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The Main Role and Effects of Perianal Fibrin Glue

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Abstract: The data consisted of 40 patients and 20 controls were collected, where multiple types of problems were identified to solve the problems in the anus, to the positive results that were presented during the use of fibrin glue treatment in the anus, 40 patients with Crohn's disease activity index ≤250 were collected internal fistulas. Indications have been formulated and a technique has been developed for the use of fibrin glue in patients with various types of non-distorting fistulas. For the first time, fibrin glue was used as a prolonged repair inducer for conservative closure of non-distorted intestinal fistulas.

Keywords: Fistulas, Crohn's, fibrin, glue.

INTRODUCTION

The ability of fibrinogen to form fibrin (fibrin clot) when interacting with thrombin has been used to create fibrin glue, which is used in surgical practice to stop parenchymal and capillary bleeding, seal the anastomosis, adhesion, and repair tissue (Aguilar, P. S. *et al.*, 1985).

Fibrin glue is a two-component system, in which solutions of concentrated fibrinogen and fibrin-fixing factor XIII (one component) combine with a solution of thrombin and calcium ions (another component), forming fibrin and thus reproducing the final stage of the coagulation cascade (Bennett, R. C., & Duthie, H. L. 1965).

Sometimes, to prevent the dissolution of the clot, various antifibrinolytic agents are added to the drug. The main components of any fibrin glue are fibrinogen, thrombin, and calcium ions, which are involved in the last stage of the coagulation cascade. It has been experimentally proven that the presence of these compounds is sufficient to achieve an acceptable hemostatic effect. However, to ensure a more reliable result, fibrin stabilizing agent XIII and fibrinolysis inhibitors (aprotinin and aminocaproic acid) and fibronectin (to stimulate regeneration and improve adhesion properties) are usually added to the biological adhesives. When the wound heals, the formed fibrin film is completely absorbed (Hill, J.R. 1967).

Currently, the market is represented mainly by the products of Baxter AG (Austria), Behring (Germany), Omrix Bioopharm Pharmaceuticals Inc. (Israel). The fibrin adhesives Tissucol and Beriplast contain a fibrinolysis inhibitor, aprotinin, which is obtained from the lungs of cows, which in some cases causes unwanted immune reactions (Koscinski, T., & Marti, M.C. 1992).

The device for applying fibrin glue to the wound surface is a double syringe and a tee-mixer with a needle or spray. A solution of fibrinogen is placed in one syringe, a solution of thrombin with calcium chloride - in another. The components are mixed by pressing on the syringe, and the polymerization of fibrinogen under the influence of thrombin occurs already on the wound surface. The rate of polymerization depends on the activity of thrombin. With thrombin activity of 500-1000 IU / ml, a clot forms in 4-5 seconds; with the activity of thrombin 5 IU / ml, the coagulation time increases to 30-40 seconds (Khubchandani, M. 1984; & Lilius, H.G. 1968).

Treatment of patients with intestinal fistulas remains one of the most urgent and dramatic problems in modern surgery (Mazier, W. P. *et al.*, 1995). In recent years, there has been an increase in the number of patients with this pathology, because in addition to the classic causes of the formation of unformed intestinal fistulas, associated with failure of the intestinal anastomosis, injury to the intestinal wall, early surgery assistance and technical errors in its implementation. A significant contribution is made by a severe group of patients, the survival rate of which 10-20 years ago was very low. It includes patients with pancreatic necrosis, in which minimally invasive methods are increasingly used, and peritonitis, in which various methods of open management are increasingly used (McElwain, J. W. *et al.*, 1975).

An unformed intestinal fistula is a purulent wound (through a defect) in the intestinal wall, including failure of intestinal sutures in the absence of a formed intestinal tract Such fistulas can open in the free abdominal cavity and a purulent wound in the abdominal wall or the retroperitoneal tissue with the subsequent development of sputum. Mortality in non-disfiguring intestinal fistulas ranges from 50% to 90%, and attempts at early radical surgical treatment of no disfiguring intestinal fistulas are rarely successful. This tactic is accompanied by very high mortality rates (Pearl, R. K. *et al.*, 1993).

Early, non-radical interventions can save many patients with this disease and their main task is to prevent the contents of the intestine from reaching the area of \u200b\u200bthe intestinal fistula. However, the performance of these operations is often associated with significant technical difficulties and a difficult long period after surgery that requires significant efforts aimed at combating water disturbance and Anal abscess It is a painful disease in which pus collects near the anus. Most anal abscesses are caused by infection from the small anal glands. Anal abscesses are common among the types of abscesses. This abscess often appears as a painful, bubble-like swelling near the anus that is red and warm to the touch and may develop over time into a fistula. Anal abscesses in deeper tissues are less common and can be less clear (Abel, M. E. *et al.*, 1993; & Hjortrup, A. *et al.*, 1991).

Surgical incision and abscess drainage is the most common treatment for all types of anal abscesses and is usually successful.

