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# Florid pustular dermatitis of breast: A case report on a unusual complication from acellular dermal matrix use

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## ABSTRACT

**INTRODUCTION:** Idiopathic erythematous reaction of the breast (Red breast syndrome) is a known complication following breast reconstruction with acellular dermal matrix. However pustular dermatitis like presentation is not previously known.

**PRESENTATION OF CASE:** We present a 42-year-old lady who developed bilateral pustular dermatitis like appearance following breast reconstruction with acellular dermal matrix slings. Though surgical washout was done, both expanders and flex HD could be preserved.

**DISCUSSION:** Acellular dermal matrix use is the only possible explanation for such a presentation and this can be considered a variant of red breast syndrome.

**CONCLUSION:** Pustular dermatitis like presentation can be associated with acellular dermal matrix use and should be considered in similar clinical presentations, since this can avoid unnecessary surgical procedures.

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## 1. Introduction

Acellular dermal matrices (ADM) are a group of immunologically inert dermal replacement products created from decellularised cadaveric or xenographic skin. They have become a common adjunct in implant based breast reconstruction [1–3]. FlexHD® Pliable™, (Mentor Worldwide LLC, Santa Barbara, CA and Musculoskeletal Transplant Foundation, Edison, NJ) (Flex HD) is an acellular dermal matrix derived from donated human skin (<http://www.ethicon.com/healthcareprofessionals/products/-hernia-repair-and-fixation/hernia-mesh-biologic-mesh/flexhd-structural-acellular-hydrated-dermis#!description-and-specs>). We have been using Flex HD since early 2014 for breast reconstructions. Use of ADM is thought to produce a better cosmetic result, reduce operating time and reduce post-operative pain [3,4]. A number of studies have noted high infection rates with the use of ADM [4–7]. Red breast syndrome (RBS) is a type of cellulitis-like reaction of unknown aetiology associated with the use of ADM [8]. We report the first case of florid pustular dermatitis in association with Flex HD use.

## 2. Methods

We collected patient information and data on the following clinical course prospectively. Clinical photographs were taken during hospital admission with written patient consent meeting institutional guidelines. Patient was followed up in our clinic after discharge from hospital. Information is presented here as per CARE guidelines [9].

## 3. Presentation of case

A 42 year old lady presented with a self-detected left breast lump. She had a 40 mm mass in the upper outer quadrant with clinically palpable lymph nodes in the left axilla. Investigations confirmed this to be grade 3 hormone receptor positive and HER2 negative invasive ductal carcinoma with axillary node involvement and no distant metastases. She underwent bilateral total skin sparing mastectomy, left axillary dissection and bilateral tissue expander (TE) insertion with Flex HD. The TE was implanted in a sub pectoral pocket and Flex HD was used to cover the lower pole of the TE as a bridge between the inframammary fold and lower border of pectoralis major. A fat sheet of Flex HD 6 × 16 cm was used on either side and secured in place using Prolene continuous sutures. She was discharged home in a stable condition on the 4th post-operative day. Twenty four hours after discharge she presented to the emergency department with redness and multiple pustules on both breasts. She was systemically well. Both breasts

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**Fig. 1.** Pustular dermatitis of left breast.  
Description: appearance of left breast on fifth post-operative day.



**Fig. 2.** Pustular dermatitis of right breast.  
Description: appearance of right breast on fifth post-operative day.

were red and tender with multiple pustules over both breasts. A purplish discolouration was obvious over the breast which was most pronounced on left. (Figs. 1 and 2). The skin elsewhere was normal with no evidence of dermatitis. Her white cell count was  $6.92 \times 10^9/L$  and C reactive protein was 120 mg/L (normal range <5). She was recommenced on IV antibiotics, resuscitated and taken to theatre for washout with a presumptive diagnosis of infected TE. At operation there was no evidence of infection or pus formation deep to skin. Inflammation was confined to skin with normal looking subcutaneous and deeper tissues. Sub pectoral pockets were clean and devoid of any oedema or pus. Sub pectoral and subcutaneous pockets were thoroughly washed with antiseptic solution. Both TE were explanted, washed in antiseptic and antibiotic solutions and re inserted. Irrigation catheters were inserted in to the sub pectoral pockets, preserving Flex HD. Vancomycin irrigation was commenced and continued for the next 3 days. Intravenous antibiotic was continued for 7 days. She improved consistently in the next 7 days with disappearance of pustules and complete improvement of the dermatitis. She was discharged home on oral antibiotic for five more days on the eighth post-operative day. None of the cultures grew any pathogens. She remains well at the end of the second

post-operative month without any further episodes of dermatitis and has commenced adjuvant chemotherapy.

