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Short Communication

Inducing Factors of Postoperative Infection after Pilonidal Cyst Resection

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Abstract

To analyze the inducing factors of postoperative infection after pilonidal cyst resection. The risk of postoperative infection is closely related to surgical techniques, patients' physical constitution, and postoperative management. It is necessary to reduce the risk through standardized operations and individualized nursing care. In this regard, nursing care is more important than treatment.

INTRODUCTION

The patient is a 21-year-old male who was admitted to the hospital due to a mass accompanied by pain in the sacrococcygeal region for more than 4 months. More than 4 months ago, without obvious inducement, a mass appeared in the sacrococcygeal region, accompanied by swelling and pain. The nature of the pain was persistent dull pain. There was no fever, chills, diarrhea, abdominal pain, or bloody stools. He was treated at the 953rd Hospital with "pilonidal cyst resection and rhomboid skin flap transfer". After the operation, purulent secretions repeatedly flowed out from the sacrococcygeal region, accompanied by mild pain. For further diagnosis and treatment, he was admitted to our hospital again. He was admitted to our department as a patient with "pilonidal cyst" in the outpatient department. During the course of the disease, his mental state, sleep, and diet were normal, his defecation and urination were normal, and there was no significant change in body weight. Currently used drugs: None.

Past medical history

Denied a history of infectious diseases such as hepatitis, tuberculosis, and malaria. Denied a history of diseases such as "hypertension, diabetes, and heart disease". Denied a history of trauma, blood transfusion, drug, and food allergies. Vaccinations were carried out according to the local regulations.

Personal history

Born in Yuanzhou District, Guyuan City, Ningxia Autonomous Region. No history of living in epidemic areas. No history of exposure to epidemic water or sources. No history of exposure to radioactive substances or poisons. No history of drug use. Has a smoking history of 2 years, smoking 6-7 cigarettes per day. Denied a history of drinking alcohol.

Marital and childbearing history

Unmarried and childless.

Family history

The parents are in good health. There is no history of infectious diseases or genetic diseases in the family.

MATERIALS AND METHODS

Physical examination

Body temperature 36.8°C, pulse 80 beats per minute, respiration 14 breaths per minute, blood pressure 122/70 mmHg, pain score 1. No positive signs were found in the heart, lungs, and abdomen.

Auxiliary examination

None.

Specialty situation

The perianal and gluteal regions have thick hair. Old surgical scars can be seen in the intergluteal cleft and the right gluteal region. A skin depression sinus tract can be

seen 5 cm away from the anal margin in the intergluteal cleft. There is no obvious secretion flowing out after pressing. The anus is normally developed. There is no redness, swelling, ulceration, eczema, or fistula in the perianal skin. Digital rectal examination: No mass or induration was felt within 6 cm of the rectum. The anal sphincter muscle strength is normal, and the finger cot is not stained with blood. Pain screening result: Positive, pain score 1.

Differential diagnosis

Hidradenitis suppurativa: Generally, it is a chronic inflammation of the skin and subcutaneous tissue, which can form a fistula in the perianal subcutaneous tissue, discharge pus, and spread around. Multiple external openings can be seen scattered in the perianal subcutaneous tissue, and there is no obvious internal opening in the anal canal. According to the specialty examination, this diagnosis is not considered at present.

Rupture of presacral teratoma: It is a congenital disease caused by abnormal embryonic development. There are more females than males. When it ruptures, there is usually an external opening in front of the coccyx behind the anus, and there is no internal opening. During the operation, hair, teeth, bone, etc. can be found in the cavity. According to the specialty examination, this diagnosis is not considered at present.

Tuberculous abscess: Abscess secondary to lumbar tuberculosis. The disease recurs repeatedly. Antibacterial treatment is ineffective. It is accompanied by symptoms of tuberculosis poisoning, such as low fever in the afternoon, night sweats, emaciation, etc. The PPD test and related examinations can be used for identification.

Initial diagnosis

Pilonidal cyst; Final diagnosis: Pilonidal cyst.

Treatment plan

Perform routine blood, urine, and stool tests, comprehensive biochemical tests, four coagulation tests, emergency HIV test, hepatitis B and C tests by gold standard, etc.

Perform examinations such as chest X-ray, electrocardiogram, and abdominal B-ultrasound.

Perform pilonidal cyst resection and negative pressure drainage.

Preoperative diagnosis: Pilonidal cyst; Postoperative diagnosis: Pilonidal cyst.