About 50% of patients with anal abscess develop complications that include the formation of fistulas (fistula: a small tunnel that forms an abnormal, abnormal connection between the skin and the site of the abscess) (Loungnarath, R. *et al.*, 2004).

In some cases, an anal fistula causes continuous bleeding, in other cases the opening of the external tunnel is closed, and the result may be recurrent anal abscesses. (Oedema: It is a bloodless leakage of bodily fluids, whether they are normal or pathological fluids).

Treatment

It is important to emphasize several key points, Perianal involvement in CD is common, and there may be a disparity between symptoms, aggressiveness, and extension. Examination of the perianal region is critical in all patients with suspected or confirmed CD, and it is necessary to determine the extent and activity of the luminal disease and especially the presence or absence of rectal activity (Swinscoe, M. T. *et al.*, 2005). Abscesses must be surgically excluded and drained to reduce the risk of septic complications. Corticosteroids play no role in the management of EPA and Finally, the approach will be multidisciplinary, with the participation of gastroenterologists, surgeons, and radiologists (Cintron, J. R. *et al.*, 2000).

The surgeon's participation is essential in the study of EPA and the drainage of perianal abscesses (Singer, M. *et al.*, 2005). In the initial stages, surgeries will avoid the destruction of perianal muscle tissue to preserve anal function. If there is an abscess, it is enough to insert simple drains and leave the lines for a second time, because they will prevent the recurrence of the abscess, once the infection is controlled and the anatomy of the fistula is studied. The streaks can be kept for as long as necessary, and their removal should preferably be decided by consensus between the gastroenterologist and the surgeon. Failure to respond to treatment or the emergence of new symptoms may make it necessary to repeat EBA, especially before the escalation of treatment or consideration of experimental therapies (Ky, A. J. *et al.*, 2008; & Zmora, O. *et al.*, 2005).

MATERIAL AND METHOD

40 patients with Crohn's disease activity index ≤250 and internal fistulas were collected. Indications were formulated and a technique was developed for the use of fibrin glue in patients with different types of unformed fistulas. For the first time, fibrin papain was used as a prolonged repair inducer for conservative closure of non-distorting intestinal fistulas. The dynamics of the immune status of patients with non-distorting intestinal fistulas are reliable predictive criteria for the direction of development of local repair processes. The ability of fibrin gum to intensify the dynamics of repair processes in the wound has been demonstrated, which opens fundamentally new possibilities for the conservative treatment of patients with unformed intestinal fistulas.

STATISTICAL ANALYSIS

By using frequencies and percentages where

The distribution was compared between treatment groups using test 2 and the arithmetic mean value and standard regression were identified. In addition, logistic regression was used to know the percentage of variance that exists

statistical analysis program was worked on to analyze the data and discover the existing relationship by working on SPSS

Theoretical and scientific benefit

A fundamentally new method has been developed for the conservative closure of non-distorting intestinal fistulas, which is an effective method regardless of the daily volume of fistula losses and localization of the fistula defect. The proposed method for the complex treatment of patients with immature fistulas of different localization, based on the use of fibrin glue as a repair stimulator and an immunomodulation drug, made it possible to reduce the time of hospital stay by 1.8 times, and to reduce the number of operations in severely

weakened patients by 4.5 times, 7.5 times to reduce overall and postoperative mortality in comparison with traditional methods of treating these patients

RESULTS

Statistical analysis was carried out for the arithmetic mean of the patient's p-value = 0.007 that is, the value of the significance level p is less than the value 0.005 That is, at the 95% confidence level, there are statistically significant differences in the Average among the affected group of patients The group of uninfected patients and Through the statistical analysis program, the arithmetic mean of ages for the patients and the control group was identified, where the arithmetic means for the group of patients was 35 ±6.2, while for the control group it was 36 ±4.4, and also the disease duration, ya was identified.

