Use of linseed oil in preventing peri-ileostomy skin excoriation

Peri-stomal excoriation can be broadly defined as any wound that is adjacent to a stoma, including erosion or ulceration of the peri-stomal skin. Two-thirds of the patients with ileostomy have peri-stomal skin excoriation, and need additional support of enterostomal therapists. Linseed oil has been used as a herbal remedy in ancient Indian traditional medicine for various skin diseases. Its use, as topical application, was assessed in the present study to prevent peri-stomal skin excoriation.

Twenty-nine consecutive patients with a temporary loop ileostomy for small bowel perforation were considered for the study. Permission was obtained from the institutional ethics committee and informed consent was obtained from the patients. The inclusion criteria were: age ≥12 years, newly constructed ileostomy, and no pre-existing abdominal skin excoriation or pathology. Patients who died in the peri-operative period and could not complete the follow-up were excluded from the study.

A standard surgical pad with a hole cut out in its center, was soaked with linseed oil, and was applied around the stoma at the time of making the stoma. Dry pads were placed over this soaked pad and then the stoma appliance (Romson’s colostomy bag) was fitted. These dressings were changed every 24 hours.

The following parameters were studied on postoperative day 7 and 6 weeks after discharge:

- **Degree of skin excoriation**: visually graded as:
  1. Zero degree—no excoriation
  2. First degree—epidermal loss
  3. Second degree—epidermal and dermal loss

- **Distance of excoriated skin from stoma wall** (muco-cutaneous junction), measured by a tape as:
  1. Nil
  2. < 1 cm
  3. 1.1–3 cm
  4. 3.1–5 cm
  5. > 5 cm

During the study period, 23 men and nine women with mean age 35.7 years (range 12–72 years), underwent a temporary loop ileostomy for the management of ileal perforation. The construction of a stoma was based on the judgment of the operating surgeon. Two patients, who died postoperatively, were excluded from the study. None of our patients were diabetic or obese. General patient characteristics are shown in Table 1.

<table>
<thead>
<tr>
<th>Table 1 General characteristics of patients</th>
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<tbody>
<tr>
<td>Male/female</td>
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<tr>
<td>Mean age (years) (range)</td>
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<tr>
<td>Mean weight (kg) (range)</td>
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<tr>
<td>Indication for ileostomy</td>
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<tr>
<td>Enteric perforation (Widal test +ve)</td>
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<tr>
<td>Non-specific perforation (Widal test -ve)</td>
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<tr>
<td>Tubercular perforation</td>
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<tr>
<td>Penetrating trauma</td>
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</table>

Excoriations began after 2 weeks of surgery. All ileostomies were closed after 3 months.

The medicinal uses of linseed (flaxseed) were recommended from the time of Hippocrates and have been widely practiced by different cultures in the history. Interestingly, the word liniment, describing a topical application, has its origin from ‘line,’ a word derived from a Latin or Greek ancestor, *linum*, meaning flax. Linseed oil (flaxseed oil) is obtained from the dried ripe seeds of the flax plant *Linum usitatissimum* (Hindi: *alsi*), a member of the Linaceae family. It is a rich source of alpha linoleic acid (ALA), an omega-3 polyunsaturated fatty acid. ALA metabolites have anti-inflammatory properties and help prevent skin inflammation and excoriation. In addition, the oily base of the linseed oil forms a hydrophobic layer which prevents the enzymes in the ileostomy effluence from coming in contact with the skin. Having a high content of unsaturated esters, linseed oil is particularly susceptible to polymerization (resulting in drying or hardening, which provides additional protection against enzymes in the ileostomy effluence) reactions upon exposure to oxygen in air.

Use of indigenous and traditionally used substances like honey and betel leaf in caring for various wounds is more economical and finds greater acceptance amongst the poorer patients. On performing a cost analysis, we found the daily expenditure of using linseed oil in present study was INR 6–12 (cost Rs 12 per 100 mL).

In the present study, use of linseed oil was associated with effective skin protection in preventing peri-ileo-stomy skin excoriation. It is locally available, very economical and its indigenous use has the potential of minimizing the agony and complications associated with peri-ileo-stomy skin excoriation.

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References