

Research Progress of Traditional Chinese and Western Medicine Dressing Change on Wound Healing After Anal Fistula Surgery

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Abstract: With the change of people's lifestyle and diet, the incidence of anorectal diseases is increasing year by year. Anal fistula is a common anorectal disease. Because it cannot heal by itself, surgery has become the main treatment method. Due to the particularity of wound location and physiological structure, the wound is easily contaminated by bacteria, so dressing change after surgery plays a decisive role in wound healing. Modern western medicine and traditional Chinese medicine have different dressing changing methods respectively. In this paper, we reviewed commonly used dressing changing methods of traditional Chinese and western medicine after anal fistula surgery.

Keywords: Chinese and Western medicine; Anal fistula; Treatment methods; Wound healing

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1. Introduction

Anal fistula is a relatively refractory anorectal benign disease ^[1]. It is an abnormal infectious passage between the anorectal canal and the perianal skin, which is mostly composed of three parts: the inner opening, the fistula, and the outer opening ^[2]. Persistence of anal fistula will not cause physical and psychological pain, but also lead to a significant reduction in the quality of life. Therefore, surgical resection is the gold standard for treatment ^[3]. Surgical treatment puts forward higher requirements for the physician team in order to reduce the occurrence of postoperative complications ^[4], to speed up the postoperative wound healing ^[5]. Due to the particularity of the surgical site, the postoperative wound is generally not sutured, and the postoperative defecation will easily cause irritation to the wound, which is prone to infection symptoms. In addition, the deep and large wound cavity leads to slow wound healing ^[6]. Therefore, dressing change after anal fistula surgery plays a crucial role in the healing of surgical wounds. It can not only prevent the formation of pseudo-healing of wounds, but also accelerate the healing of wounds in the operated area. At the same time, it also significantly reduces the pain of patients ^[7].

2. Understanding of anal fistula in traditional Chinese and western medicine

2.1. Views of traditional Chinese medicine

"Anal fistula" is also known as "anal leakage" and "fistula sores" in traditional Chinese medicine. The word "fistula" was first put forward in the *Shanghai Jing · Zhongshan Jing*. The water comes from its Yin and flows north into Luo. There exist many fishes like red-tailed *Siniperca chuatsi*, which can prevent carbuncle

when eaten and can be used to treat fistula. Here, “fistula” includes many parts of the body where fistula can occur and does not refer to anal fistula alone ^[8]. The symptoms and prognosis of anal fistula were recorded in the book *Keke Zhengzhi Quanshu*, namely, “It starts from the root of the anterior perineum of the anus near the junction of the posterior perineum. At the beginning, it is like small particles, gradually growing into the size of a lotus seed and then a peach in a few days, red and painful. After the syndrome breaks out, the tube will leak, and stool and urine will leach out. Finally, the patient will die from the blood vessels draining out. The symptoms are the same, all leakage could be treated but this one. If treated, the leakage will be more serious ^[9].”

Traditional Chinese medicine believes that anal leakage is the gradual onset of anal carbuncle. In the *Introduction to Medicine, the General Preface of Medicine*: “The two heats combat and turn into pus, which results from heat but not damp, heat cannot rot the muscles.” The anal carbuncle is the acute stage of the conflict between pathogens, and as time passes, it will become anal leakage. Patients with anal leakage are those whose constitution is hot and humid, or who is always fond of meat or spicy and irritating food, or whose lifestyle is not “clean,” leading to the endogenous heat and humidity, accumulated poison, rotten meat, pus and finally leakage. The wound surface of anal leakage is difficult to heal due to the long-term existence of “moisture,” “heat,” and “poison.” Surgery and postoperative external treatment is needed to fully treat anal leakage. Since ancient times, various schools of traditional Chinese medicine (TCM) have accumulated rich experience and clinical cases in external treatment of wounds. In the field of wound healing, most practitioners have developed a variety of traditional Chinese medicine surgical classic drugs on the basis of promoting qi and activating blood circulation, clearing heat and detoxifying, drying dampness and relieving pain, and astringing and regenerating muscles.

2.2. Views of modern western medicine

The full name of “anal fistula” in western medicine is “anorectal fistula.” As early as the 4th century BC, Hippocrates defined anal fistula. In 1962, Parker and his colleagues proposed a more detailed classification according to the relationship between anal fistula and sphincter ^[10]. About 90–95% of the pathogenesis is caused by anorectal perianal space infection, and 3.5% is caused by injury and other factors. The two reasons above connect anorectal and perianal and perineal skin to form a pathological channel. In addition, the incidence of anal fistula male is higher than that of female ^[11]. Its clinical manifestations are recurrent perianal abscess, and the course of disease is long. In particular, complex anal fistula has a very high probability of recurrence even after appropriate treatment, and even after surgical treatment, there might be different degrees of anal incontinence and other conditions ^[12]. Although there are a variety of surgical methods for the treatment of anal fistula, there is still no clear definition of success, failure, and recurrence ^[13].

