

Research progress on the treatment of postoperative complications of anorectal disease by external application of Chinese medicine

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Abstract: In this paper, we reviewed the relevant literature and outlined the clinical studies on the treatment of postoperative complications of anorectal diseases by external application of Chinese medicine, such as pain, perianal edema, perianal eczema and postoperative infection. It is found that external application of traditional Chinese medicine has a significant effect on postoperative complications of anorectal diseases. But there are still some defects such as insufficient cases and unclear mechanism in clinical research. Therefore, in the future, the experimental design should be improved, the number of cases should be increased, and the mechanism of action should be clarified through experimental research, so as to provide a more reliable scientific basis for clinical application.

Keywords: external application of traditional Chinese medicine, anorectal disease; postoperative complications, review

Anorectal diseases are clinically common, including mixed hemorrhoids, anal fistulas, anal fissures, perianal abscesses and so on. Surgical intervention is a common method used by anorectal surgeons. However, due to the special location of the anus, it is easy to suffer from fecal contamination, and the operation is mostly open surgery, so patients are prone to postoperative pain, edema, eczema, postoperative infection and other problems. At present, Chinese and Western medicine have some insights in the treatment of postoperative complications of anorectal diseases. Chinese medicine external treatment method is widely used clinically as one of the options. The external application of traditional Chinese medicine (TCM) is a kind of external therapy of TCM, under the guidance of the basic theory of TCM, the Chinese medicine is modulated into different preparations for external application or stuffing on the wound surface, so as to achieve the effect of promoting blood circulation and removing blood stasis, relieving swelling and pain, astringing sores and regenerating muscle. The long-term clinical effect is obvious to all. The following is a review of the external application of Chinese medicine in the treatment of postoperative complications of anorectal disease:

1. Perianal pain

Modern medical research has found that nerves distributed in the perianal area are relatively abundant and dominated by the spinal nerves, making the skin of the anal canal very sensitive to pain. It has been reported that pain may also be related to postoperative defecation pain, acute urinary retention and prolonged hospital stay[1]. Western medicine still mostly uses opioids or NSAIDs for postoperative analgesia. However, the literature suggests that such drugs have significant drawbacks[2]. According to TCM, postoperative pain in anorectal disease is mostly caused by injury by the golden blade, damage to the meridians, deficiency of qi and blood, and stagnation. Qin Xiaojing[3] randomly divided 160 patients with anal fistula into study group and control group. After giving the same operation, on the basis of intravenous drip of antibiotics, the study group was treated with Fuzheng Shengji oil gauze (80g borneol, 300g pearl, 300g cypress, 300g Corydalis yanhusuo, 500g myrrh, 500g frankincense, 500g angelica, 500g codonopsis, 500g astragalus, powdered and sieved, and then refined oil). In the control group, vaseline oil gauze was applied to the wound. Change the dressing daily until the wound heals. The results showed that the total clinical efficiency of the study group was 97%, while that of the control group was 76% (P<0.05). After treatment, the VAS of the study group was significantly lower than that of the control group (P<0.05). Lu Dan[4] randomly divided 60 patients with postoperative anal fistula into treatment

and control groups, the treatment group was treated with Qi Yu ointment gauze (120g astragalus membranaceus, 60g Chinese angelica tail, 60g sanguisorbae radix, 30g frankincense, 30g myrrh, 30g resina draconi, 30g arnebia, 30g cyathulae radix, after adding honey formulated into a paste applied to the gauze strip). The control group was treated with artificial healing membrane gauze in the same method. Patients in both groups changed dressing every day until the wound healed, and the wound VAS score of 5min before dressing change was recorded on the 3rd, 7th and 14th day after operation. The results showed that the analgesic effect of Qi Yu ointment gauze in patients with anal fistula after operation was better than that of the control group ($P < 0.05$). Zhang Zhijun[5] concentrated 30g of sophora flavescens tablet, 15g of angelica sinensis, 15g of kochiae fructus, 15g of Chinese nutgall, 30g of smilacis glabrae rhizoma and 15g of phellodendron amurense into juice and wet compressed the wounds of 43 patients after operation of mixed hemorrhoids. While 43 patients in the control group were given topical dressing with baikerui bactericidal gauze. Both groups were treated once a day for 30 minutes. The experimental results showed that the total effective rate was 93.02% in the treatment group and 83.72% in the control group ($P < 0.05$), and was significantly better than that in the control group in terms of postoperative pain relief, reduction of edema and bleeding complications ($P < 0.05$). Studies have confirmed that the external application of traditional Chinese medicine has a certain advantage in postoperative analgesia for anorectal diseases.

