Effect of Shengji Yuhong plaster on the wound healing after anal fistula surgery
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Objective: To observe the effect of Shengji Yuhong plaster on the wound healing after anal fistula surgery. Methods: A total of 120 patients with anal fistula who were admitted in our hospital from January, 2011 to December, 2013 for operation were included in the study and randomized into the observation group and the control group with 50 cases in each group after operation. The patients in the observation group were given external application of Shengji Yuhong plaster, while the patients in the control group were given vaselinum ribbon gauze. The patients in the two groups were given 3-week treatment. The wound area, granulation form, healing rate, healing time, and adverse reactions 1, 2, 3 weeks after operation in the two groups were compared. Results: The wound area 1, 2, 4 weeks after operation in the observation group was significantly less than that in the control group (P<0.05). The granulation form score was significantly lower than that in the control group (P<0.05). The wound repairing rate and the total effective rate were significantly higher than those in the control group (P<0.05), and the average healing time was significantly faster than that in the control group (P<0.05). Conclusions: Shengji Yuhong plaster can significantly shorten the wound healing time in patients after anal fistula surgery and is beneficial for the postoperative rehabilitation.

1. Introduction

The anal fistula is a common anorectal disease and refers to an abnormal passage formed by the rectum or anal tube with the skin outside the anus due to the pathological factors[1–3]. The anal fistula can occur in any age with a morbidity of about 3%–5%, and severely affect the patients normal life[4]. The anal fistulectomy is the most thorough and effective method to treat anal fistula, but due to the specific affected site, the postoperative complications, such as bleeding, pain, swelling, infection, and pseudo healing are prone to occur[5–8]. Therefore, how to effectively promote the wound healing after anal fistulectomy is of great significance in enhancing the efficacy. The traditional Chinese medicine has an original view in understanding the wound repairing, especially in the external therapy of wound, it has a more unique advantage[9]. It is reported that Shengji Yuhong plaster has a significant wound repairing effect after anal fistula effect[10]. The study was aimed to explore the effect of Shengji Yuhong plaster on the wound healing after anal fistula surgery.

2. Materials and methods

2.1. Clinical materials

A total of 120 patients with anal fistula who were admitted in our hospital from January, 2011 to December, 2013 for operation were included in the study, among which 92 were male and 28 were female, aged from 24 to 54 years old with an average age of (32.8±2.1) years old. The patients had a successful operation with no severe complications after operation and wound area greater than 2 cm², but less than 40 cm². Those who had three or more
wounds, wound area less than 2 cm² or greater than 40 cm², allergic constitution, severely important organ diseases, infectious disease, pregnancy or lactation were excluded from the study.

2.2. Methods

A total of 120 patients were given routine treatments after anal fistula surgery and randomized into the observation group and the control group with 60 cases in each group. The patients in the observation group were given external application of Shengji Yuhong plaster (produced by Beijing Tongrentang Ltd; Specification: 12 g; approved number: Z11021000). Firstly, 1% iodine was used for wound disinfection. Then the plaster was smeared on the ribbon gauze and applied on the wound. Finally, the sterile gauze was used for binding. The dressing was changed once a day. During the treatment process, the patients were informed of dieting spicy and irritable food. The patients in the control group were given external application of vaseline (produced by Tianjin Hongfa Shuangsheng Vaseline Ltd; approved number: H12020746). Firstly, 1% iodine was used for wound disinfection. Then the vaseline was smeared on the ribbon gauze and applied on the wound. Finally, the sterile gauze was used for binding. The dressing was changed once a day. The patients in the two groups were given 3-week treatments.

2.3. Observation items

The wound area, granulation form, healing rate, healing time, adverse reactions, and clinical efficacy 1, 2, 3 weeks after operation in the two groups were compared. The efficacy criteria were formulated according to the criteria of diagnosis and therapeutic of diseases and syndromes in traditional Chinese medicine[11]. Cured: Wound healing, no pseudo healing or empyema under the scab; excellent: wound shrinking >75%, bright red granulation tissues, no purulent secretions; effective: wound shrinking >25%, purulent secretions obviously reduced, red granulation tissues; invalid: wound shrinking <25%, dark granulation tissues, no change of purulent secretions. Granulation form grading[12]: score 1: bright red and embellish granulation, prone to bleeding when rubbing, in a granular shape; score 2: pale granulation tissues, not easy to bleeding when rubbing; score 3: dark and swelling granulation tissues, not easy to bleeding when rubbing. Wound healing rate[13]=(wound area after operation - wound area n day after operation) / wound area after operation 100%.

