Treatment of persistent painful nodules of hidradenitis suppurativa with cryotherapy

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Summary
We report outcomes for 10 patients with persistent painful nodules of hidradenitis suppurativa treated with cryotherapy. Eight patients reported improvement and to date have had no recurrence of lesions at the treated sites. Most patients had significant pain during and after treatment. Eight patients had post-treatment ulceration, infection or both. The average number of days for the treatment areas to heal was 25. Seven patients rated cryotherapy as better than oral antibiotics and eight patients would consider this treatment again in the future. Cryotherapy can be an effective treatment for patients who have limited but persistent painful nodules. However, patients must be warned about pain, prolonged healing time and risk of infection after the procedure.

Introduction
Hidradenitis suppurativa is a distressing skin condition with a point prevalence estimated at 4.1% of the adult population. The Dermatology Quality of Life Index has found the disability from this condition to be higher than eczema, psoriasis and acne. Painful persistent nodules can be particularly problematic and the lack of effective treatment for these lesions adds to the frustration of the sufferers. We report our experience in using cryotherapy for the treatment of persistent painful nodules in 10 patients with hidradenitis suppurativa.

Methods
Only patients with persistent painful nodules who failed to respond to systemic antibiotics were considered for treatment. Written informed consent was obtained from all patients. Only one nodule was treated at each session. The treatment was carried out by a single operator. Two per cent lignocaine was used to anaesthetize the treatment area and a temperature probe was inserted into the centre of the lesion. Liquid nitrogen was given via a CRY-AC spray (Brymill, Cryogenic Systems (UK) Ltd., Witney, Oxon, UK) for one freeze–thaw cycle, until the temperature probe read −20 °C. A postal questionnaire was sent to patients retrospectively, asking their views on pain during the procedure, complications during healing, response to treatment and comparison with previous treatments. In terms of post-operative complications, we defined ulceration as broken skin surface and infection as the presence of oozing and weeping.

Results
Ten patients have been treated with cryotherapy for persistent painful nodules in hidradenitis suppurativa over the last 5 years. All patients completed and returned the questionnaire (details are given in Table 1). All patients were female, aged 24–45 years (mean 32.9 years), with the duration of disease ranging from 1 to 25 years (mean 10.2 years). Nodules were sited in the groin (five patients), axillae (four patients) or breasts (one patient). All patients had previously taken systemic antibiotics and three had received limited surgery.

The mean number of nodules treated per patient was 2.4 (range 1–6). All patients had some discomfort during the procedure, and half the patients rated
**Table 1** Summary of patients' details.

<table>
<thead>
<tr>
<th>Patient</th>
<th>Age (years)</th>
<th>Duration (years) and site(s)</th>
<th>Previous treatment(s)</th>
<th>Total number of lesions treated</th>
<th>Pain during procedure (0–4)</th>
<th>Pain during healing (0–4)</th>
<th>Average days to heal</th>
<th>Complications</th>
<th>Response to treatment</th>
<th>Would have it again?</th>
<th>Comparison to other treatments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>45</td>
<td>7 breast</td>
<td>Antibiotic</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>20</td>
<td>ulcer infection</td>
<td>improvement</td>
<td>yes</td>
<td>better than antibiotics</td>
</tr>
<tr>
<td>2</td>
<td>25</td>
<td>12 groin</td>
<td>Antibiotic</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>42</td>
<td>ulcer infection</td>
<td>improvement</td>
<td>yes</td>
<td>better than antibiotics</td>
</tr>
<tr>
<td>3</td>
<td>34</td>
<td>11 groin</td>
<td>Antibiotic</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>25</td>
<td>ulcer</td>
<td>none</td>
<td>no</td>
<td>no different to antibiotics, better than surgery</td>
</tr>
<tr>
<td>4</td>
<td>24</td>
<td>1 groin</td>
<td>Surgery, Antibiotic</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>20</td>
<td>infection</td>
<td>marked improvement</td>
<td>yes</td>
<td>no different to antibiotics, better than surgery</td>
</tr>
<tr>
<td>5</td>
<td>29</td>
<td>12 axilla</td>
<td>Antibiotic</td>
<td>6</td>
<td>1</td>
<td>2</td>
<td>22</td>
<td>ulcer infection</td>
<td>marked improvement</td>
<td>yes</td>
<td>better than antibiotics and surgery</td>
</tr>
<tr>
<td>6</td>
<td>39</td>
<td>7 axilla, groin, breast</td>
<td>Surgery</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>18</td>
<td>none</td>
<td>none</td>
<td>no</td>
<td>no different to antibiotics</td>
</tr>
<tr>
<td>7</td>
<td>27</td>
<td>2 axilla</td>
<td>Antibiotic</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>28</td>
<td>infection</td>
<td>marked improvement</td>
<td>yes</td>
<td>better than antibiotics</td>
</tr>
<tr>
<td>8</td>
<td>29</td>
<td>5 groin, axilla</td>
<td>Antibiotic, Spironolac</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>28</td>
<td>infection</td>
<td>improvement</td>
<td>yes</td>
<td>better than antibiotics</td>
</tr>
<tr>
<td>9</td>
<td>38</td>
<td>25 axilla</td>
<td>Antibiotic</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>24</td>
<td>none</td>
<td>improvement</td>
<td>yes</td>
<td>better than antibiotics</td>
</tr>
<tr>
<td>10</td>
<td>39</td>
<td>20 groin</td>
<td>Antibiotic</td>
<td>5</td>
<td>2</td>
<td>3</td>
<td>18</td>
<td>ulcer</td>
<td>marked improvement</td>
<td>yes</td>
<td>better than antibiotics</td>
</tr>
</tbody>
</table>