#### 4. Discussion

RBS usually presents with erythema over the breast without any systemic signs of infection such as fever or leucocytosis [10]. The exact aetiology of this remains unknown, while a number of causes such as improper orientation of ADM (ADM is polarized and should be inserted with smooth surface facing the implant), foreign body reaction, lymphatic obstruction, hyperaemia secondary to neovascularization and type IV hypersensitivity reactions are postulated [8,11]. None of the reported description of RBS resembles the florid dermatitis seen in our patient. Similar to other reported cases of RBS our patient was remarkably well systemically in spite of very dramatic appearing breast inflammation. Even though we used antibiotic irrigation and IV antibiotics, it is not clear if this was the reason for the prompt recovery seen in our patient since we have not been able to demonstrate a causative agent in culture. It is possible that the skin flaps might have suffered ischaemia as indicated by purple discolouration seen in the initial stages. However this completely recovered in the following days without any skin loss or need for debridement. Whether ischemia has contributed to this appearance is unknown. Overall a non-infective acute inflammatory reaction in the presence of ADM seem to be the most appropriate explanation for the clinical picture. Even though a number of reports of RBS are available in the literature, none of those descriptions seem to report such dramatic appearing skin inflammation. Awareness of such a condition can help in correct decision making in the future.

#### 5. Conclusion

This paper presents the first reported case of a florid pustular dermatitis of the breast following reconstruction using ADM. This has to be considered as a possible explanation for breast inflammation in fitting clinical presentations.

#### Consent

Written consent has been provided by patient for use of de identified clinical photograph for clinical and research purposes.

#### Conflict of interest

There is no conflict of interest to declare with any of the authors.

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#### Ethical approval

No ethical approval required.

#### Author contribution

Justin James: Data collection, data analysis or interpretation, writing the paper.

Lee Jackson : Study concept & writing the paper.

Christobel Saunders: Data interpretation, writing the paper.

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## References

- [1] L. Jansen, P. Caigny, N. Guay, W. Lineaweaver, K. Shokrollahi, The evidence base for the acellular dermal matrix Alloderm: a systematic review, *Ann. Plast. Surg.* 70 (2013) 587.
- [2] D. Wainwright, Clinical evaluation of an acellular allograft dermal matrix in full-thickness burns, *J. Burn Care Rehabil.* 17 (1996) 124–126.
- [3] G. Ho, A systematic review and meta-analysis of complications associated with acellular dermal matrix-assisted breast reconstruction, *Ann. Plast. Surg.* 68 (2012) 346–356.
- [4] Y.S. Chun, Implant-based breast reconstruction using acellular dermal matrix and the risk of postoperative complications, *Plast. Reconstr. Surg.* 125 (2010) 429–436.
- [5] S.L. Spear, P.M. Parikh, E. Reisin, N.G. Menon, Acellular dermis-assisted breast reconstruction, *Aesthet. Plast. Surg.* 32 (2008) 418–425.
- [6] A.K. Antony, Acellular human dermis implantation in 153 immediate two-stage tissue expander breast reconstructions: determining the incidence and significant predictors of complications, *Plast. Reconstr. Surg.* 125 (2010) 1606–1614.
- [7] S.T. Lanier, The effect of acellular dermal matrix use on complication rates in tissue expander/implant breast reconstruction, *Ann. Plast. Surg.* 64 (2010) 674–678.
- [8] P. Lewis, J. Jewell, G. Mattison, S. Gupta, H. Kim, Reducing postoperative infections and red breast syndrome in patients with acellular dermal matrix-based breast reconstruction: the relative roles of product sterility and lower body mass index, *Ann. Plast. Surg.* 74 (Suppl. 1) (2015), S30–32.
- [9] J.J. Gagnier, The CARE guidelines: consensus-based clinical case reporting guideline development, *Glob. Adv. Health Med.* 2 (2013) 38–43.
- [10] V. Rawlani, D.W. Buck, S.A. Johnson, K.S. Heyer, J.Y. Kim, Tissue expander breast reconstruction using prehydrated human acellular dermis, *Ann. Plast. Surg.* 66 (2011) 593–597.
- [11] I. Ganske, et al., Delayed hypersensitivity reaction to acellular dermal matrix in breast reconstruction: the red breast syndrome? *Ann. Plast. Surg.* 73 (Suppl. 2) (2014), S139–143.

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