2.4. Statistical analysis

SPSS 16.0 software was used for statistical analysis. Chi-square test was used for the enumeration data, while t test was used for the comparison between the measurement data. P<0.05 was regarded as statistically significant.

3. Results

3.1. Comparison of the wound area at each timing point

With the extending of the treatment time, the wound area in the two groups was shrinking. The wound area after 2-week treatment was significantly lower than that after 1-week treatment (P<0.05). The wound area after 3-week treatment was significantly lower than that after 1 and 2-week treatment (P<0.05). The wound area 1, 2, 4 weeks after operation in the observation group was significantly less than that in the control group (P<0.05) (Table 1).

### Table 1

<table>
<thead>
<tr>
<th>Groups</th>
<th>n</th>
<th>1 week (cm²)</th>
<th>2 weeks (cm²)</th>
<th>3 weeks (cm²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observation group</td>
<td>60</td>
<td>16.61±3.60</td>
<td>9.53±3.40</td>
<td>6.03±4.07</td>
</tr>
<tr>
<td>Control group</td>
<td>60</td>
<td>18.04±7.75</td>
<td>10.53±4.41</td>
<td>6.42±2.95</td>
</tr>
</tbody>
</table>

P<0.05, when compared with the control group.

3.2. Comparison of the granulation form scores at each timing point

The granulation form scores after 1, 2, 4-week treatment in the observation group were 1.31, 1.01, 0.52, respectively, while in the control group were 1.89, 1.47, 0.97, respectively. The granulation form scores at each timing point in the observation group were significantly lower than those in the control group (P<0.05).

3.3. Comparison of the wound healing rate and healing time at each timing point

The wound healing rate at each timing point in the observation group was significantly higher than that in the control group (P<0.05) (Table 1). The average wound healing time in the observation group (23.11±3.44) d was significantly lower than that in the control group (29.41±3.44) d (Table 2).

### Table 2

<table>
<thead>
<tr>
<th>Groups</th>
<th>n</th>
<th>1 week</th>
<th>2 weeks</th>
<th>3 weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observation group</td>
<td>60</td>
<td>25.78</td>
<td>79.55</td>
<td>94.97</td>
</tr>
<tr>
<td>Control group</td>
<td>60</td>
<td>38.33</td>
<td>62.73</td>
<td>82.33</td>
</tr>
</tbody>
</table>

P<0.05, when compared with the control group.

3.4. Clinical efficacy

After treatment, in the observation group, 16 (26.7%) were cured, 38 (63.35%) were excellent, 6 (10.0%) were effective, and the total effective rate was 90.0% (54/60); while in the control group 8 (13.3%) were cured, 24 (40.0%) were excellent, 28 (46.7%) were effective, and the total effective rate was 53.3% (32/60).
3.5. Adverse reactions

No obvious adverse reactions occurred during the treatment process in the two groups.

4. Discussion

The anal fistula is a common anorectal disease and refers to an abnormal passage formed by the rectum or anal tube with the skin outside the anus due to the pathological factors. Currently, operation is a main approach to treat anal fistula, but due to the specific lesion site, its healing process belongs to the second healing, and the generation speed of granulation tissues during the healing process is the key for wound healing[14]. Therefore, how to promote the generation of granulation tissues after the anal fistula surgery is of great significance for the postoperative rehabilitation.

How to promote the postoperative wound repair is one of the oldest topics during the surgical research process. With the continuous development of modern medicine, the research on the postoperative wound repair has obtained a great achievement, especially in the traditional Chinese medicine, it has a rich experience in the wound repair and plays a unique advantage[15]. Some researches demonstrate that plays a comprehensive regulation role in a way of multi-target and multi-layer, and can significantly promote the wound repair[16,17]. Moreover, the Chinese medicine formulae, silt bath medicine bag, fumigation and washing prescription, and plaster can significantly promote the postoperative local wound blood circulation, rapidly eliminate the incision swelling, alleviate the pain, and shorten the wound repair time. Shengji Yuhong plaster is composed of Angelica dahurica, Evierus pela Chavannes, Angelica, Glycyrrhiza uralensis, Calomel, dragon’s blood, and Lithospermum purpurasculeum, has effects of invigorating blood circulation and expelling decay, detoxicating and promoting granulation, and is mainly applied in patients with ulcer, carbuncle of the back, fester and suppuration, furuncle, furuncle prolapse who require flesh expelling decay, detoxicating and promoting granulation, and is

In conclusion, Shengji Yuhong plaster can significantly promote the wound repair in patients after anal fistula surgery, shorten the wound repair time, and promote the rehabilitation with a significant efficacy.

References