

Is it possible to achieve spontaneous closure of enterocutaneous fistula in the community?

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Introduction

Despite advances in surgical techniques, improved peri-operative care and a wider choice of containment devices gastrointestinal fistula still represent a major, costly care challenge.

Influenced by the impact of a population demographic which has the longest life expectancy in our history¹ and which enjoys the highest chance of surgical survival New Zealand could well be on the brink of an increase in the incidence of gastrointestinal fistula.

This case study will follow the care pathway of two clients, both with high output gastrointestinal fistula who were managed in a community setting.

Conflict of Interest: nil declared.

Disclaimer: the opinions and practices in this paper represent my personal practice reality.

Confidentiality: Both clients whose care is detailed in this paper have consented to the sharing of their personal information and pseudonyms have been used.

Gastrointestinal Fistula

Lloyd et al.² defines a gastrointestinal fistula as an abnormal communication between the gastrointestinal tract and either the skin or the atmosphere. An enterocutaneous fistula will be surrounded by the skin while an enter atmospheric one will be beneath skin level and may not be visible.

15-25% of gastrointestinal fistula occur spontaneously and are often associated with:

- Inflammatory bowel disease
- Gastrointestinal malignancy
- Diverticulitis, particularly if abscess and perforation have occurred
- or Radiation enteritis^{2,3}

The remaining 75-85% of gastrointestinal fistula have a surgical origin and are associated with:

- trauma,
- iatrogenic enterotomies,
- anastomotic separation,
- abdominal wound dehiscence or
- mesh erosion of the bowel².

Possible contributing factors to the development of a gastrointestinal fistula may be periods of malnutrition, post-operative hypotension, use of mesh at surgery or the peri-operative use of immunosuppressants.

The mortality from gastrointestinal fistula is reported as between 5-15% which escalates to between 30-35% for those who have a high output of over 500 ml in 24 hours². Several studies ranging over a period of 44 years have documented a fall in the mortality from gastrointestinal fistula from 43-65% in the 1960's to 6.5-20% in 2004³. Uncontrolled sepsis is the main cause of mortality. Advances in radiological drainage of abdominal sepsis and the development of parenteral nutrition are likely to have made significant contributions to the decrease in mortality from gastrointestinal fistula⁴.

Reported rates of spontaneous closure without surgical intervention vary widely with the most frequently reported being between 20-30%⁵. Most of these will occur in the first month after sepsis has resolved and with a low output < 200 mls /24 hours. The remainder will require delayed surgical intervention with a likely prolonged hospital admission. Prolonged hospital admissions can have a significant morbidity with a catastrophically negative impact on quality of life. Definitive surgery for gastrointestinal fistula may not end the journey. Lynch et al.⁶ noted a recurrence rate of 20% at 3 months post definitive gastrointestinal fistula surgery.

Factors which reduce the likelihood of achieving a spontaneous closure of a fistula are:

- the presence of obstruction distal to the fistula
- if the fistula as spontaneous in origin in the first instant
- the presence of ongoing, uncontrolled sepsis

- high volume output
- a complex fistula with more than one outlet
- compromised nutrition

Repeated fistula containment failures lead to a cascade of demoralising outcomes for the patient, family members and the nursing team involved in their care⁷. Pouch failure also leads to break down of peri skin causing both discomfort for the patient and ongoing pouch failure as broken skin can inhibit pouch adherence. A skilled and dedicated nurse or stomal therapy nurse capable of fashioning a viable collection system is a must⁸.

Living with a Gastrointestinal Fistula in the Community

JOHN

John is a 72-year-old gentleman who lives with his wife Pam in a small rural community. Geographically he lives 20 minutes by road from the nearest district nursing base and 90 minutes from the nearest secondary specialist hospital facility.

HISTORY

John presented acutely with a large bowel obstruction. His previous surgical history included repair of an abdominal hernia with mesh placement.

SURGERY

John underwent laparotomy with a Hartman's procedure, formation of an end colostomy and a small bowel resection. The procedure was not without its challenges. Due to the previous mesh placement two hours of dissection was required in a hostile surgical environment before gaining access to the peritoneal cavity. Multiple enterotomies occurred, one of which required resection of a section of small bowel.

SURGICAL FINDING

Descending colon cancer with incidental finding of left renal cell carcinoma.

By day 9 post-surgery John was febrile with abdominal distension. His colostomy, while functional was necrotic at the mucocutaneous junction. His wound was under tension and showing signs of infection. Despite this, John remained clinically well. CT scan showed no evidence of abdominal sepsis.



Figure 1



Figure 2

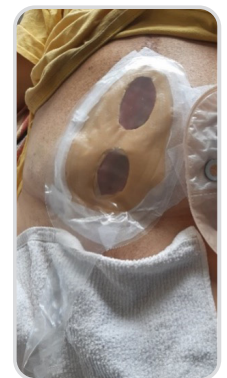


Figure 3

Figure 1, 2, 3: show progressive healing with the use of an eakin Wound Pouch™.

Assessment

See figures 1, 2 & 3. Two sections of the laparotomy wound had a full thickness separation to a depth of 5 cm. Mesh is evident at the base of the wound. The wound edges are intact with no evidence of moisture associated skin damage (MASD). The fistula is enterocutaneous and high output. There was undermining and a connection between the two openings, the connection opened to make one open wound (Fig 4).



