeared normal with a vague palpable lump measuring approximately 2 cm at 6 o'clock position, 3 cm away from the nipple with a palpable mobile ipsilateral axillary lymph node. A mammogram and complementary ultrasound reported a spiculated mass seen on the right breast lower quadrant measuring 2.3x 2.0x 2.5 cm. An ultrasound-guided biopsy revealed the histology of invasive carcinoma of the right breast, a non-specific type. A contrasted computed tomography scan showed no distant metastasis. She opted for a nipple-skin sparing mastectomy with immediate silicone implant reconstruction instead of a breast conserving surgery and whole breast radiotherapy. A concurrent right axillary clearance and contralateral mastopexy for grade 2 ptosis were performed. Intraoperatively, the skin was prepped with povidone-iodine and prophylactic antibiotic was administered 30 minutes prior to skin incision (IV Augmentin 1.2g). The implant was soaked in sterile saline with 1 ampoule of gentamycin solution prior to insertion into the subpectoral plane.

During wound inspection on postoperative day three, there was evidence of ischemic patch along the incision edges. The contralateral breast wound was clean. On postoperative day four, she developed generalized pustular eruptions along the incisions of right breast (Fig. 1) which spread to the face, trunk and thighs within the next 24 hours. The wound on the right breast had pus discharge with epidermal necrosis. She was referred to a dermatologist and we discovered that she had psoriasis with no relapse over the last 30 years. Systemically, she deteriorated with evidence of septic shock with a raised temperature of 39 degrees Celsius, tachycardic and total white cell count of $21{,}200 \times 10^9$/dl requiring low dose inotropic support in high dependency unit. Her wound was swabbed and blood culture was taken. She was empirically treated with IV Vancomycin, IV Fluconazole 200 mg od and IV Hydrocortisone 100mg bd. Seventy-two hours later her blood and wound pus cultured Methicillin-Resistant Staphylococcus Aureus (MRSA) and IV Vancomycin 1g qid was continued.

**Fig. 1. Koebner's Phenomenon started as pustular eruptions along right breast skin incision, progressive involving entire breast skin on wound inspection post op day 3, with nipple areolar necrosis**

On postoperative day eight, the patient did not improve with antibiotics. The implant appeared exposed during dressing and she was counselled for removal of the implant due to persistent signs of sepsis. The skin pocket and implant were removed. The wound was dressed with vacuum-assisted closure (VAC) for two weeks (two cycles). She then progressed to recover. Her fever resolved and she was weaned off inotropic support. She received a total of 18 days of IV Vancomycin until a culture yielded no growth. The wound was healing from VAC (Fig. 3) until she was discharged on day 31 from her initial surgery. However, she had to be referred for psychiatric counsellor support due to adjustment disorder from the unexpected complications.

Her final histopathology report revealed a 2 cm Invasive Carcinoma, non-specific type (T2), Grade 2 with lymphovascular invasion, all

surgical margins clear with deep margin 2 mm. The lymph node was positive in 1 out of 12 with oestrogen and progesterone receptor (ER/PR) positivity (Stage 3a). However, she declined adjuvant chemotherapy. She was apprehensive on the potential risk of a psoriasis flare-up. She was then prescribed with oral Tamoxifen 20 mg daily for five years with the continuation of surveillance for contralateral breast.

**Fig. 2. Contralateral left breast wound inspection with no signs of pustular eruptions on post op day 3**

**Fig. 3. Wound condition with VAC dressing following nipple-areolar complex, skin pocket and implant removal**

## 3. DISCUSSION

The Koebner's phenomenon was first described by dermatologist Dr Heinrich Koebner in 1872 as a hallmark to psoriasis [1], as well as in other cutaneous diseases such as lichen planus, vitiligo and pyoderma gangrenosum [2]. The Koebner's phenomenon is known to occur in 20-70% of patients with psoriasis [3]. It is postulated to be due to skin trauma involving both the epidermal and dermal layers. The period from injury to psoriatic lesion development varies, although it generally takes 10 to 20 days [4]. The pathogenesis remains obscure. It is a T-cell mediated cycle of auto-inflammatory response leading to an uncontrolled keratinocytes proliferation and psoriatic plaque formations [5].

A literature search revealed there were only two other case reports by far on Koebner's phenomenon related to breast reconstructive surgery. Behranwala et al. [6] described a case of skin-sparing mastectomy with circumareolar incision followed by autologous latissimus dorsi flap and implant reconstruction, in which delayed koebnerization was seen three months post-surgery(4). The skin eruptions responded to topical clobetasol propionate ointment and cosmesis results were preserved and unaffected. Alolabi et al. [7] reported a delayed koebnerization occurring one-month post-operatively in their 29-year-old patient who had bilateral prophylactic mastectomies with silicone implants reconstruction. The patient responded to topical Protopic ointment as well as intravenous cefazolin but had to undergo multiple surgeries including removal and exchange of implants despite developing four postoperative wound infections with Koebner's phenomenon.

