

## Effectiveness of benzoin tincture in management of complex faecal fistula with deep abdominal folds

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### Abstract

A 42 year old lady who is having colorectal cancer (T4a N2b M1c) with multiple surgical complications mainly related to inappropriate adhesion of colostomy bag. The use of benzoin tincture as an agent to reinforce the adhesiveness of hydrocolloid extra thin and strip paste in deep abdominal folds of faecal fistula by securing both skin folds perfectly had found to be very effective recently. The property of benzoin tincture solution as a topical adhesive as well as antiseptic makes it more effective in this domain. However, well closed and undisturbed contact of the tincture with the perifeecal fistula surface need to be maintained especially during the initial 4 to 5 days of its application to achieve the best result. The actual mechanism of action behind the good adhesiveness of benzoin tincture is found to be because of its low coefficient of friction. Having such a property it reduces the damage to the exposed tissue either through increasing its slipperiness or reducing the friction by protective coatings. Apart from this, benzoin tincture is used as rapidly drying barrier and protective agent. Faecal fistula develop in patients with cancer represent a difficult management situation, which is often complicated by prior treatment including surgery, radiation therapy, and chemotherapy. Affecting Factors such as timing of additional adjuvant therapy or palliative care, technical considerations for operating on irradiated bowel, poor wound healing, increased risk of additional Faecal fistula, and decreased likelihood of spontaneous Faecal fistula closure all need to be considered in this scenario. Here the authors specifically focused on the management of faecal fistula in patients with deep abdominal folds and effectiveness of hydrocolloid extra thin and strip paste in obtaining maximum adhesion.

### Keywords

deep abdominal fold; faecal fistula; strip paste; benzoin tincture

## Introduction

Benzoin is one of the ancient drugs available in pharmacy. It is popular as a masquerade of many romantic names, few of them are Turlington's balsam, Friars' balsam, Wade's balsam, Jesuit's drops, St. Victor's balsam, Persian balsam, Swedish balsam and Jerusalem balsam. Officially in the United States it is available as Pharmacopeia and the British Pharmacopeia under the title tincture benzoini composite [1]. Tincture benzoin solution is widely acceptable as antiseptic and adhesive agent. While searching the way through which it got its name, it has been found that it contain resin compound. Resin is naturally occurring substance that obtain from plant (Balsams) [1]. Resin having very good adhesive power. Resin is also use for surface pretreatment for application of adhesion .

## Case history

A 42 year old lady followed by a surgery for colorectal cancer presented now to us with many complications related to her surgery including rectovaginal fistula, [2] adhesive small bowel obstruction, and complex fecal fistula (Figure 1). In her past health history, she had multiple previous surgeries like laparoscopic appendectomy with right hemicolectomy, total abdominal hysterectomy with bilateral salpingo oophorectomy. She was also on adjuvant chemotherapy, radiotherapy and hyperbaric oxygen therapy. Currently she presented with oozing of pus discharge from the previous surgical scar below the umbilicus (Figure 2). Also on investigation it was noted that the terminal and proximal ileal loops got densely adhered to the lower abdominal wall and urinary bladder. The small bowel was pathetically distended and edematous. The bowel walls were adhered to pelvis itself. Actually for these problems she underwent for an exploratory laparotomy to drain the pus and infected materials. During the procedure surgeon put a double barrel transverse colostomy along with an ileostomy [3]. During the prolonged hospital stay she underwent many wound debridement procedures and nutritional support interventions. A wide variety of wound and fistula management system were utilized. She was monitored for the stoma output and it was very excessive of nearly 1200 to 1300 ml daily [4]. Gradual change from soft to normal diet was also tolerated by the patient but at the end on inspection continues discharge, excoriation of surrounding skin and increased wound gap were noted. She had received adjuvant chemotherapy FOLFOX (Folinic acid, Fluorouracil, Oxaliplatin), radiotherapy (78 Grey and 26 fraction) and hyperbaric oxygen therapy.

## Results

Patient came to our wound and ostomy care unit and we first assessed the patient thoroughly and could find that the patient is having deep grooves on both sides of the abdomen with thick skin folds which prevent the bag stick on to the skin well (Figure 1). So from the initial assessment itself we found out the reason for bag leakage and we started working on that issue. We were sure that patient will be alright readily if she gets rid of the problem of bag leakage. So we first tried with ostomy paste where we filled the grooves and abdominal folds with that paste and then applied the ostomy bag. But unfortunately it could bring a little advantage that the bag kept in place for minimum 1 day only. Then we tried with ostomy strip paste which could make more benefit than the previous trial. It helped in a good adhesion of the bag to the skin yet it also could serve for 2 days which wasn't the result we expected. So in the next trial we filled the