Brief surgical procedure (including surgical method, intraoperative findings, and whether the process was smooth, etc.): After successful general anesthesia, the prone jackknife position was taken. The surgical area was disinfected, and sterile surgical towels were draped. During the operation, old surgical scars were seen in the intergluteal cleft and the right gluteal region, and a skin depression sinus tract was seen 5 cm away from the anal margin in the intergluteal cleft. Methylene blue was injected into the sinus tract. Taking the midline of the gluteal sulcus as the long axis, a fusiform incision was made, including all the lesions. The lesion resection reached the level of the sacrococcygeal fascia. The specimen was completely removed and sent for pathological examination. The wound surface was thoroughly hemostatic. The tissues above the gluteus maximus were freed. The tissues on both sides were aligned to ensure no tension. The right gluteal region was freed to the lower part of the old surgical scar on the right side. Two negative pressure drainage tubes were placed below it and led out and fixed from the right gluteal region respectively. The wound surface was sutured intermittently with absorbable sutures. The wound surface was compressed and bandaged with sterile dressings, and the operation was completed. The anesthesia was satisfactory during the operation, and the operation was smooth. The patient was sent to the recovery room after the operation. Perioperative complications and other risks: Blood loss: 50 ml, Blood transfusion and blood products: Transfused suspended red blood cells {0} ml, plasma {0} ml, platelets {0} ml. Situation of sending surgical specimens for examination: Sacrococcygeal lesion.

POSTOPERATIVE NURSING

On the first day after the operation, the patient was conscious and in good spirits. He slept well at night. He complained of pain in the sacrococcygeal wound. The pain was relieved after taking celecoxib orally. He did not complain of discomfort such as palpitations, chest tightness, shortness of breath, nausea, and vomiting. He did not defecate, and urinated on his own. Physical examination: The vital signs were stable, and no obvious positive signs were found in the heart and lungs. The abdomen was flat and soft, with no obvious tenderness, rebound tenderness, or muscle tension. The dressing on the sacrococcygeal wound was fixed in place. After changing the dressing, it was found that the incision was well aligned, with a small amount of exudate. The drainage tube was connected to negative pressure smoothly, and about 50 ml of light bloody fluid was drained [1]. The patient was instructed to eat normally, drink more water, and eat more foods high in dietary fiber to avoid dry stools.

Ten days after the operation, the patient was conscious and in good spirits. He slept well at night. There was no obvious pain at the sacrococcygeal incision. He had defecated, and the stools were soft. Urination was normal. Physical examination: The wound surface of the sacrococcygeal incision healed well. The drainage tube was in place, and the negative pressure suction was good. A small amount of exudate was seen in the tube. After the patient received active dressing changes after the operation, the incision healed well, and the exudate gradually decreased. The dressing changes were continued to be strengthened. The patient was instructed to have a high-fiber and light diet and keep the stool unobstructed. Celecoxib and citrus flavonoid tablets for pain relief and swelling reduction were discontinued today.

Twenty days after the operation, the patient was conscious and in good spirits. His diet and sleep were satisfactory. There was no fever or chills, no anal tenesmus, no abdominal pain or distension. He had defecated, and the stools were soft. Urination was normal. Physical examination: The dressing on the sacrococcygeal incision was well bandaged. No obvious bleeding or exudate was seen when the incision was squeezed. No obvious bloody fluid was drained from the negative pressure drainage tube. Today, the negative pressure drainage tube on the outer side of the right gluteal region was withdrawn. After withdrawing the tube, negative pressure suction was continued, and the sutures of the sacrococcygeal incision were removed. The healing situation of the sacrococcygeal incision was closely observed. Strenuous exercise and prolonged sitting were avoided. Spicy and irritating foods were avoided, and more foods high in dietary fiber were eaten. There was no secondary infection, and the patient was discharged from the hospital after recovery.