0 = no pain; 4 = very painful.
cryotherapy as painful or very painful. The average number of days for healing was 25 (range 18–42 days). Eight out of 10 patients had complications in the post-operative period, two had ulceration alone, three had infection and three had both ulceration and infection. All patients had some discomfort during healing, and four rated the recovery as painful or very painful. Eight patients felt there was an improvement in their condition after cryotherapy and would have the procedure again. These patients have not had any recurrence of lesions at the treatment sites. Seven patients felt the procedure was more effective than antibiotics and all three patients who had had surgery felt cryotherapy produced a better result.

Discussion

Liquid nitrogen is cheap and widely available. Cryotherapy damages skin adventitious glands, including apocrine glands, and it has been described as a possible treatment for hidradenitis suppurativa. To our knowledge, the outcome of this treatment has not been reported before. We postulate that post-treatment ulceration and healing by secondary intention causes destruction of hair follicles and apocrine glands, which are involved in the pathogenesis of chronic nodule formation.

Patient acceptance of treatment depends on discomfort, inconvenience and end result. Over half the patients went on to have further cryotherapy for new nodules despite high levels of post-treatment discomfort. Seventy per cent of patients in this series felt the result was better than that produced by systemic antibiotics, but this could be a consequence of selection bias caused by only including patients who did not respond to systemic antibiotics. The study is also likely to be subject to considerable recall bias.

A retrospective study has many limitations and comparison with other treatments is beyond the scope of this study. There are many reports of different treatment modalities for hidradenitis suppurativa. However, there is a lack of direct comparison randomized controlled trials of different treatments. Furthermore, there is no standardized and validated severity scoring system or accurate outcome measures. With this in mind, a randomized controlled trial of topical clindamycin vs. systemic tetracycline was carried out and found no difference in response between these two treatments. Cyproterone acetate at a dose of 100 mg/day was reported to control the disease in four patients and found to be no better than the combined oral contraceptive pill in a double-blind randomized controlled study. Isotretinoin was reported to achieve clearance in 23.5% of patients who had the treatment for 4–6 months in a retrospective study. Two patients with severe, long-standing disease benefited from finasteride at 5 mg/day. For severe disease, wide surgical excision remained the treatment of choice but recurrence was well recognized. Carbon dioxide laser excision and second-intention healing were reported to be effective in seven patients. We speculate that the effect of laser is probably similar to the effect of cryotherapy, although a larger area can be treated with laser. In the absence of a randomized controlled trial comparing the different treatment modalities, the choice of therapy will depend on local resources, the patient’s preference, the physician’s experience, the severity of condition and previous treatments.

In summary, in a group of highly selective hidradenitis suppurativa patients, we found 80% benefited from treatment with cryotherapy. We suggest that cryotherapy may be a useful treatment for patients who have limited but persistent painful nodules. Patients must be warned about pain, ulceration, infection and scarring, and informed that the treatment is unlikely to influence disease progression.

References

Cryotherapy of nodules of hidradenitis suppurativa • J. L. Bong et al.