groove with ostomy strip paste first and over the peri stomal area, we applied benzoin tincture (Figure 3) and then we kept it for a while (10 seconds) to get it dried and then we placed one hydrocolloid thin sheet over the site (Figure 4). Afterwards we placed the ostomy bag (Figure 5) and surprisingly we got amazing results as exactly as what we wished to get. It was very interesting to see that the ostomy bag remained in its place for a maximum of 5 days and that made the patient feel so happy. Once she got revived from her main problem of bag leakage she became very healthy in all other means. We firstly assessed patient for stress and find that if ostomy bag leakage problem of patient was cope up then patient was very relaxed, and that would have happened because as a part of palliative care when we gave physical care to patient then psychologically patient was feeling very good because ostomy leakage problem was solved. We also gave palliative counselling and psychological support to patient for psychological wellbeing that impact on her psychological health. In our department the patient received holistic care in all perspectives which includes the care of stoma, prevention of bag leakage, psychological and nutritional counselling, meeting spiritual needs of the patient and to maintain a good rapport with the family members too. All those interventions resulted in good patient satisfaction and positive outcome.



**Figure 1:** Lateral View of Faecal Fistula with deep abdominal folds



**Figure 2:** Anterior View of Faecal Fistula with deep abdominal folds



**Figure 3:** Applied Benzoin Tincture



**Figure 4:** Applied Strip Paste and hydrocolloid extra thin



**Figure 5:** Complete management of faecal fistula

## Discussion

Management of feecal fistula is really protracts and difficult task. Patients who have received radiotherapy to the abdominal or pelvic organs are at high risk for radiation induced damage to intestinal microvasculature which may result in enteritis, strictures, abscess or fistula. Also surgery on irradiated bowel is associated with poor healing, increased risk of faecal fistula, decreased likelihood of spontaneous feecal fistula closure. Feecal fistulas may develop after colorectal surgeries which contributes to substantial morbidity and mortality. The percentage of iatrogenic feecal fistula is astounding i.e. about 75 to 85 % whereas the figure of spontaneous fistula development is a nominal of 15 to 25%. Common causes of iatrogenic feecal fistulas include trauma, surgeries for malignancies associated with extensive adhesiolysis or in inflammatory bowel disease. The most important thing to be care about in a patient with feecal fistula is something related to ostomy bag placement. It is quite difficult for those patients to maintain the quality of life and to manage the physical and mental stress while living with a feecal fistula. The enteric output especially the mucus from the proximal small intestine can erode our skin within 3 hours. The low output feecal fistulas can be treated with a wet or dry dressing or even with a dry gauze. In case of moderate output fistulas it should be managed with an ostomy appliance with appropriate skin protection in the form of adhesive ring, paste, powder or hydrocolloid dressing [5]. The real challenge come with the management if high output fistulas.

Improper fitting of ostomy bag is a main issue in high output fistulas which can lead to leakage of contents and related consequences. Since the patients are afraid of leakage, they refuse to take adequate food which in turn can cause nutritional imbalances in them. Apart from that, leakage can cause skin excoriation, insomnia, restlessness and so on.

In our patient, the cause for leakage were the presence of deep abdominal skin folds, prominent pubic symphysis and a suture line in the midline of abdomen. These reasons prevented the ostomy bag from sticking well to the skin. Our goal was to make the bag stick well to the skin at least to function for 4 days without any leakage. Along with that, we gave adequate training and education in the care of the stoma and bag, improving the bag stickiness and in preventing leakage.

The actual procedure includes the application of the ostomy appliance preceded by filling of skin folds using strip paste [6] and painting of peristomal skin with benzoin tincture. Then once the tincture gets dried, bag is applied, afterwards we used silicon barrier layer cream also which too gave a positive result. In the end, once the frequency of bag changing had reduced the patient got relief from skin excoriation around the fistula.

Benzoin tincture has best adhesiveness property which helped in sticking of the bag to skin well. Again it is a well proved antibiotic also. It has been using as a local antibiotic solution for wounds for a long time. Its powerful antibacterial property helps in beating against many infections including multiple aerobic, anaerobic and spore forming bacteria [7]. Moreover, it is safe and simple to apply as patient had no side effect with the use of benzoin tincture. Sarifakioglu E cited that tincture of benzoin spray enhances the adhesive strength of surgical dressing tapes and one more study conducted by Cincu Marsalic on Tincture of benzoin. According to his study Tincture of benzoin solution is a topical adhesive agent used to enhance



the adhesive property of tape. [8,9] It is particularly useful for those area that are difficult to dress like facial areas, angle of the mouth or around the eyes.

The study clearly demonstrated that use of benzoin tincture markedly increased the adhesiveness of ostomy bag to the skin. At the same time seldom some complications like contact and allergic dermatitis can be occur because of long term use yet our patient was entirely safe in that matter.

In a developing country like India use of benzoin tincture would be cost effective and economical as compared to other expensive adhesive tapes.

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