ROLE OF MEBO (MOIST EXPOSED BURN OINTMENT) IN THE TREATMENT OF FOURNIER’S GANGRENE

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SUMMARY. Objectives. Fournier’s gangrene (FG), though rare, is a life-threatening extensive fulminant infection of the genitals, perineum, or abdominal wall caused by a mixture of aerobic and anaerobic micro-organisms. Early and aggressive surgical debridement of the necrotic tissue and complete antibiotic coverage are the gold standards in treating FG. The purpose of our study was to assess the role of MEBO (moist exposed burn ointment) in topical treatment of the wound secondary to surgical debridement. Methods. Eleven patients (age range, 40-75 yr; mean, 55 yr) were admitted to the clinical facilities of the Department of Urology at Al Sabah Hospital, Kuwait, suffering from Fournier’s gangrene, in the 31-month period between January 2004 and July 2006. All these patients were treated with broad-spectrum triple antimicrobial therapy as well as extensive debridement of necrotic tissue. The resultant wounds were treated with MEBO in six randomly selected patients and with a placebo in the remaining five patients. Results. The duration of hospital stay was reduced by 41.7% in the MEBO-treated group (30.0 vs 51.5 days) and pain control of pain was faster, which could be attributed to the faster control of infection and wound healing in this group. Conclusion. A combination of appropriate antibiotic coverage and aggressive surgical therapy is mandatory for the treatment of FG. MEBO promotes the healing of the resulting, quite extensive wound, reducing pain and controlling infection. It is also a cost-effective therapy as it accelerates healing and reduces hospital stay by 41.7%.

Introduction

Fournier’s gangrene (FG) is a necrotizing infection of the perirectal, perineal, or genital area that leads to the thrombosis of small subcutaneous vessels and results in the development of gangrene of the overlying skin.1 Jean-Alfred Fournier, a French venereologist, described this idiopathic, rapidly progressive soft tissue necrotizing gangrene of the male genitalia in 1883.2 Fortunately, FG is an uncommon but not rare disease. No seasonal variation occurs, and the disease is not indigenous to any region of the world.

Although originally described as idiopathic, FG has an identifiable cause in almost 95% of cases. The necrotizing process commonly originates from an infection in the anorectum, the urogenital tract, or the skin of the genitalia.3 The majority of patients with FG are immunocompromised and the infection is usually a consequence of a trauma or uneventful operation. Comorbid diseases affecting immunity include diabetes mellitus, malignancies, obesity, alcoholism, peripheral vascular disease, and cirrhosis.4 Several aerobic and anaerobic micro-organisms have been reported to cause the infection, including streptococci, staphylococci, Enterobacteriaceae and even fungi; polymicrobial cultures predominate and are the leading cause behind the infection’s rapid multiplication and spread.5

Since early and aggressive debridement and the administration of multiple broad-spectrum antibiotics are the gold standard in treating FG, the resulting quite extensive wound needs to be addressed.

MEBO, i.e., moist exposed burn ointment (Julphar, United Arab Emirates) is a herbal formulation patented in the USA in 1995 possessing β-sitosterol, baicalin, and berberine as active ingredients in a base of beeswax and sesame oil. MEBO offers the advantages of optimum moisture for wound healing whereby keratinocyte migration and interaction with growth factors are favoured. Several studies have confirmed the rapid, infection- and pain-free healing of MEBO, whether in acute6,7 or chronic wounds.8

In this paper, we present our experience in treating wounds due to FG excision using MEBO, assessing speed of healing and pain tolerance in a group of six patients compared with a control group of five patients, presenting to Al Sabah Hospital, Kuwait, between January 2004 and July 2006.

Patients and methods

Eleven consecutive male patients aged 40-75 yr (mean, 55 yr) with FG were admitted between January 2004 and July 2006 to the clinical facilities of the Urology Department of Al Sabah Hospital in Kuwait.

Diagnosis was established from the patient’s history
and physical examination, lesion site, and results of bacteriological cultures. The patients were treated with triple antibiotic therapy (penicillin, amikacin, and metronidazole) and the necrotic tissue was immediately and aggressively debrided surgically. The patients were then randomly divided into two groups: one group (six patients) received MEBO for the topical treatment of the raw area, while the other group of five patients received only placebo (KY gel). MEBO was applied as a relatively thick layer (about 3 mm) under a sterile dressing after cleansing of the wound (Figs. 1, 2). The placebo was applied in a similar way.

All 11 patients suffered from comorbid diseases, as follows: nine patients were diabetic (82%), six were obese (55%), and two were immunocompromised (18%) (one due to liver transplantation and one due to kidney transplantation). Chronic urinary tract infection with urethral strictures was found in two cases (18%) and hyperhidrosis with skin disease in three (27%); eight patients cases reported chronic perineal itching (72%). Hypercholesterolaemia was detected in seven patients (64%).

The study was carried out in accordance with good clinical practice and the Declaration of Helsinki. All patients gave informed consent. The protocol was approved by the hospital’s Institutional Review Board.

**Results and discussion**

Typical manifestations of FG were encountered in the cases studied, similar to those reported in the literature. Pain, tenderness, fever (38.2-39.5 °C), oedema, and leukocytosis were common.

Skin gangrene was found in all cases except one, in which erythema and skin abscess were severe. Skin abscesses were also found in all other cases except one (Table I).

