

**Managements Of Enterocutaneous Fistula (ECF)**

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**المخلص**

تمهيد:- النواسير المعوية هي اقنية شاذة (غير سوية) مبطنة بطبقة تظهيرية بين اثنان من الاعضاء التي تحتوي على فراغ او بين عضو يحتوي على فراغ والجلد. وقد قدرت الدراسات ان حوالي 90% من النواسير تظهر بعد اجراء العمليات الجراحية للبطن لمختلف الاسباب المرضية. وان نسبة موت المرضى المصابين بها حوالي 37% في النواسير ذات الانتاج العالي (الكثير اي اكثر من 500 مللتر باليوم).  
الاهداف:- لتقييم التعليمات العلاجية في علاج النواسير المعوية، ودراسة عوامل التكهنات في نتائج مرضى النواسير.

الطرق:-دراسة مستقبلية تم اجرائها خلال الفترة المحصورة بين كانون الثاني 2002الى تموز 2013. تم اجراء الدراسة في قسم الجراحة مستشفى اليرموك التعليمي. 115 مريض مصابين بالنواسير المعوية تم علاجهم وفق التعليمات العلاجية للنواسير، والتي تشمل على علاج الخراجات المصاحبة للنواسير، وتزويد المريض بالغذاء المثالي، والعناية بالجروح وثقوب النواسير، ودراسة نوع الناسور حسب التشريح العضوي، ومعرفة افضل وقت لاجراء العملية الجراحية واخيرا خطة العملية الجراحية.

النتائج:- تم جمع البيانات من 115 مريض مصابين بالنواسير المعوية المختلفة. معدل اعمارهم 42 سنة(تتراوح بين 8-76 سنة). ومعدل وقت ظهور النواسير حوالي 20 يوم(تتراوح بين 3-37 يوم) بعد موعد اجراء العمليات الجراحية للبطن لمختلف الاسباب المرضية. ومعدل الرقود بالمستشفى حوالي 57 يوم (تتراوح بين 8-106 يوم). ومعدل فترة العلاج الكلية حوالي 80 يوم (تتراوح بين 10-150 يوم).

الاستنتاجات:-الدرس المهم من الدراسة هو كلما تم تطبيق التعليمات العلاجية الخاصة بالنواسير بصرامة اكثر كلما كانت نتائج العلاج افضل. التركيز على وقت اجراء العملية الجراحية عندما تكون الحالة الصحية للمريض مستقرة للوصول الى نتائج افضل. علاج الخراج مهم في علاج المرضى ولا زال السبب الرئيسي للوفاة في Abstract النواسير هو وجود الخراج والتغذية السيئة(غير المثالية).

Background:- A fistula is an abnormal epithelialized tract Between two or Hollow organ to Another hollow organ or to the skin.

It is estimated that 90% of ECF arise after surgical procedures, The mortality rate about 37% in post-operative high output ECF.

Objectives:-The aim of present study to evaluate the standardized Guideline And prognostic factors for outcome of patients with ECF.

Patients &Methods:- A prospective clinical trial conducted from January 2002-July 2013. done in the surgical ward of Al-Yarmouk Teaching Hospital.

In this study a database was created consisting of 115 patients with ECF. All have Been treated according to the SOWATS guideline, which consists of the following Components, Sepsis, Optimization of nutritional state , Wound care, Anatomy of Fistula, Timing of surgery and Surgical strategy.

Results :- Data from 115 patients. Mean age 42 year(range from 8-76 year).

Postoperative fistula after initial surgery for any reason appeared after mean 20 day (range from 3-37 day). The mean length of hospital stay was 57 day(range from 8-106 day). Mean period of treatment was 80 day(range from 10-150day).

Conclusion:- The main lesson to be learned is that adherence to SOWATS Guideline can result in good patient outcome. Surgical repair is performed when the Patient is stable. Treatment of sepsis plays a key role and ongoing sepsis is still the Most important cause of death.

Keywords: enterocutaneous fistula, postoperative enterocutaneous fistula.

### Introduction:-

A fistula is an abnormal epithelialized tract between two or more structures or spaces. It may involve a communication tract from one body cavity or hollow organ to another hollow organ or to the skin.<sup>(1)</sup> It is estimated that 90% of ECF arise after surgical procedures, 37% mortality rate in post-operative high output ECF.<sup>(2)</sup>

The majority of these deaths are attributed to electrolyte imbalance, Malnutrition and sepsis.<sup>(3)</sup> Gynecologic patients are extremely vulnerable to fistula development 5%-30% because of malignancy and aggressive treatment regimes.<sup>(4,5)</sup> Radiation induced endarteritis affects the vascular supply, causing vasculitis, fibrosis and impaired collagen synthesis.<sup>(6)</sup>

Fistulas may develop immediately or years later in conjunction with other processes such as diabetes mellitus, pelvic inflammatory disease, pelvic surgery, hypertension and atherosclerosis.<sup>(6,7,8)</sup>

Fistulas are either iatrogenic or spontaneous in development.<sup>(9,10)</sup>

Post-operative complications include enterotomy and anastomotic breakdown 85-90% as a result of a foreign body close to the suture line, tension on the suture line, complicated suture techniques, distal obstruction, haematoma, abscess formation at anastomotic site, or tumour.<sup>(11,12,13)</sup>

Spontaneous fistula development 10%-15% is attributed to intestinal diseases such as Crohn's disease, malignancy and infectious processes, as in tuberculosis, Diverticulitis, vascular insufficiency, radiation exposure and mesenteric ischaemia.<sup>(14,15,16)</sup>

Fistulas may be classified according to complexity, anatomic location or physiology.<sup>(16,17)</sup>

**Patients & methods:-**In this study a database was created consisting of 115 patients with ECF, 85 males and 30 females.