Modern western medicine believes that anal fistula is a benign anorectal disease caused by perianal abscess, which occupies a very large proportion in anorectal diseases. The surgical method of anal fistula is mostly done in a way of “low cut and high hanging,” that is, the low anal fistula is treated by one-time resection, and high anal fistula is treated by seton placement. Due to the unique anatomical structure of the anus, anal incontinence and complications are prone to occur after surgery. Moreover, as the anus is an organ for excreting feces, most of the wounds are open after surgery, and many factors will lead to slow wound healing. Wound dressing change is an important factor affecting the quality and speed of wound healing in patients with anal fistula after surgery. Therefore, keeping the wound clean and wound drainage unimpeded is crucial for the full recovery of anal fistula ^[14].

3. Concept of wound dressing of traditional Chinese and western medicine after anal fistula surgery

3.1. Dressing concept of traditional Chinese medicine

Traditional Chinese medicine has a variety of theories and thoughts on wound healing. “If the decayed flesh is not removed, new flesh will not be created” has always been the method of traditional Chinese medicine for wound treatment. *Surgery Enlightenment* from the Ming dynasty writes: “The muscle is not born (...) when the paste is stuck, pus will be simmered, and flesh grows.” “Simmering pus and growing flesh” can be considered as the further development and supplement of removing pus and rot, or the next stage of removing pus and rot. “Simmering pus and growing flesh” mainly refers to the external application of traditional Chinese medicine to promote the simmering of pus, flesh growth, and healing after the removal of decaying flesh from the wound. The simmering pus here is not an early necrotic substance, but a manifestation of sufficient and unblocked qi and blood. It provides a good wet environment for the wound to grow better while protecting the wound [15].

Traditional Chinese medicine mainly relies on the combination of “clearing heat and promoting blood circulation, relieving swelling and pain, and astringing and myogenic methods” to promote wound healing, which focus on dialectical treatment and nursing and utilizes the characteristics of traditional Chinese medicine [16]. Traditional Chinese medicine has a long history and accumulated a lot of experience, especially in the treatment of trauma wounds, and has its own unique understanding and advantages [17]. Relying on the collective methods and experience of Chinese medicine, many Traditional Chinese medicine specialized hospitals have developed special ointment for postoperative patients with anorectal diseases, which have been proven effective.

3.2. Concept of dressing change in modern western medicine

The concept of dry healing in modern western medicine believes that only a dry and clean environment is conducive to creating a high oxygen concentration environment that promotes wound repair and healing. Cotton pad and gauze can well absorb exudate and isolate external pollution and keep the wound relatively clean in cleaning and suturing the wound. However, the dressing tend to stick to the wound when removed, which may tear the new granulation tissue on the surface, and cause unintentional secondary mechanical injury [18].

In 1962, Dr. Jorge Winter from the United Kingdom proposed the “wet healing environment theory,” which is the source of the “wet therapy” theory [19]. The Food and Drug Administration defined the standard approach to wound management as “wet therapy” in the business guidance in 2000. The main method of “wet therapy” is to provide a closed, micro-oxygen or no oxygen, moist, and slightly acidic environment for the wound, so as to better promote wound healing. With the development of modern biotechnology, more research has been done on the mechanism of wound repair, and new biological dressings have emerged in western medicine, such as alginate dressings and hydrocolloid dressings.

4. Different methods of traditional Chinese and western medicine for postoperative dressing change in patients with anal fistula

4.1. Methods of dressing change of Traditional Chinese medicine

Liu [20] discussed and analyzed of the clinical effect of Shengjiyuhong ointment on promoting wound healing after low anal fistula surgery by randomly dividing the patients into the control group (treated with conventional Vaseline gauze dressing) and the study group (treated with Shengjiyuhong ointment gauze dressing). The results showed that the duration of secretion, the duration of largest amount of secretion, duration of epithelial growth, and duration of wound healing in the study group were shorter than those in the control group. In general, Shengjiyuhong ointment can significantly accelerate the growth rate of granulation and epithelial tissue, promote local blood perfusion and capillary growth rate, and accelerate

wound healing after low anal fistula surgery.

Xie ^[21] randomly divided 90 patients with damp-heat anal fistula after surgery into Vaseline group (surgical wound dressed with Vaseline gauze) and Coptis oil group (surgical wound dressed with Coptis oil gauze), with 45 cases in each group. The wound dressings of both groups were changed once a day. The results showed that Coptis oil can accelerate wound healing and shorten the length of hospital stay and the effect is safe and reliable.