Cultures from the wounds revealed polymicrobial infections with at least two micro-organisms, but no anaerobes were found, even though we cannot rule out their presence, which might have been undetected owing to technical faults. As expected, *E. coli* was the most prevalent bacterium (81%), as reported by Rotstein et al. The second most prevalent was *staphylococci* (63%), followed by *streptococci* (45%), *Proteus*, and *Pseudomonas* (27% each); *Klebsiella* spp. were the least frequent (18%) (Table II).

All eleven patients underwent prompt surgical debridement with initiation of triple broad-spectrum antibiotic therapy. Debridement was radical and wide, in line with the common practice in treating FG, as reported by Corman et al., leaving an extensive area of denuded soft tissues (Fig. 1).

Six patients were treated with MEBO ointment (Julephar, United Arab Emirates) and five received placebo (KY gel) treatment topically.

Assessing the rate of anatomical healing and pain control in the MEBO group, as reported by the patients and also on the basis of the consumption of analgesics, the ointment resulted in faster healing and shorter hospital stay (30 days compared to 51 days in the control group); also, pain relief was felt faster in the group of patients treated with MEBO.

Enhancement of wound healing with MEBO has been reported experimentally and clinically, but experience with FG is scarce. One study reported that MEBO promoted rapid epithelialization of the granulation tissue of the perineal and sacral region in a 63-yr-old diabetic patient who failed to respond to INTEGRA treatment. Faster anatomical healing was attributed to faster functional heal-

<table>
<thead>
<tr>
<th>Signs and symptoms</th>
<th>Percentage of patients</th>
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<tbody>
<tr>
<td>Pain and local tenderness</td>
<td>100%</td>
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<tr>
<td>Oedema</td>
<td>100%</td>
</tr>
<tr>
<td>Fever (38.2-39.5 °C)</td>
<td>100%</td>
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<tr>
<td>Leukocytosis</td>
<td>100%</td>
</tr>
<tr>
<td>Abscess formation</td>
<td>91%</td>
</tr>
<tr>
<td>Skin gangrene</td>
<td>91%</td>
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<tr>
<td>Skin erythema</td>
<td>1%</td>
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<table>
<thead>
<tr>
<th>Organisms</th>
<th>Percentage prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. <em>E. coli</em></td>
<td>81</td>
</tr>
<tr>
<td>b. <em>Staphylococcus</em> species</td>
<td>63</td>
</tr>
<tr>
<td>c. <em>Streptococcus</em> species</td>
<td>45</td>
</tr>
<tr>
<td>d. <em>Proteus</em></td>
<td>27</td>
</tr>
<tr>
<td>e. <em>Pseudomonas</em></td>
<td>27</td>
</tr>
<tr>
<td>f. <em>Klebsiella</em></td>
<td>18</td>
</tr>
<tr>
<td>g. Fungi</td>
<td>0</td>
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</tbody>
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*Fig. 1 - Fournier Gangrene before MEBO local application.*

*Fig. 2 - Fournier Gangrene after MEBO local application.*

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ing, as indicated by the more rapid decline in transepidermal water loss in MEBO-treated wounds towards intact skin figures.\textsuperscript{8,11,12}

The analgesic effect of MEBO has also been well documented,\textsuperscript{8} including cases of wounds associated with severe pain like that of burns.\textsuperscript{14}

**Conclusion**

This study confirms the clinical efficacy of MEBO in the healing of extensive wounds secondary to the surgical debridement of Fournier’s gangrene, as evidenced by rapid healing with a consequently faster recovery and shorter hospital stay.

**RÉSUMÉ.** Buts. La gangrène de Fournier’s (GF) est rare, mais elle constitue quand même une infection étendue et dangereuse pour le patient qui atteint les organes génitaux, le périsée ou la paroi abdominale, causée par divers microorganismes aérobies et anaérobies. L’approche la plus fiable pour traiter la GF consiste en le débridement précoce et agressif des tissus nécrotiques et la couverture complémentaire. Les Auteurs de cette étude se sont proposés d’évaluer le rôle de MEBO (moist exposed burn ointment, c’est-à-dire onguent pour les brûlures exposées humides). Méthodes. Pendant une période de 31 mois (janvier 2004/juillet 2006), onze patients (variation d’âge, 40-75 ans; âge moyen, 55 ans) ont été hospitalisés dans le service clinique du Département d’Urologie de l’Hôpital Al Sabah, Koweït, atteints de gangrène de Fournier. Tous ces patients ont reçu une thérapie antimicrobienne triple à spectre large et subi le débridement étendu des tissus nécrotiques. Les lésions provoquées par le débridement ont été traitées avec MEBO dans six patients sélectionnés au hasard et avec un placebo dans les cinq autres patients. Résultats. La durée de l’hospitalisation a été réduite de 41,7% dans le groupe traité avec MEBO (30,0 jours contre 51,5) et la maîtrise de la douleur a été plus rapide, ce qui selon les Auteurs pouvait être attribué à la maîtrise plus rapide de l’infection et à la guérison plus précoce dans ce groupe. Conclusion. Dans le traitement de la gangrène de Fournier, il faut absolument associer un traitement antibiotique approprié avec une thérapie chirurgicale agressive. MEMO favorise la guérison de la lésion créée, qui peut être plutôt étendue; en outre, il réduit la douleur et limite l’infection. De plus, cet onguent constitue une thérapie coût-efficace puisqu’il accélère la guérison et réduit la durée de l’hospitalisation de 41,7%.

**BIBLIOGRAPHY**


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