Plastic Surgery and Modern Techniques

AlYousif EA, et al. Plast Surg Mod Tech 7: 168.

www.doi.org/10.29011/2577-1701.100068

www.gavinpublishers.com

OPEN ACCESS

GAVIN PUBLISHERS

Case Report

Abdominal Flap Reconstruction Over Necrotic Skin Post Renal Transplantation: A Case Report

Eman A AlYousif[1*], Muna F Alnaim[2], Saeed S Alhabib[1]

[1]Plastic Surgery Consultant, King Fahad Specialist Hospital, Dammam, Saudi Arabia

[2]King Faisal University Medical School, Alhasa, Saudi Arabia

[*]**Corresponding author:** ALYousif EA, Department Plastic surgery consultant, King Fahad Specialist Hospital, Dammam, Saudi Arabia

Citation: AlYousif EA, Alnaim MF, Alhabib SS (2023) Abdominal Flap Reconstruction Over Necrotic Skin Post Renal Transplantation: A Case Report Plast Surg Mod Tech 7: 168. https://doi.org/10.29011/2577-1701.1000168

Received Date: 05 July, 2023; **Accepted Date:** 13 July, 2023; **Published Date:** 18 July, 2023

Abstract

Background: Although wound complications post renal transplantation procedure is not strange,presenting with loss of skin at the right lower quadrant and an exposed recipient kidney is definitely extremely extraordinary. The purpose of this case study is to showcase a patient who developed substantial necrosis of the skin of the abdominal wall following a Living unrelated Right Renal transplantation (LURRT) procedure in order to highlight the importance of protecting rectus abdominis perforator blood vessels in order to maintain skin vitality. **Case Report:** 67-year-old female presented with skin necrosis and exposed transplanted kidney.The patient has a history of End Stage Renal Disease, Crohn's disease, and secondary adrenal insufficiency. The patient underwent ileocecal resection and ileostomy creation. The patient underwent Living unrelated Right Renal transplantation (LURRT) with a complicated post-transplant course. The wound edges were refreshed and the wound base was curetted and irrigated with antibiotics. A mesh of Acellular Dermal Matrix (ADM) was placed over the exposed kindly covering it completely and two abdominal local flaps were advanced to close the defect. **Conclusion:** Kidney transplantation is the preferred treatment for end-stage renal disease over dialysis. Surgical site complications (SSCs) are a major cause of morbidity in kidney transplant recipients, so when making an abdominal incision, always consider the blood supply provided tosurrounding structures, and keep the risk of compromising abdominal perforator blood vessels in mind. Thus, proper anatomical planning prior to surgery can aid in avoiding such a catastrophic outcome.

Keywords: Abdominal Reconstruction; Skin Necrosis; Flap; Post Renal Transplantation; Case Report

Background

The only cure for treating end-stage renal disease is kidney transplantation [1]. The most frequent post transplant surgical complications are infections, wound dehiscence, and incisional hernias (IH), which can also increase post-transplant morbidity [2]. The depth of the abdominal wall as well as the presence of infection are items used to classify abdominal wall and wound complications. [3,4]. Wound dehiscence is classified as superficial when only skin and subcutaneous tissues are detached, and deep when muscle fascia is affected. When there are signs of infection, such as pain, fever, soreness, and/or purulent discharge from the superficial wound or the fascia or muscle layers, infection must be considered [3]. The incidence rate of abdominal wound complications in transplant recipients is 7.7-21%,3,5-13, with superficial wound dehiscence being the most common. [3,5]. Soft tissue must be given particular care during abdominal wall reconstruction to minimize wound healing issues that might lead to mesh infection and hernia recurrence [6]. In this case report, we draw attention to an odd case of post renal transplantation procedure that presented with skin loss at the right lower quadrant and an exposed right transplanted kidney that was treated with urgent abdominal reconstruction that may guide physicians to properly managing such rare presentations and emphasize the need to consider the abdominal perforators blood supply in surgical procedures.

