



RESEARCH ARTICLE

FIBRIN GLUE IN THE TREATMENT OF FISTULA IN ANO

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ARTICLE INFO

Article History:

Received 26<sup>th</sup> March, 2018  
Received in revised form  
21<sup>st</sup> April, 2018  
Accepted 24<sup>th</sup> May, 2018  
Published online 30<sup>th</sup> June, 2018

Key Words:

Anal Fistula,  
Glue,  
Fistula in Ano.

ABSTRACT

**Background:-**Use of FIBRIN GLUE as an alternative modality to surgery for the treatment of fistula in ano. **Objectives:-**To evaluate the influence of FIBRIN GLUE on healing of the fistula in ano. **Patient and Method:-** This prospective interventional study on 50 patients was carried out in the Department of Surgery, Jenen private hospital with different types of fistula in ano by using FIBRIN GLUE as an alternative modality to surgery for the treatment of fistula in ano. **Results:-** Fifty patients were studied, 42 male (84%) and 8 female (16%) and male to female ratio was 5.25:1, the age ranged from 11 to 70 years, with a mean age of 35 years  $\pm$  5 years, the majority being in the 4<sup>th</sup> decade of life constituting 20 patient (40%). Low type 32 patients (64%) and high type 18 patients (36%). Thirty four patients (68%) were cured and 16 patients (32) were failed. **Conclusion:-** Use of FIBRIN GLUE as an alternative modality to surgery for the treatment of fistula in ano is a viable and attractive alternative method.

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Citation: Tareq Jawad Kadhim. 2018. "Fibrin glue in the treatment of fistula in ano.", *International Journal of Current Research*, 10, (06), 70910-70912.

INTRODUCTION

The rectum measures 10–15 cm in length. It commences in front of the 3rd sacral vertebra as a continuation of the sigmoid colon and follows the curve of the sacrum anteriorly. It turns backwards abruptly in front of the coccyx to become the anal canal. The mucosa of the rectum is thrown into three horizontal folds that project into the lumen-the *valves of Houston*. The rectum lacks haustrations. The teniae coli fan out over the rectum to form anterior and posterior bands. The rectum is slightly dilated at its lower end-the *ampulla*, and is supported laterally by the levator ani. Peritoneum covers the upper two-thirds of the rectum anteriorly but only the upper third laterally. In the female it is reflected forwards onto the uterus forming the *recto-uterine pouch (pouch of Douglas)*. The rectum is separated from anterior structures by a tough fascial sheet -the *rectovesical (Denonvilliers) fascia* (Omar, 2002). The anorectal junction is slung by the puborectalis component of levator ani which pulls it forwards. The canal is approximately 4 cm long and angled postero-inferiorly. Developmentally the midpoint of the anal canal is represented by the *dentate line*. This is the site where the proctodeum (ectoderm) meets endoderm. This developmental implication is reflected by the following characteristics of the anal canal:-

The epithelium of the upper half of the anal canal is columnar. In contrast the epithelium of the lower half of the anal canal is squamous. The mucosa of the upper canal is thrown into vertical columns (*of Morgagni*). At the bases of the columns are valve-like folds (*valves of Ball*). The level of the valves is termed the dentate line. The blood supply to the upper anal canal is from the superior rectal artery (derived from the inferior mesenteric artery) whereas the lower anal canal is supplied by the inferior rectal artery (derived from the internal iliac artery). The venous drainage follows suit and represents a site of porto-systemic anastomosis. The upper anal canal is insensitive to pain as it is supplied by autonomic nerves only. The lower anal canal is sensitive to pain as it is supplied by somatic innervation (inferior rectal nerve). The lymphatics from the upper canal drain upwards along the superior rectal vessels to the internal iliac nodes whereas lymph from the lower anal canal drains to the inguinal nodes (Omar, 2002). The Anal sphincter: comprises external and internal sphincter components:-The *internal anal sphincter* is a continuation of the inner circular smooth muscle of the rectum. The *external anal sphincter* is a skeletal muscular tube which, at its rectal end, blends with puborectalis to form an area of palpable thickening termed the *anorectal ring*. The competence of the latter is fundamental to anal continence. Ischioanal fossae:- lie on either side of the anal canal. The medial and lateral walls of the ischioanal fossa are the levator ani and anal canal and the obturator internus, respectively. The fossae are filled with fat. The anococcygeal body separates the fossae posteriorly; however, infection in one fossa can spread anteriorly to the