2. Perianal edema

Perianal edema is one of the common postoperative complications of anorectal disease, which often occurs after the operation of mixed hemorrhoids. According to western medicine, poor capillary and lymphatic circulation in the anal region after the operation increases local congestion, pain, and inflammatory exudation. The pain can also lead to sphincter spasm and aggravate the obstruction of blood and lymph flow, the pain is repeated and can not be relieved, forming a vicious circle of "Pain-sphincter spasm-blood and lymph reflux disorder-exudate stasis-pain" [6]. Traditional Chinese medicine recognizes that "qi hurts pain, and form hurts swelling." (Su Wen - Yin Yang Ying Xiang Da Lun), the use of gold blades in the operation hurts the perianal skin and flesh meridians, and the qi, blood and body fluids are not running smoothly, resulting in stasis. Damp-heat betting in a low position, edema caused by perianal dampness, heat, stasis. Jiao Hao [7] divided 80 cases of edema after mixed hemorrhoid operation into observation group and control group according to random number table. The control group took diosamine orally (1 tablet/time, 2 times/day) from the first day after operation. On this basis, the observation group dissolved Bingxiao powder (10g borneol, 30g mirabilite) in warm water and then applied to the edema area with gauze soaking liquid. The time of external application was 30min each time, the square gauze was changed every 10min, and the external application was twice a day, until the edema subsides completely. The results showed that the total clinical effective rate of the observation group was 95.00% and that of the control group was 80% ($P < 0.05$). The edema score of the observation group was also significantly lower than that of the control group one week after treatment, and the difference between the two groups was statistically significant ($P < 0.05$). Du Xiumei[8] randomly divided 86 elderly patients with mixed hemorrhoids into the observation group and the control group. The control group was given 1:5000 potassium permanganate solution for fumigation and washing, 3d/time; on this basis, the observation group was treated with 5 ml of scutellaria baicalensis georgi, cortex phellodendri, rhizoma coptidis and radix et rhizoma rhei respectively to make a paste for external application on the edema area, once a day, for a week. The anal edema at 1, 3, 5 and 7 days after operation was recorded and scored. The results showed that external application of Sihuang powder combined with Sitz Bath with potassium permanganate fumigation could effectively improve the symptoms of anal edema after mixed hemorrhoids operation ($p < 0.05$). Xiao Tuanyou[9] randomly divided 84 patients with perianal edema after mixed hemorrhoid operation into treatment group and control group. The control group was soaked with 50% magnesium sulfate solution and then applied on the edema of the operation area, the treatment group was treated with Shuangbai powder (rhubarb, platycladus orientalis, phellodendron chinense, hirsute bugleweed herb, mint, honey). Both groups were treated with 2 times/d, each application lasted 4h, and the treatment cycle was 8d. The results showed that the edema score was 0.17 ± 0.38 in the treatment group and 0.48 ± 0.51 in the control group after 8 d. The difference between the two groups was statistically significant ($P < 0.05$). And the time to regression of edema was 7.50 ± 1.40 in the treatment group was significantly shorter than that of 8.64 ± 1.16 in the control group ($P < 0.05$). The experiment showed that compared with Western medicine, the advantages of external application of Chinese herbal medicine for the management of postoperative anal edge edema of mixed hemorrhoids were more obvious.