Case Report

A 67-year-old female presented with skin necrosis and right sided exposed transplanted kidney. Thepatient has a history of End Stage Renal Disease, Crohn's disease, secondary adrenal insufficiency. The patient underwent ileocecal resection in 2014 that was complicated anastomotic site perforation in 2021 that was managed by open abdominal exploration, debridement and ileostomy creation. In late 2021 the patient underwent Living unrelated Right Renal transplantation (LURRT)with a complicated post-transplant course. Finally, she presented to the plastic surgery department with skin necrosis and surgical site infection over the transplanted kidney post wound debridement. On physical examination, midline incision seen and right kidney transplant incision, exposed kidney with loss of skin at the right lower quadrant (Figure 1). The surgical option was explored with the patient and the operations risk and possible complications were discussed and surgical consent was obtained intraoperatively, the patient was positioned supine with general anesthesia induction. The skin was draped and prepared in a sterile manner. The surgeon proceeded with wound edges refreshment and wound base curettage. irrigation with povidone-iodine solution was done. A Meshed Bilayer Wound Matrix was used and was firmly secured over the exposed kidney ensuring full coverage and extra protection. Two local abdominal flaps were advanced over the covered kidney ensuring the full closure of the defect. The skin was closed in layers and staples were applied in the final step. The wound dressing consisted of aquacel silver covered by gauze.

Postoperative complication was present, an abdominal wall wound discharge of 100cc was aspirated from the wound and confirmed by abdominal US and collection of fluid. The wound was washed, irrigated and aquacel dressing applied, Infectious diseases team was consulted and Tazocin was started. The patient was instructed to come for daily dressing and for flap vascularity observation, wound dehiscence was found on the area of maximal tension and fluid discharge was still present. An operation was booked for proper washing of the wound and wound revision. A drain was placed. one day after the operation, the patient was doing well and the drain output was minimal, the dressing was dry and intact. one week after the operation, the drain was removed and the wound was clean. A patient came a week later with a wound being contaminated by the stoma, new dressing was placed and the patient was referred to a stoma nurse and was scheduled for stitches removal, in the next appointment. Three months of observation passed by with dressing change each 3 days using aquacel silver, no further complications were observed and the wound healed completely by then, and patient was discharged from the plastic surgery clinic.

Figure 1: Full thickness Abdominal wall Loss with Exposed Right Transplanted Kidney that Is covered in Granulation Tissue.

Discussion

The blood supply to the abdominal wall skin and subcutaneous tissue is predominantly derived from the deep inferior and superior epigastric arteries via vascular perforators [7]. A significant number of these perforators are localized within 3 cm of the umbilicus [8]. Usage of local flaps to recruit adjacent abdominal skin for large abdominal wall skin and subcutaneous tissue loss is one of the possible techniques used for such presentations. These are typically advancement flaps, which involve careful undermining of the skin and subcutaneous tissue, back cuts as needed, and the skin being moved to close the incision in a tension-free manner. The upper abdominal skin is advanced, equivalent to an abdominoplasty, for low-transverse defects. Trying to flex the bed at the waist will certainly aid in relieving tension from the closure. Axial flaps could also be designed using one or more deep epigastric perforators. [9]. When local tissue is insufficient, regional flaps can most definitely be used. Studies of Abdominal wall reconstruction using synthetic meshes have shown that surgical site occurrences (SSOs), surgical site infections (SSIs), and hernia recurrences increase with increased degrees of wound contamination [10-12] Accordingly, many surgeons choose acellular dermal matrix (ADM) rather than synthetic mesh as a strategy to minimize SSOs and SSIs, particularly in contaminated wounds [13-19]. In our case, that was the type of mesh used. Especially that the patient had a stoma which must be put into account when choosing the type of mesh needed for a patient. while

its true that ADM has its own side effects such as seromas which was present in our case, but when we consider the patient's age and comorbidities, this complication becomes less worrisome since our primary goal is to protect the transplanted kidney from external insult and prevent infection in our immunocompromised patient [20,21].

Conclusion

Surgical site complications (SSCs) are a major cause of morbidity in kidney transplant recipients. Thus, whenever making an abdominal incision, always consider the blood supply provided to surrounding structures. Also, contemplate the risk of compromising abdominal perforator blood vessels. Hence, proper anatomical planning prior to surgery and evidence-based reviews of surgical techniques can aid in avoiding such a catastrophic outcome.