Traditional Chinese medicine has a long history in the treatment of anorectal diseases. Ointments that are developed based on the principles of traditional Chinese medicine are safe and reliable for dressing change in patients with anal fistula after operation, and their therapeutic effect is better than conventional western medicine dressing change. However, the formula of traditional Chinese medicine preparation is not standardized, so the treatment formula varies from hospital to hospital.

4.2. The method of dressing change in modern western medicine

Guo ^[22] studied the clinical effect of alginate dressing applied to the wound dressing after low anal fistula surgery by first dividing the patients into the observation group and the control group by random number table method, with 121 patients in each group. The wound was covered by alginate dressing after surgery in the observation group, and the wound was covered by Vaseline gauze in the control group. The results showed that alginate dressing could significantly reduce the frequency of dressing change, the amount of wound secretion, and shorten the healing time compared to Vaseline dressing.

Liu ^[23] observed the application effect of hydrocolloid dressing in superficial skin injury, and divided 100 patients with superficial skin injury into two groups by random number table method, with 50 patients in each group. The control group was treated with routine surgical dressing change, and the experimental group was treated with hydrocolloid dressing change. The results showed that hydrocolloid dressing can relieve the pain of patients during dressing change, reduce the frequency of dressing change, accelerate the recovery of skin injury, and reduce the incidence of scar formation and wound infection.

Alginate dressing and hydrocolloid dressing are new types of dressing that have similar effects. They are biological substances widely used for healing and regeneration of human tissues ^[24]. Because they are new types of wet dressing, the frequency of dressing change is less than conventional dressings, and are more effective in promoting wound healing, so they are expensive.

4.3. Combination traditional Chinese and western medicine in wound dressing

To observe the effect of Qudu-Shengji ointment gauze combined with Teding Dianci Pu irradiation on promoting wound healing after complex anal fistula surgery and on serum tumor necrosis factor alpha (TNF- α), interleukin 6 (IL-6), and interleukin 10 (IL-10), Wang ^[25] divided the patients into an observation group and two control groups according to the numerical expression method. The observation group was treated with Qudu-Shengji ointment gauze packing combined with TDP irradiation; one control group was treated with Qudu-Shengji ointment gauze packing, while the other control group was treated with Vaseline gauze packing. After treatment, the VAS score of pain, the weekly change in the proinflammatory factor content of TNF- α and IL-6 in serum, the scores of various symptoms (including wound secretion, granulation morphology, redness, and degree of swelling), the shedding of decaying flesh, and the wound healing time of the observation group were shorter than those of the two control groups. After treatment, the changes of IL-10 anti-inflammatory factor, wound reduction rate, and clinical efficacy in the observation group were higher than those in the two control groups. Therefore, the combination of traditional Chinese and western medicine in wound dressing can relieve the pain of patients and promote the metabolism of wound healing, which achieve the purpose of removing the decaying flesh and generating new flesh.

The treatment of combining traditional Chinese and western medicine will become a new development trend of medicine, which is not only the combination of the two fields but also their cultures. This is a new field which needs to be further explored and excavated, so that the two can be better combined to benefit more patients ^[26].

5. Summary and prospects

Anal fistula is a common anorectal disease ^[27]. The result of postoperative dressing change plays a decisive role in the wound recovery of patients. Due to the special location of the wound and the complex structure of anal tissues, many complications, such as microcirculation barrier, local inflammatory response, oozes, exudation and pain, may occur at the wound, which will significantly affect wound healing ^[28,29]. In the treatment of postoperative anal fistula, modern western medicine mainly focuses on controlling inflammation, but adverse symptoms are prone to occur, such as postoperative infection and inflammation ^[30]. Wet healing is a new concept of wound healing. Combined with the new dressing and dressing change method, the drug can be fully fitted to the wound, so that the necrotic flap tissue can loosen and fall off more easily ^[31], which is conducive to rapid wound healing. The new dressing is a breakthrough in the theory and practice of traditional dressing and viewpoints ^[32]. At present, compared to conventional dressing, the new dressings have not been widely used in clinical practice, and the price of the new dressings are slightly more expensive than conventional dressing, which increases the economic burden of some patients. Traditional Chinese medicine has accumulated a lot of experience in the treatment of anorectal diseases, and the treatments are simple, convenient, cheap, and green, and its clinical efficacy has been proven ^[33]. However, the treatment of traditional Chinese medicine is mostly based on experience, and the mechanism of some drugs is not clear without standardized prescriptions ^[34]. In view of this situation, medical and nursing staff should reasonably integrate the treatment methods of traditional Chinese medicine into western medicine, drawing on each other's strengths to complement each other's weaknesses, and design a method suitable for postoperative dressing change in patients with anal fistula and apply them in clinical work, so that more patients with anal fistula can be benefited.

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