

Evaluation of the Outcome of Conservative Treatment of Enterocutaneous Fistulae (an Optimistic Result): 48 Model Hospital, Sanna'a, Yemen

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Abstract

Objective: management of enterocutaneous fistula represents surgical challenges in terms of morbidity and mortality. In our study, such surgical challenges can be minimized to a lesser degree by adopting a meticulous team approach for spontaneous closure of the fistula. **Patients and Methods:** during a period of four years, 49 cases of enterocutaneous fistulae arising from small and large intestines were managed, all of the fistulae resulted from surgical complications. In 7/49 patients (14.2%) the fistulae arose from the proximal small gut (duodenum), in 5/49 (10.2%) the fistulae arose from the cecum. 1/49 patients (2%) from left colon and in the remaining 36/49 (73.6%) from the ileum. Octreotide was used in all patients. Peripheral partial nutrition (amino acids and hypertonic dextrose) was used in the first week, then partial enteral nutrition (fluids and semi fluids) to maintain the nutrition of the patients. **Results:** Cases with enterocutaneous fistulae (n=49) were treated over a period of four years from august 2008 to august 2012 in 48 Model hospital. There was only one female and 48 male patients with a mean age of 33 years (range from 19-50). The main fistula output was 550 ml /day (range 150-1100ml/day). 16/49 patients (32.7%) had a high output fistula (> 400ml/day), where 12/16 cases were due to anastomosis leak and 4/16 cases due to missed injuries. 33/49 patients (67.3%) had a low output fistula; 6/33 patients (18.1%) missed large intestine and 27/33 patients (81.1%) missed injuries of the small intestine. **Conclusion:** In our study, team work approach for conservative treatment for intestinal cutaneous fistulas that had been caused iatrogenically can lead to an optimistic results contrast studies do not contribute significantly to the ultimate outcome of the patients, rather than following an early surgical line of management of an enterocutaneous fistulae specially when there is no clear contraindication for conservative approach, aiming for surgical closure of the fistula, we feel a meticulous team work approach hoping for spontaneous closure of the fistula, will lead to lesser morbidity and mortality with higher fistula closure rate.

Keyword: Fistulography, total parenteral nutrition, enteral nutrition

Introduction

Management of small intestinal fistulae is associated with high morbidity and mortality primarily due to inadequate nutrition, sepsis, fluid/electrolyte disturbance and

skin digestion⁽¹⁾. Treatment may require prolonged hospitalization, the spectrum of etiology is changing from the once common, spontaneous extension of intra-abdominal disease in the form of strangulated hernia, empyema of gall bladder or

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extension of intestinal malignancy⁽²⁾. In our hospital, these are seen rarely and the single most common cause is a fistula following a surgical operation, followed by blunt and penetrating trauma⁽³⁾. As a general rule, the more proximal in the digestive tract, the greater the fistula output will be⁽⁴⁾. High output enterocutaneous fistula might be associated with a lower incidence of spontaneous closure. Spontaneous closure is dependent on a number of factors, which include anatomical site, presence of intercurrent disease, and whether or not the fistula tract is simple or complex (i.e. if there is associated abscesses or multiple tracts). Expectant treatment for spontaneous closure is associated with prolonged hospitalization. There is no need for abandoning the expectant line of management for more aggressive surgical approach once the patients' nutritional problem, fluid and electrolyte disturbance and sepsis have been tackled by selective use of octreotide, total parenteral nutrition (TPN)/ enteral nutrition (EN) and antibiotics. However, alternative surgical closure is a potential treatment for more extensive cases.

Patients and Methods

Between august 2008 and august 2012, 49 patients with small and large intestine-cutaneous fistulas were treated at Model Hospital. All patients with external fistula either small intestine or colonic were included. Patients with extensive intestinal injuries or multiple system injuries were excluded and planned for surgical treatment. Surgical aspiration or drainage was planned for management of intraabdominal abscess. The initial management was along the adopted practice in 48 MH. Patients were aggressively resuscitated with fluid and electrolytes with peripheral partial nutrition, hypertonic dextrose, and PPIs in the

first week. Simultaneously, a stoma care apparatus was applied to the fistula opening to protect the skin from the effluent and to give an accurate measurement of the daily fistula output. Plan for nutritional support was also decided in the second week. Whenever possible, the gut was utilized for maintenance of nutrition. We used fistulography and barium study to define the anatomical site of the fistula, ultrasound (US) and computerized tomography of the abdomen (CT) to localize intra-abdominal abscesses. Only one patient found to have an intraabdominal abscess was treated by US guided aspiration. Octreotide was used in a dose of 100 microgram twelve hourly subcutaneous for a maximum period of 21 days in all cases of high output fistula, to decrease the fistula output and to correct fluid, electrolytes and nutritional disturbances. Daily calculation of the fistula fluid in the collection bag was done. Complete stoppage of the leak is the cure endpoint.