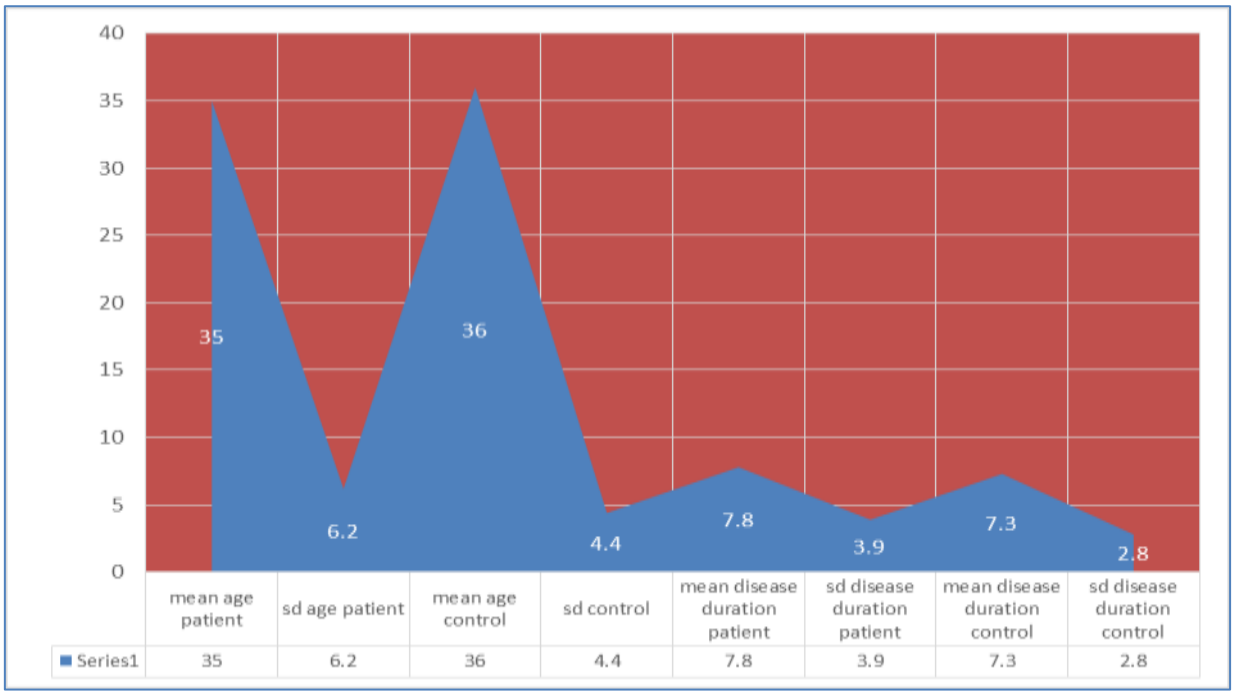

Fig 1 – explain age(years) and disease duration, ya was identified.

Table 1- Disease location

	Patient	**Control**
Small intestine	24	6
Colon	10	10
Both	6	4

Table 2- Results of patient and control

	Patient	**Control**
Perianal disease duration	2.1 (0.8−4.8)	2.6 (1.5−4.3)
Fistula period	1.6 (0.9−4.5)	2.3 (1.2−3.4)
Continuous Perianal symptoms, n (%)	28	12
Relapsing Perianal symptoms, n (%)	12	8
Simple fistula	24	14
Complex fistula	16	6

Table 3- p-value between patient and control

	P-value
Perianal disease duration	0.001
Fistula period	0.005
Continuous Perianal symptoms, n (%)	0.002
Relapsing Perianal symptoms, n (%)	0.004
Simple fistula	<0.001
Complex fistula	0.001

Table 5: classification of complicacies

Type of C	Complicaciones classification	Rare complications
Anastomotic cleavage	Intestinal occlusion	Prolapse
Abscesses	Hemorrhage	Dysplasia and cancer
Reservoir fistulas		
	Stenosis	

DISCUSSION

Complications from repairing fistulas can be devastating. While it is common to treat individuals with transmuscular fistulas or fistulas with fistulotomy, fecal incontinence has been reported in these patients, and even more commonly, but more often reported, is permanent gas incontinence, which for many individuals is a source of great anxiety and embarrassment in social situations.

Fistulatomy due to a higher incidence of supra-sphincter or extra-sphincter fistulas is associated with higher rates of urinary incontinence, and in most institutions, including ours, fistulotomy is contraindicated for these types of fistulas. Relative contraindications to fistulotomy include Crohn's disease (regional enteritis)-related fistulas, anterior midline fistulas in female patients, and prior fistulas, and impaired sphincter tone in elderly patients.

Over the years, many different methods of treating fistulas in the anus have been reported, especially fistulas in which fistulotomy is prevented. Both staging seton fistulotomy and mucosal flap have been described, and while these surgical approaches reduce incontinence compared to standard fistulotomy, their low efficacy rates, prolonged postoperative wound healing, and prolonged pain have been a problem.

Over the past two years, our organization has begun to repair all types of anal fistulas using self-adhesive fibrin tissue tape. In one study, 26 patients with anal fistulas were treated with an autologous fibrin tissue adhesive that used a combination of ethanol and freezing to precipitate fibrinogen (AFTA-E). Twenty-one (81%) of the 26 patients were able to successfully close the fistula after a follow-up of 4 months. Two of the five failures were reinjected a second time and one closed, giving an overall successful closure rate of 85% (22 of 26 patients). Among the 5 patients with closure failure, the median time to failure was 3.8 weeks. Additionally, there was no evidence of infection or complications related to the procedure.

CONCLUSION

The fibrin adhesive that was mentioned previously within the non-surgical treatments, or the tampon made of biological materials, and it is conical in shape made of human body tissues, and is used to close the internal opening of the fistula and is fixed with stitches, and it is worth noting that it does not make a tight closure of the fistula practical, so that it can be done Then new tissue grows around the plug to heal and treat the fistula.

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