3. Perianal eczema

Perianal eczema after anorectal surgery is also common in clinical. Because the incision has not yet converged after operation, there are too many secretions in the perianal area, and the location of the anus is private. There is a possibility of poor ventilation after operation. The perianal area is prone to flushing, itching, maculopapules, etc., the course of a long time can even appear local skin lichen-like changes, chapped and so on. Western medicine often uses steroid hormone drugs such as Pikang cream and Perishone for topical application, but there are still some shortcomings such as drug dependence and easy recurrence [10]. According to traditional Chinese medicine, the disease is mostly caused by dampness, wind and heat. Damp-heat internal knot, re-sensation of external wind, rheumatism heat guest in the skin and hair. Zhang Zhigang [11] randomly divided 70 patients with eczema secondary to perianal abscess into observation group and control group. The control group was given sterile gauze soaked with metronidazole solution to fill the wound and 2 g of compound dexamethasone acetate cream was applied externally to the postoperative secondary eczema, while the observation group was evenly sprinkled with about 2 g of Songhua powder (dried pollen from *pinus koraiensis*, *pinus tabulaeformis*, etc.) on the gauze soaked with metronidazole solution, and 2 g of Guijie Ointment was also applied to the area of perianal eczema. The two groups were treated once a day for 10 days. After treatment, the total effective rate of the observation group was 94.29%, which was significantly higher than that of the control group, which was 85.71% ($P < 0.05$). The observation group had significant advantages in improving perianal itching and reducing the area of skin lesions ($P < 0.05$). Zhuni [12] gave the observation group of 43 cases of anorectal disease secondary perianal eczema to externally apply compound radix arnebiae oil (*arnebia euchroma*, *lonicera japonica*, *borneol*, *angelica dahurica*, etc, supplemented with sesame oil) to the skin lesions, and the scope of the external application exceeded the onset of the disease, while the eczema patients in the control group were given appropriate amount of desonide cream applied externally to the perianal eczema, and the scope also exceeded the lesions. The two groups were treated twice a day, one course of treatment was 7 days. After recovery, the medicine was stopped, and the treatment time was controlled within two courses. The total effective rate of the two groups was 100%, and the difference was not statistically significant ($P > 0.05$), but the recurrence rate in the control group was 32.35% after 1 week of discontinuation was significantly higher than that in the observation group, which was 3.03% ($P < 0.05$). Dai lingying [10] divided 60 cases of postoperative perianal eczema of anorectal disease into control group and treatment group randomly, in the treatment group, the dry cotton ball was dipped into some Qingdai powder (60g of qing dai, 120g of gypsum, 120g of talc, 60g of phellodendron, finely powdered) and applied to the lesions, and the coverage area exceeded the lesion area, while in the control group, appropriate amount of Pevisone was applied to the perianal eczema. The two groups were treated once in the morning and once in the evening, 7 days as a course of treatment. After recovery, the drug was stopped and the treatment time was controlled within 2 courses. The total effective rate of both groups was 100% ($P > 0.05$), but there was only 1 recurrence in the treatment group, compared with 8 recurrences in the control group ($P < 0.05$), which had the advantage of consistent efficacy with glucocorticoid creams but low recurrence rate. The experiment confirmed that the traditional Chinese medicine external application has the same effect as the steroid hormone drugs on the perianal eczema after anorectal operation, but it is not easy to relapse.

4. Postoperative infection

The anus is rich in sweat glands and capillary. It is difficult to keep it clean after operation for anorectal diseases. Moreover, anorectal surgery is usually open. The operation area is often stimulated by feces, which can lead to wound infection, thus causes the operation area red swelling, the pain, the purulent secretion overflow and even the healing slow. Western medicine generally uses antibiotics, but because of the current abuse of antibiotics, resulting in the production of many drug-resistant strains, reducing the therapeutic efficacy of antibiotics [13]. Considering the dark red color of wound surface, edema of granulation tissue, and yellow-white viscous secretions after anorectal disease operation, traditional Chinese medicine believes that the main pathological characteristics of wound infection after anorectal disease surgery are “dampness”, “heat”, and “stasis” [14]. Wang Chuanying [15] randomly divided 160 patients with postoperative anal fistula into the control group and the observation group. Both groups were given 1:5000 potassium permanganate solution for a sitz bath for 10 minutes. After routine disinfection of the wound, the control group filled the wound with vaseline oil gauze, while the observation group filled the wound with prepared gauze of Shengji Yuhong ointment (60g *angelica sinensis*, 15g *angelica dahurica*, 60g white wax, 12g mercurous chloride, 30g licorice, 6g comfrey, 12g *resina draconis*, 500g sesame oil). The experimental results showed that the wound infection rate of the observation group was 0, which was much lower than that of the control group ($P < 0.05$). In addition, the