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Intervention

Skin preparation remains an essential fundamental of fistula management. Preventing moisture and effluent damage to skin can reduce pouching and containment failures. Welland Barrier film wipes were used both wounds were framed with eakin **Cohesive**® seals. Initially, the two wounds were pouched separately however leakage from either pouch would contaminate the other, so we quickly elected to pouch both wounds in a single eakin Wound Pouch™, as mentioned the skin bridge came apart to make one wound. The abdominal overhang in the groin area was re-enforced with double layering of eakin **Cohesive**® skin barrier.

Rationale for Product Selection

WELLAND BARRIER FILM WIPES

Containing pharmaceutical grade silicone and no alcohol to dry or sting broken skin. These large wipes do not need to be washed off the skin. They will not prevent adhesion of a new appliance. These features speed up pouch changing.

EAKIN COHESIVE® SEALS AND SKIN BARRIERS

The seals were used to frame the wound before pouching. eakin **Cohesive**® seals absorb the effluent into the seal dragging it away from contact with the skin. This maintains the skin's pH balance and prevents damage from irritant enzymes in the effluent which are contained within the seal. Skin folds and creases were filled with the cohesive, making a flat surface for the pouch.

EAKIN WOUND POUCH™

Two different sized eakin Wound Pouch™es were used to fit the changing wound and fistula over the time it was producing effluent (Fig 1 and 3). The mouldability of the pouch allows fitting into the deep abdominal creases which seem to be a feature of fistula management as seen in Fig 1.

Outcome

John was discharged to the community on day 17 with a fistula output of between 300 to 500 ml in twenty-four hours. The district nursing team with Stomal Therapy support undertook twice weekly pouch changes. Having a secure pouching system with the eakin Wound Pouch™ was critical in facilitating John's discharge to the community where he could continue to enjoy the activities of daily living that were important to him. Approximately six weeks after his operation, John's fistula stopped discharging effluent. His wound continues to slowly heal. (see Fig 4)

5 weeks post discharge John had a nephrectomy for the incidental finding of a renal cancer at surgery. Unfortunately, he has missed the window of opportunity for chemotherapy as his wound was not completed within the required timeframe for chemotherapy. Ongoing wound healing is now being achieved with a hydro fibre and absorbent outer dressing.



Figure 4: Mesh is evident at the base of the wound and the fistula is no longer discharging effluent.



Figure 5: Showing hydro fibre and absorbent secondary dressing and eakin® Pelican colostomy pouch.

Jayne Fistula Management Surprises

Jayne is a 75-year-old lady who in 2018 was diagnosed with a B cell lymphoma. Since that time, her care pathways have been extremely complex. Jayne lives alone, she is a significant distance from the nearest hospital facility. Her support systems include the home help service for personal cares and the district nursing team for wound care.

SURGICAL HISTORY

2018: Acutely admitted with a lymph node mass adjacent to her stomach. Subsequent imaging confirmed Jayne had an enlarging and progressive B cell lymphoma.

Nov 2018: Jayne underwent a small bowel resection due to the perforation of an abdominal abscess with subsequent wound dehiscence. District nurses were dressing wound with Negative pressure wound therapy (NPWT). Adjuvant chemotherapy was delayed in the hope of achieving wound healing. The wound output suddenly changed in both volume and characteristics. The usual haemoserous wound discharge became thick, and purulent with obvious faecal content. The volume was now over 1000 ml / 24 hours. Jayne was readmitted to hospital for review.

Jan 2019: Jayne spent several weeks in hospital while managing the fistula with an eakin Wound Pouch™, there was no way Jayne would manage this herself due to the large output and difficulty of pouching because of the abdominal creases. When we were able to manage with twice weekly changes she was discharged and chemotherapy was commenced as an outpatient, it was a matter of having to deal with the lymphoma. To decrease the risk of bacteraemia whilst having the chemo Jayne was also commenced on IV antibiotics which were also given as an outpatient with the district nurses overseeing.

Goals of Care

- To facilitate Jayne's wish to remain in her own home
- To have a containment device which had a predictable wear time allowing District Nurse changes

In March 2019 Jayne experience an episode of *pseudomonas* bacteraemia. At the time of this event, she was in the community having twice weekly District Nursing fistula pouch changes and IV antibiotics via elastomeric pump. The chemotherapy was quite aggressive and with the enterocutaneous fistula Jayne had lost weight and general condition and at this stage she was really struggling at home. Although Jayne was reluctant, re-admission to hospital was necessary. While her lymphoma had regressed in response to chemotherapy she was exhausted and deconditioned. The volume from the fistula varied from 0-400 ml in 24 hours which was an improvement.

Jayne missed one cycle of chemo and over this time the fistula stopped producing effluent. The wound was successfully dressed with a foam dressing.

The Outcome a Surprise

Against all the odds, with chemotherapy, nutritional impairment and generally poor health Jayne's fistula spontaneously healed. See fig 6, 7.



Figure 6



Figure 7

Conclusion

Spontaneous healing of a fistula with high output is infrequent, and in my clinical experience unseen with these volumes of output, without surgical intervention. To have two heal spontaneously and to stay healed after producing upwards of one litre of effluent in a 24-hour period was unprecedented. The complexity of caring for people with fistula in the community, away from specialist care is a credit to the community nursing team who embraced these challenges and to the products available to manage the output, with guidance from the Stomal Therapy Nurse.

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