Unfortunately, our patient developed far more life-threatening complications with koebnerization, that is a superimposed MRSA infection. In comparison, the phenomenon occurred early in post-operative day 4, in which we postulated to be aggravated with silicone implant reaction. Despite the timely administration of intravenous steroids for the psoriasis flare-up and intravenous antibiotics (Vancomycin) targeted for MRSA bacteremia, she only progressed to recovery after the removal of the silicone implant. Evidence of silicone degradation products in the body indicates that they might have activated cells from both the innate and the adaptive immune system, and thus perpetuate a pro-inflammatory response in the local tissue [8]. The microorganism most frequently observed according to Song et al. [9] retrospective review of 771 breast implant infection was *Staphylococcus aureus*, with methicillin-resistance (MRSA) observed in 21.4% of the cases of infection. Their observation suggests that implant removal can be considered when clinical signs worsen and/or when MRSA is identified.

Our patient's age and her underlying medical condition of diabetes could be the contributing factors to her morbidity. Although the risk of surgical site infection in immediate breast reconstruction is reported to be as high as 50%, diabetes alone was not associated with significantly increased risk of wound complication. However, the 30-day overall morbidity (medical or surgical complication) rate

was significantly higher in the immediate breast reconstruction in older women [10].

On the other hand, the patient's psychological status showed deterioration throughout her hospital stay. Her expectations on the aesthetic outcome, in this case, were unfulfilled. Evidence suggests that lower patient satisfaction with information and increased depression are associated with increased decision regret when it comes to breast reconstruction. It is best to engage early interventions from counsellors or psychiatrists to provide necessary support as a part of holistic care to a patient. Nevertheless, patients considering breast reconstruction need to be provided with relevant information in a way that is most useful to them to make well-informed decisions. Even if the adverse event is of extreme rarity, the patient's decision could be different if she was pre-informed.

## 4. CONCLUSION

The Koebner phenomenon, albeit rare, has the potential to cause life-threatening complications. This knowledge is integral in surgical decision making for immediate silicone breast reconstruction in patients with breast cancer and psoriasis

## CONSENT

All authors declare that written informed consent was obtained from the patient (or other approved parties) for publication of this case report and accompanying images.

## ETHICAL APPROVAL

All authors hereby declare the study is ethically approved.

## ACKNOWLEDGEMENTS

I acknowledge and thank all co-authors in contributing to this case study and declare that the case study is self-funded. It has no external funding agency and no study sponsors involved. This manuscript is original and has not been published elsewhere.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

## REFERENCES

1. Boyd AS, Nelder KH. The isomorphic response of Koebner. Int J Dermatol. 1990; 29:401-410.
2. Farber EM, Roth RJ, Aschheim E et al. Role of trauma in isomorphic response in psoriasis. Arch Dermatol. 1965;91:246-251.
3. M.-F.MA. Koebner Phenomenon: What you don't know may hurt you. Annal of Plastic Surgery. 2000;44(6) :644-645.
4. Weiss G, Shemer A, Trau H, The Koebner phenomenon: Review of the literature. European Academy Dermatology Venereology. 2002;(16):241-8.
5. Flatz Lukas, Curdin Conrad. Role of t-cell mediated inflammation in psoriasis: Pathogenesis and Targeted Therapy. Psoriasis: Targets and Therapy. 2013;3: 1-10.
6. Behranwala KA, Gui GPH. The Koebner phenomenon in myocutaneous flap following immediate breast reconstruction. British Journal of Plastic Surgery. 2002; 55:267-8.
7. Alolabi N, The Koebner phenomenon and breast reconstruction: Psoriasis eruption along the surgical incision. Canada Journal of Plastic Surgery. 2011;(19):143-4.
8. Backovic A, Wolfram D. Silicone mammary implants—can we turn back the time? Exp Gerontol. 2007;42(8):713–8.
9. KYJB, Song JH. Salvage of Infected Breast Implants. Archives of Plastic Surgery. 2017;44(6):516-22
10. Rifkin WJ, Kantar RS, Cammarata MJ, et al. Impact of Diabetes on 30-Day Complications in Mastectomy and Implant-Based Breast Reconstruction. J Surg Res. 2019;235: 148-159.



*Peer-review history:*
*The peer review history for this paper can be accessed here:*
*http://www.sdiarticle4.com/review-history/60270*