experiment confirmed that Shengji Yuhong ointment gauze filling incision after anal fistula can effectively reduce pain and shorten wound healing time ($P < 0.01$). Shen Haibo[16] divided 126 cases of anorectal disease after operation into three groups according to different therapeutic schemes: Shengji Yuhong ointment group, Xiaopeng powder group and combined treatment group. In the Shengji Yuhong ointment group, the ointment was smeared on the postoperative wound, and the dressing was changed once in the morning and in the evening. In the Xiaopeng powder group, the powder was soaked in warm water for a sitz bath for 15 minutes, once in the morning and once in the evening. The combined group was treated with Xiaopeng powder sitz bath for 15 min and then applied a layer of Shengji Yuhong ointment on the wound evenly, once in the morning and once in the evening. All three groups took 7 days as a treatment cycle and lasted for 2 weeks. The results showed that the total effective rate was 90.48% in the Shengji Yuhong ointment group, 88.10% in the Xiaopeng powder group, and 95.24% in the combined group, in which there was no significant difference in the total effective rate between the Shengji Yuhong ointment group and the Xiaopeng powder group ($P > 0.05$), but the difference between the combined group and the two groups was statistically significant ($P < 0.05$). It indicates that external application of traditional Chinese medicine combined with traditional Chinese medicine sitz bath can effectively prevent postoperative wound infection of anorectal disease and promote wound healing. Lu Yuyang[17] according to the method of random number table, the patients who received one-time radical operation for perianal abscess were randomly divided into observation group and control group. The patients in the observation group were treated with Chuangyu ointment (10g pearl, 10g draconis Sanguis, 20g rehmannia, 15g amber, 15g frankincense, 15g myrrh, 3g hippocampus, 10g acacia catechu, 8g borneol, and the appropriate amount of sesame oil, mixed to make) after dressing change, and then fixed with sterile gauze. Change dressing once a day for 20 days. The control group was treated with Gantai Ointment, dressing change method and course of treatment were the same as the Observation Group. The results showed that the bacterial clearance rates of the two groups were 94% and 20% at the 5th day of treatment, and 100% and 77% at the 10th day of treatment, respectively. There was a significant difference between the two groups ($p < 0.05$). In addition, it was found that external application of Chuangyu ointment could effectively reduce exudation of wound secretion, improve wound margin swelling, promote fresh growth of wound granulation and shorten healing time ($p < 0.05$). The study shows that the external application of traditional Chinese medicine can prevent postoperative wound infection and kill wound bacteria.

5. Conclusion

Up to now, TCM topical therapy is widely used for clinical purposes because of its advantages such as safety, simplicity and effectiveness. Based on the theory of traditional Chinese medicine, it has made some achievements in solving the common complications of anorectal diseases such as pain, edema, perianal eczema, infection, etc. . However, the author reviewed the literature and found that there are still many problems that need to be solved in the clinical use of Chinese herbal topical therapy : 1) the clinical research on the external application of traditional Chinese medicine to improve the postoperative complications of anorectal diseases is still relatively insufficient, and the experimental design still needs to be further improved, and the efficacy index lacks objective basis; 2) the mechanism of action of external application of traditional Chinese medicine to promote wound healing is not yet clear; 3) there is still a lack of clear conclusions about the production process and the length of the course of treatment for external dosage forms of traditional Chinese medicine. More and more in-depth research is needed to explore in the follow-up. With the application of modern techniques such as molecular biology and pharmacology in the research and development of traditional Chinese medicine, it needs to be further developed in the study of effective components and targets of drugs, to clarify its mechanism of action, and to perfect and standardize the scheme of external application of traditional Chinese medicine to treat postoperative complications of anorectal diseases.

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