RESULTS AND DISCUSSION

Pilonidal cyst is a chronic inflammatory disease, which is commonly caused by hair penetrating the skin in the sacrococcygeal region (near the coccyx in the gluteal cleft), leading to a foreign body reaction and infection. Due to the subcutaneous cyst or sinus tract, which contains a large amount of hair, skin debris, and secretions, it is easy to have secondary infection and form an abscess. Most of the causes are local friction or trauma (such as prolonged sitting, tight-fitting clothes). The anatomical structure of the deep gluteal cleft, obesity, and hirsute constitution are also commonly seen in patients with a family history and those who sit for a long time in their living environment, such as drivers. Its clinical manifestations are divided into two periods. In the acute stage, there may be redness, swelling, pain, and tenderness, possibly accompanied by purulent exudation or fever. In the chronic stage, repeated infections can occur and form a sinus tract. Its common complications are repeated abscesses, cellulitis, and rarely squamous cell carcinoma. Treatment methods: For asymptomatic patients and those with mild infections, conservative treatment is carried out, that is, regular observation, keeping the local area clean and dry, using antibiotics, hot compresses, and avoiding compression. For patients with abscesses, incision and drainage can be carried out to relieve acute inflammatory symptoms. For patients with repeated infections, surgical treatment can be selected, including resection surgery, open wound healing, suture and skin flap surgery, and minimally invasive techniques.

For patients who have undergone pilonidal cyst resection, postoperative infection after pilonidal cyst resection is one of the common complications, and its occurrence is related to a variety of factors.

Surgery-related factors

Incomplete removal of the lesion: Residual hair, necrotic tissue, or sinus tract that has not been completely removed becomes a breeding ground for bacteria. Moreover, if hemostasis is not thorough during the operation, a hematoma will be formed, increasing the risk of infection. Selection of surgical methods: Open wound healing (the wound surface is not sutured): Although the recurrence rate is low, the wound surface is exposed for a long time and is easily contaminated by feces and sweat. Primary suture or skin flap surgery: After suture, the local tension is high, and the blood supply is poor [2]. Infection may occur due to fluid accumulation or dead space. Intraoperative contamination: If the surgical instruments are contaminated or the disinfection of the operating environment is not strict, bacteria (such as Staphylococcus aureus, Escherichia coli, etc.) will be directly introduced.

Patients' own factors

Local anatomy and physiological conditions: Deep gluteal cleft or obesity: The postoperative wound surface is easily covered by the skin folds of the buttocks, and the humid environment is conducive to the reproduction of bacteria. Hirsute constitution: Residual or new hair may pierce the skin again and cause infection. For patients with underlying diseases such as diabetes: Hyperglycemia inhibits the function of immune cells and delays wound healing. Immunodeficiency (such as patients who have used hormones or undergone chemotherapy for a long time): The ability to resist infection decreases. Patients' bad living habits such as smoking: Nicotine constricts blood vessels, reducing the blood supply and oxygenation

of the wound surface and affecting healing. Prolonged sitting or excessive activity: Compressing or pulling the wound, leading to wound dehiscence or exudation [3].

Improper postoperative nursing

Insufficient wound cleaning: The wound surface is not disinfected or irrigated regularly, and the contamination of secretions and feces is not removed in time. Using airtight dressings: This leads to local humidity and an increase in temperature. Non-standard dressing changes: The interval between dressing changes is too long or the operation is not sterile (such as not disinfecting the hands). For open wound surfaces, dressings are not filled, forming a dead space [4].

Removing the drainage tube too early: The fluid accumulation is not fully drained, forming an abscess.

Other risk factors

Mproper use of antibiotics: Failure to use antibiotics prophylactically according to the guidelines or abuse of antibiotics leading to the infection of drug-resistant bacteria. Postoperative complications: Hematoma, seroma, or fat liquefaction provide conditions for the reproduction of bacteria. Psychological factors: Anxiety or ignoring the doctor's advice, and not strictly implementing postoperative nursing measures.

Key measures for preventing postoperative infection

Preoperative preparation: Control blood sugar, quit smoking, and it is recommended that obese patients lose weight. Prepare the surgical area (shave hair) to reduce hair residue. Standardized intraoperative operation: Thoroughly remove the lesion and reduce the dead space. Place a drainage tube if necessary. Key points of postoperative nursing: For open wound surfaces: Wash with normal saline every day + pack the wound with dressings to keep it dry. For sutured wound surfaces: Disinfect regularly, avoid compression, and use breathable dressings. Use of antibiotics: High-risk patients (such as those with diabetes) can be prophylactically used for a short period. Lifestyle adjustment: Avoid prolonged sitting for 1-2 weeks after the operation, use a decompression cushion, and wear loose clothes.

CONCLUSION

Postoperative infection after cyst resection is mostly caused by the combined effects of surgical techniques, patients' physical constitution, and postoperative nursing. To reduce the risk of infection, doctors and patients need to cooperate. Doctors need to perform delicate operations and select surgical methods individually, and patients should strictly follow the nursing guidance and control underlying diseases. If redness, swelling, exudation, or fever occurs, medical treatment should be sought in a timely manner to avoid the spread of infection.

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