Mean age 42 year (range from 8- 76 year).

All these patients treated in the surgical ward of Al-Yarmouk Teaching Hospital, From January 2002- July 2013.

All these patients have been treated according to the SOWATS guideline, which consists of the following components, Sepsis, Optimization of nutritional state, Wound care, Anatomy of the fistula, Timing of surgery and Surgical strategy.

Control of sepsis has highest priority. The suspicion of a septic focus is based on one or more of these clinical signs; fever, failure to respond to nutrition and jaundice, accompanied with increased infection parameters like decreased plasma albumin levels, increased ESR and development of organ failure.

These patients assessed according to the age, sex, type of presentation, treatment, morbidity, type of fistula and causes of fistula. Initially be resuscitated these patients to replace intravascular volume, anaemia, hypoalbuminemia less than 3g/dl. If intraabdominal abscesses developed drainage done. Wound care by protection of skin by any means. Nutritional support by calculated the requirement and the route used for each patient. If spontaneous closure of fistula are not occur by 4-5 weeks in spite of sepsis free and good nutritional support, then patient prepared for surgery. The anatomy of fistula investigated radiographically according to the need, e.g. Fistulagram, barium enema, CT and ultrasound. Definitive surgery obtained by resection of the involved section of bowel with end-to-end anastomosis, bypass procedure, according to condition of patient and type of fistula.

### Results:-

The primary diseases that causes ECF are :- Shell injury in 81 patients (70.43%). Infectious diseases e.g perforated typhoid ulcer and Appendicitis in 15 patients (13.04%). Inflammatory bowel diseases in 11 patients (9.56%). Malignancy of Bowel in 8 patients (6.95%).

Small bowel fistula in 94 patients (81.73%), and large bowel fistula in 21 patients (18.26%).

Low output fistula (<500 ml /day) in 49 patients (42.60%). High output (>500ml/day) in 66 Patients (57.39%). Sepsis seen in 87 patients (75.62%). And no Sepsis in 28 patients (24.34%).

Recurrence seen in 43 patients (37.39%). And no recurrence in 72 patients.

Closure occur in 97 patients. Spontaneous closure occur in 21 patients, surgical Closure done in 75 patients. Success of surgery in 75 patients from total 88 patients, Whom

surgery done to them. Mortality occur in 14 patient and persisting fistula in 5 Patients. Post-operative fistula after initial surgery for any reason appeared after Mean Twenty days (range from 3-37 days). The mean length of hospital stay was 57day (Range from 8-106 day). Mean period of treatment was 80 day (range from 10-150 Day). Fourteen patients (12.17%) are died due to ,sepsis developed in 9 patients (64.28%) of the Fourteen patient, and 5 patients (35.71%) died due to electrolyte Imbalance and nutritional imbalance.

Table 1 :- the outcome of fistula in 115 patient

	Number of patient	%
Closure	96	83.47
Spontaneous closure	21	21.87
Surgical closure	75	78.12
Success of surgery	75/88	85.22
Mortality	14/115	12.17
Persisting fistula	5	4.34

Table 2 :- The primary causes for developments ECF

Causes	NO. of pat.	% of patient
Shell injury	81	70.43
Infectious diseases	15	13.04
Inflammatory bowel dise.	11	9.56
Malignancy of bowel	8	6.95

Table 3:- Type of fistula

Small bowel fistula	Large bowel fistula	High output	Low output
94(81.73%)	21 (18.26%)	66(57.39%)	49(42.60%)

**Discussion:-**

Malnutrition and sepsis remain principal causes of death in patients with fistula. The goals of therapy for ECF are correct metabolic & nutritional deficits & prevent of Sepsis. In this study 14 patients died because of sepsis and electrolyte & nutrition imbalance. The percentage of death is 12.17% which is within the percentage range in other studies from 9.70% to the 20.32% like in Campos et al and Tulsyan et al studies.

Nutritional support (caloric requirement) should be determined from the Harris-Benedict equation with multiplication by a stress factor, or through indirect calorimetry. Route of nutrition should be carefully considered.

Spontaneous closure of fistula is the ideal outcome but if the fistula has not closed in expected time, the patient should be prepared for operative closure.

In our study spontaneous closure was 21.87% while in other study ranging between 30-75%, depending on the series and selection criteria eg (high output fistula, presence of a foreign body, active inflammatory bowel disease, active malignancy, presence of any factor that decrease immunity, etc.).

Closure of fistula through surgery was achieved in 75 patients (78.12%), near to other studies percentage (77.30%). The surgical success rate was 85.22% similar to other studies 83.70%.

Recent studies have begun to examine the role of somatostatin in the treatment of fistulas, but we are not using somatostatin in our study.

In this study we are not studied well the proper time for conservative treatment but we depend on patient condition while in other studies said the expected time frame from 4-5 weeks of sepsis free, adequate parenteral nutrition e.g. Timothy A Pritts and David R Fischer and Josef E Fischer studies.

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