Split Thickness Skin Grafting in an Immunocompromised Patient at Kenyatta National Hospital

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Article ID: WMC003037
Article Type: Case Report
Submitted on: 25-Apr-2012, 02:59:19 PM GMT Published on: 26-Apr-2012, 03:04:57 PM GMT
Article URL: http://www.webmedcentral.com/article_view/3037
Subject Categories: SURGERY
Keywords: Skin Graft, Ulcer, Immunocompromised

How to cite the article: Ongeti KW. Split Thickness Skin Grafting in an Immunocompromised Patient at Kenyatta National Hospital. WebmedCentral SURGERY 2012;3(4):WMC003037

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Source(s) of Funding:
None

Competing Interests:
None

Additional Files:
Manuscript
Figure 1
Split Thickness Skin Grafting in an Immunocompromised Patient at Kenyatta National Hospital

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Abstract

Partial thickness skin grafts have been reported to take poorly in the immunocompromised patients. We however present a 30 year old immunocompromised female patient with a chronic skin ulcer after surgical debridement for pyomyositis with subsequent loss of skin and subcutaneous tissue. The ulcer was contaminated with E. coli. The ulcer was severally debrided and was successfully skin grafted. Immunocompromised patients with cutaneous ulcers may recover and return to their pre-morbid level of function if they receive care that is carefully coordinated and aggressively delivered.

Key Words: Skin Graft, Ulcer, Immunocompromised.

Introduction

Chronic skin ulceration is a common complication of diabetes, peripheral vascular disease hepatic dysfunction, renal dysfunction, multiple myeloma and leukemia, and disorders that decrease mobility [1]. In Western literature, 43–90% of lower extremity ulcers are due to venous disease [1]. Delayed wound healing has also been noted in immunosuppressed patients [2]. In sub-Saharan Africa the commonest cause of immunosuppression is human immunodeficiency virus (HIV) infection [2]. Chronic leg ulcers are a common cause of morbidity and remain difficult to treat [3]. Lower limb extremity ulcers have also been associated with mortality in some patients [2]. Regardless of the etiology of chronic wounds, if conservative therapy fails and healing does not occur, other measures such as the use of skin grafts are indicated [3]. Such ulcers are more common in the tropics but rare in the temperate regions [2]. They are commonly associated with some systemic disease that renders the patients’ immune system less functional [4]. The causative agent is rarely identified even when fine needle aspiration and culture of the skin lesion is performed and if found the organisms usually few in number are thus making it difficult to determine what the exact causative agent is [4]. Local ulcer care will be successful only if the underlying cause is correctly identified and steps are taken to reverse it [1]. The presence of E. coli is noted mainly in severely immunocompromised cases[4]. We present a HIV immunocompromised case with a chronic cutaneous ulcer due to pyomyositis infected with E. coli, who was successfully managed by skin grafting.

Case Report(s)

A 30 year old woman presented with a three and a half months history of a swelling on the right leg. The swelling was gradual in onset and painful. On examination the swelling was about 6cm in diameter, tender, ulcerative and discharging pus. An impression of pyomyositis was made. Intravenous antibiotics and analgesics were given. The random blood sugar was determined, screened for P24 markers and her limb was elevated. Pus was drained. The lab work was done immediately post admission then repeated after one week. The results were as shown below. (Table 1)

An ulcer developed 3days after the surgical debridement and drainage of the swelling. The ulcer persisted for two months, was debrided three times (Figure 1). Tissue culture showed isolates of Escherichia coli and many leucocytes. The E. coli isolated was sensitive to Ciprofloxacin. A plan for skin grafting was done, while the patient was covered with ciprofloxacin. The graft took successfully, the wound healed without complications. The patient was later discharged on antiretrovirals.

Discussions and Conclusion

In a tropical sub-Saharan setting, infections and arterial disease have been shown to be leading causes of lower extremity ulcers[2]. In the same setting, venous ulcers are rare with diabetes mellitus and HIV infection independently causing immunosuppression[2]. Wound debridement has been associated with ulcer healing[1]. Amputation of the lower limb could however be done in some of the patients of the patients. Wound healing in the skin is a complex biological process in which numerous types of cells, cytokines, growth factors, proteases and
extracellular matrix components act in concert to restore the integrity of injured tissue[5]. Immunosuppression predisposes a patient to multiple microorganisms some at the graft site which commonly leads to graft failure6. This patient though immunocompromised had a successful skin graft without complications. Comparably, in a study among the Zimbabweans where 46% of the patients had HIV, with 54% of the subjects being immunosuppressed, the immunosuppression had no effect on healing of lower extremity ulcers but was however shown to increase mortality[2]. Although the colonization level of the wound by the E. coli was not done, the finding in a patient with a CD4+ of 200 is intriguing. Debridement and skin grafting was successful afterwards.

In conclusion, immunocompromised patients still remain candidates of skin grafting, with chances of good outcomes.

References

Illustrations

Illustration 1

Table 1

A table showing the Laboratory results of the patient.

<table>
<thead>
<tr>
<th></th>
<th>INITIAL RESULTS</th>
<th>SECOND RESULTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Blood Cells</td>
<td>6.16</td>
<td>17.8</td>
</tr>
<tr>
<td>Neutrophils</td>
<td>2.54</td>
<td>15.8</td>
</tr>
<tr>
<td>Lymphocytes</td>
<td>2.13</td>
<td>1.17</td>
</tr>
<tr>
<td>Monocytes</td>
<td>0.4</td>
<td>0.6</td>
</tr>
<tr>
<td>Haemoglobin</td>
<td>10.8</td>
<td>7.6</td>
</tr>
<tr>
<td>Test</td>
<td>Value 1</td>
<td>Value 2</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>Red blood cells</td>
<td>4.38</td>
<td>4.8</td>
</tr>
<tr>
<td>Mean Corpuscular Volume (MCV)</td>
<td>76</td>
<td>69.7</td>
</tr>
<tr>
<td>Haematocrit (HCT)</td>
<td>33%</td>
<td>23.2%</td>
</tr>
<tr>
<td>Mean Corpuscular Haemoglobin (MCH)</td>
<td>24.5%</td>
<td>33.1%</td>
</tr>
<tr>
<td>Mean Corpuscular Haemoglobin Concentration (MCHC)</td>
<td>32.3%</td>
<td>34%</td>
</tr>
</tbody>
</table>

HIV Positive
CD4+ 200

Summary of laboratory results: Seroreactive, no diabetes and anaemic.
Illustration 2

Figure 1: Clean wound with granulation tissue, ready for grafting.
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