References

1. Veroux M, Corona D, Veroux P (2009) Kidney transplantation: future challenges. Minerva Chir 64:75-100.
2. Lechler RI, SykesM, Thomson AW, Turka LA (2005) Organ transplantation–how much of the promise has been realized? Nat Med 11: 605-613.
3. Mehrabi A, Fonouni H,Wente M, M Sadeghi, C Eisenbach, et al. (2006) Wound complications following kidney and liver transplantation. Clin Transplant 17: 97-110.
4. Vardanian AJ, Farmer DG, Ghobrial RM, Busuttil RW, Hiatt JR, et al. (2006) Incisional hernia afterliver transplantation. J Am Coll Surg 203: 421-425.
5. Mahdavi R, Mehrabi M (2004) Incisional hernia after renal transplantation and its repair withpropylene mesh. Urol J 1: 259-262.
6. Holihan JL, Alawadi Z, Martindale RG, Roth JS, Wray CJ, et al. (2015) Adverse events after ventral hernia repair: the vicious cycle of complications. J Am Coll Surg 221: 478-485.
7. Moon HK, Taylor GI (1988) The vascular anatomy of rectus abdominis musculocutaneousflaps based on the deep superior epigastric system. Plast Reconstr Surg 82: 815-829.
8. Schaverien M, Saint-Cyr M, Arbique G, Brown SA (2008) Arterial and venous anatomies of the deep inferior epigastric perforator and superficial inferior epigastric artery flaps. Plast Reconstr Surg 121: 1909-1919.
9. Scaglioni MF, Di Giuseppe A, Chang EI (2015) Propeller flap reconstruction of abdominaldefects: review of the literature and case report. Microsurgery 35: 72-78.
10. Dunne JR, Malone DL, Tracy JK, Napolitano LM (2003) Abdominal wall hernias: Risk factorsfor infection and resource utilization. J Surg Res 111: 78-84.
11. Carbonell AM, Criss CN, Cobb WS, Yuri W Novitsky, Michael J Rosen, et al. (2013) Outcomes of synthetic mesh in contaminated ventral hernia repairs. J Am Coll Surg 217: 991-998.
12. Finan KR, Vick CC, Kiefe CI, Neumayer L, Hawn MT, et al. (2005) Predictors of wound infection in ventral hernia repair.Am J Surg 190: 676-681.
13. Petersen S, Henke G, Freitag M, Faulhaber A, Ludwig K, et al. (2001) Deep prosthesis infection in incisional hernia repair: predictive factors and clinical outcome. Eur J Surg 167: 453-457.
14. Diaz JJ, Guy J, Berkes MB, Guillamondegui O, Miller RS, et al. (2006) Acellular dermal allograft for ventral hernia repair inthe compromised surgical field. Am Surg 72: 1181-1187.
15. Kim H, Bruen K, Vargo D (2006) Acellular dermal matrix in the management of high-risk abdominal wall defects. Am J Surg 192: 705-709.
16. Garvey PB, Giordano SA, Baumann DP, Liu J, Butler CE, et al. (2017) Long-Term Outcomes after Abdominal Wall Reconstruction with Acellular Dermal Matrix. J Am Coll Surg 224: 341-350.
17. Patton JH, Berry S, Kralovich KA (2007) Use of human acellular dermal matrix in complex and contaminated abdominal wall reconstructions. Am J Surg 193: 360-363.
18. Liang MK, Berger RL, Nguyen MT, Hicks SC, Li LT, et al. (2014) Outcomes with porcine acellular dermal matrix versus low-/mid-density synthetic mesh in complicated open ventral hernia repairs. Surg Infect 15: 506-512.
19. Brahmbhatt R, Martindale R, Liang MK. Jumping the gun? Evaluating the evidence forsynthetic mesh in contaminated hernia repairs. J Am Coll Surg 218: 498-499.
20. Liang MK, Berger RL, Nguyen MT, Hicks SC, Li LT, et al. (2014) Outcomes with porcine acellular dermal matrixversus synthetic mesh and suture repair in complicated open ventral hernia repair. Surg Infect 15: 506-12.
21. Garvey PB, Martinez RA, Baumann DP, Liu J, Butler CE, et al. (2014) Outcomes of Abdominal Wall Reconstruction with Acellular Dermal Matrix Are Not Affected by Wound Contamination. J Am Coll Surg 219: 853-864.