IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Management Of Necrosed Wound With Skin Grafting Caused By Peripheral Intravenous Catheter Complication –A Case Study

1 Dr. Chaudhari Unnati Hemant 2 Dr. Gajare Kamlakar V.

1. M.S. Shalyatantra P.G. Scholar, Sumatibhai Shah Ayurved Mahavidyalaya, Hadapsar, Pune
2. Head Of Department , Shalyatantra, Sumatibhai Shah Ayurved Mahavidyalaya, Hadapsar, Pune

ABSRACT

Peripheral intravenous catheters are the most frequently used invasive device in hospitalised patients.They are commonly associated with complications such as Phlebitis, inflammation of tunica intima of venous wall, characterized by pain, erythema, swelling, palpable venous cord, and pussy discharge at catheter site. It causes further necrosed infected wound.In such cases after debridement of necrosed infected wound skin loss occurs which posing a challenge for surgeons to cover the wounds. As a result, in the last few decades, various techniques such as negative pressure therapy, partial and full-thickness skin grafts, and the use of different flaps have been implemented. This article aims to discuss the use of skin grafts for wound coverage. It will also present a case study of a 68-year-old female patient who suffered with necrosed wound due to intravenous catheter complication over right medial aspect of wrist joint, wound bed prepared by surgical necrotectomy or sharp debridement with giving antibiotics according to culture and sensitivity. The wound was covered with a split thickness skin graft, which showed good evolution and excellent aesthetic results.

Keywords- Necrotic phlebitis , split thickness skin grafting , peripheral intravenous catheter complication

INTRODUCTION –

Peripheral intra venous catheter (PIVC) insertion is the most frequently performed procedure in hospital settings. Approximately 33–67% of hospitalized patients require at least one peripheral vein insertion. Peripheral vein catheters are required for administration of intravenous drugs, infusate solutions, blood products and parenteral feeding. It is as well necessary for access to vascular procedures .[1-13] Despite PIVC benefits, its use is not without potential complications such as phlebitis, infiltration, extravasation, occlusion and dislodgment.[3,5-10,14-15] Peripheral vein phlebitis occurred in 13–56% of hospitalized patients.[7-10,15,16] Phlebitis is clinically manifested by pain, erythema, swelling, palpable venous cord, and pussy discharge at catheter site.[4-8,10,11,15-17]

It causes further necrosed infected wound.In such cases after debridement of necrosed infected wound skin loss occurs which posing a challenge for surgeons to cover the wounds.

The intravenous catheter complication cause frequent and serious injuries that can't be fixed with a few basic methods. As a result, more intricate closure methods like skin grafts and different kinds of skin flaps are used by reconstructive surgeons. This talk will be centered on skin grafting. The skin itself continues to be the best replacement for lost skin.

Research is still underway, but no long-term artificial covering has been able to perfectly mimic the physiological and anatomical properties of human skin.[18] The practice of skin grafting dates back to the third century after Christ, when full-thickness grafts were first used.Ancient civilizations such as the Indians, Egyptians, and Romans used rudimentary techniques to apply skin from one body part to another. Sushruta, an ancient Indian physician, is considered the "father of surgery" and described techniques for reconstructing damaged noses and ears using skin grafts. Split-thickness grafts have since been used, sometimes even in conjunction with suction technology tools. This article aims to discuss the use of skin grafts for wound coverage.

CASE REPORT

A 68 year old female patient presented at opd with necrotic phlebitis over medial aspect of right wrist joint approx size 5 × 5 cm [figure no 1] since 15 days with history of 5days hospitalization for diarrhoea. Wound bed prepared by surgical necrotectomy or sharp debridement under local anaesthesia.[figure 2] Antibiotics given according to culture and sensitivity report with daily dressing done with antiseptic solutions for 5 days. After occurring healthy granulation we planed for split thickness skin grafting (STSG) general anaesthesia.[figure 3]

Pre-operatively, wound bed (recipient's site) prepared by scooping and freshened up margins of wound. Intraoperatively, split thickness skin graft harvested from anterior aspect of ipsilateral thigh (donor's site).The STSG inset at recipient's with staple[figure 4] , bactigrass ,moist pads and bandaging done. Below elbow slab given. Post operatively intravenous antibiotic inj linid 600 mg given twice a days for 5 days according to culture and sensitivity report.

When (recipient's site) uncovered five days later, 90% of the graft had integrated successfully [figure no 5].Dressing process repeated one after 5 days graft integrated very well ; staples are removed.[figure no 6]. After discharge upon subsequent review in the outpatient setting, the graft demonstrated complete uptaken.

DISCUSSION

Infections, in particular catheter-associated bloodstream infections, are the most serious complication associated with peripheral intravenous catheters[19]. The skin normally acts as a protective barrier against bacteria accessing the body but is breached when a catheter is inserted. Bacteria may enter the bloodstream via the external or internal surfaces of the catheter or may cause a local peripheral intravenous catheter related infection such as cellulitis or soft tissue infection.[20]Consequently, catheter associated bloodstream infections associated with peripheral intravenous catheters commonly consist of coagulase-negative Staphylococcus (common skin flora) bacteraemia and other organisms commonly found in hospital settings (e.g., Staphylococcus aureus).[21]In addition to infection, a peripheral intravenous catheter can develop complications such as occlusion or phlebitis, leading to failure and premature catheter removal.[22]The goal is to choose the option that offers the best result for the intravenous catheter complication with the simplest procedure.

Skin grafts find application in diverse clinical situations such as traumatic injuries, post-resection defects, burn reconstruction, scar release, and vitiligo, among others.[23]

Skin grafting is a procedure that is essential to reconstructive surgery for patients who have suffered burns, traumas, and non-healing or large wounds. This skill is necessary to provide improved quality of life for patients with significant wounds and extensive burns.Split-thickness skin graft (STSG) refers to a type of widely used skin graft that comprises both the full layer of the epidermis and a part of the dermis. The STSG can be meshed and the meshed type is mainly used to treat big burn or trauma. General STSG, a convenient and effective method that is typically used for skin defects and wound healing.

CONCLUSION

1. A more methodical and organized approach to both insertion and post-insertion management is obviously required, with a focus on monitoring infections connected to peripheral intravenous catheters, as more than of these devices fail. Furthermore, more studies examining the risk factors for peripheral intravenous catheter infections are required to support the creation of infection prevention plans that guide clinical judgment. If peripheral intravenous catheter infections and failures can be decreased, there could be significant advantages for patients as well as health services.

2.Careful planning, preparation, and postoperative care are necessary for skin grafting, which can be a difficult process. A number of variables, including the type of graft used, appropriate wound care, general patient health, and coexisting conditions, might affect the outcome of the transplant. Skin grafts have changed dramatically over the years due to improvements in wound care, bioengineered materials, and surgical methods. They are still a vital component of wound healing.

Figure no.1

Figure no. 2

Figure no .3

Figure no. 4

Figure no. 5

Figure no. 6

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