Results

Forty-nine cases of enterocutaneous fistulas were treated over a period of six years from august 2008 to august 2012 in Model Hospital. There was only 1 female and 48 male patients with a mean age of 33 years (range 19-50). The main fistula output was 550ml/day (range 150-1100ml/day). 16/49 patients (32.7%) had a high output fistula (>400ml/day), where 12/16 cases were due to anastomosis leak and 4/16 cases due to missed injuries. 33/49 patients (67.3%) had a low output fistula; 6/33 patients (18.1%) missed large intestine and 27/33 patients (81.1%) missed injuries of the small intestine. In the group of high output fistulae, the fistula output decrease to a mean of 120ml/day (range 50-200ml/day) 7 days after starting octreotide. Significant intra-abdominal collection was detected in 1/49

(2%), using US/CT scan study of the abdomen and was successfully treated by repeated US guided aspiration of the collections, the volume of pus aspirated per sitting was of mean 80ml (range 40-180ml), the dominant organism was *E. Coli*. Fistulogram and/ or barium study was done in 9/49 patients (18.4%) to find the location of the fistula, however, only in 5/9 cases (55.6%) the contrast study could convincingly show the location of the fistula. In this study, all 49 were given nutritional support in either the form of peripheral partial nutrition (amino acids and hypertonic dextrose) or enteral nutrition. There was one death (2%) in this study. This patient developed multiple jejunum fistulas by multiple shells due to bomb explosions and died four weeks since the onset of the fistula when he travels abroad. One fistula (2%) was closed surgically where there was a severe duodenum injury that leads to disruption of its continuity. In the remaining 47 patients (95.9%), the fistula was successfully closed with conservative treatment within 27 to 39 days. Of these, only one patient required aspiration under US guidance.

Discussion

Enterocutaneous fistulas present a challenge to the combined surgical and medical current treatment even if successful may require prolonged hospitalization⁽¹⁾. Forty-nine cases of small and large intestine cutaneous fistulas were treated in this study. ('Surgical misadventure' or postoperative were the main cause). Leaking anastomosis was responsible for fistula formation in 12 cases, while missed small and large gut injury at laparotomy, leading to enterocutaneous fistula accounted for 37 cases. In a large series of 114 cases of gastrointestinal fistulae 51% resulted from surgical complications of which almost half were due to

unrecognized intestinal injury⁽⁵⁾. In the same series, inflammatory bowel diseases caused 30% of all fistulas, Crohn's disease being the commonest cause. In our series there was no case of Crohn's, but there were 2 cases of breakdown of stricture-plasty done for tuberculosis strictures, fistulography and barium study as a modality of investigation to find the location of the fistula and the presence of distal obstruction was used in 9 cases in this study. Only in six out of nine cases, fistulography was able to define the location of the fistula. In these patients too, it did not contribute to the overall management of the patients, this is in contrast to the time old teaching of using this study in the management of enterocutaneous fistulas⁽³⁾. We found US and CT scan of the abdomen were useful in detecting intraabdominal abscesses and, US-guided aspiration of the abscesses was an effective modality of treatment. Nutritional support has gained a central role in the management of enterocutaneous fistulas, to optimize nutrient metabolism, circulation and tissue oxygenation must be adequate⁽⁷⁾. After initial resuscitation, prompt initiation of nutritional support is crucial. The breakdown of lean body mass is relentless and sufficiently rapid, so that each day the patient suffers septic starvation, significant deficit are compounded⁽⁸⁾. In our study, nutritional support was instituted the moment fistula was identified. It was also our aim to use the gut for nutrition whenever possible. The need to decrease the fistula output, particularly in high output fistulas, is felt by one and all, to help in nutritional and fluid and electrolyte management in the initial phase and in non-surgical closure of fistulas in the long run^(9,10). Octreotide, a synthetic analogue of somatostatin, inhibit the release of practically all known gut hormones and decrease splanchnic and portal flow, thereby decrease the fistula output^(11,12).

We used octreotide in all cases of high, low output fistulas and found a significant reduction in the fistula output within the first 7 days. However, except for one fistula that closed surgically, all other patients were treated conservatively to close the fistula. Significant reduction in the fistula output after octreotide has been reported by Paran et al, Sleth et al, and Kocak et al⁽¹³⁻¹⁵⁾. With a conservative medical management, including partial peripheral nutrition, spontaneous closure of the fistula occurs in about 95.9% of patients within 27-39 days, with a mortality of around 2%. It must be noted that these results were seen in those patients who had a high or low output fistula, no organic disease, no abscess cavity etc. and, were thus subjected to conservative treatment.

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