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DOI: <https://doi.org/10.24941/ijcr.31055.06.2018>

contralateral fossa forming a horseshoe abscess. The *puddendal (Alcock's) canal* is a sheath in the lateral wall of the ischioanal fossa. It conveys the pudendal nerve and internal pudendal vessels from the lesser sciatic notch to the deep perineal pouch. The *inferior rectal branches* of the pudendal nerve and internal pudendal vessels course transversely across the fossa to reach the anus (Omar Faiz, 2002). A *fistula-in-ano*, or anal fistula, is a chronic abnormal communication, usually lined to some degree by granulation tissue, which runs outwards from the anorectal lumen (the internal opening) to an external opening on the skin of the perineum or buttock (or rarely, in women, to the vagina). Anal fistulae may be found in association with specific conditions, such as Crohn's disease, tuberculosis, lymphogranuloma venereum, actinomycosis, rectal duplication, foreign body and malignancy (which may also very rarely arise within a longstanding fistula), and suspicion of these should be aroused if clinical findings are unusual. However, the majority are termed non-specific, idiopathic or cryptoglandular, and intersphincteric anal gland infection is deemed central to them (Peter *et al.*, 2013).

The most widespread and useful classification of anal fistulae is that proposed by Parks, based on the centrality of intersphincteric anal gland sepsis (the internal opening is usually at the dentate line), which results in a primary track whose relation to the external sphincter defines the type of fistula and which influences management. Classifications based simply on level are less practical because they mean different things to different people, although the description of a fistula as high, indicating a high risk of incontinence if laid open, or low, with a lower but still some risk to function, is often used. Similarly, 'simple' and 'complex' are commonly used adjectives – complexity may be endowed by the level at which the primary track crosses the sphincters, the presence of secondary extensions or the difficulties faced in treatment. The vast majority of fistulae are intersphincteric or trans-sphincteric. Intersphincteric fistulae (45%) do not cross the external sphincter (bar, for the purist, the most medial subcutaneous fibres running below the distal border of the internal sphincter); most commonly they run directly from the internal to the external openings across the distal internal sphincter, but may extend proximally in the intersphincteric plane to end blindly with or without an abscess, or enter the rectum at a second internal opening.

Trans-sphincteric fistulae (40%) have a primary track that crosses both internal and external sphincters (the latter at a variable level) and which then passes through the ischioanal fossa to reach the skin of the buttock. The primary track may have secondary tracks arising from it, which often reach the roof of the ischioanal fossa, which may rarely pass through the levators to reach the pelvis and which may spread circumferentially (horseshoe). Circumferential spread of sepsis may occur in the intersphincteric and pararectal planes, as well as in the ischioanal plane. Suprasphincteric fistulae are very rare, are thought by some to be iatrogenic and are difficult to distinguish from high-level transsphincteric tracks (for which, fortunately, management strategies are similar). Extrasphincteric fistulae run without specific relation to the sphincters and usually result from pelvic disease or trauma (Peter *et al.*, 2013)

**Objectives:** To evaluate the influence of FIBRIN GLUE on healing of the fistula in ano.

**Patient and Method:** This prospective interventional study on 50 patients was carried out in the Department of Surgery, Jenen private hospital with different types of fistula in ano by using FIBRIN GLUE as an alternative modality to surgery for the treatment of fistula in ano.

## RESULTS

Fifty patients were studied, 42 male (84%) and 8 female (16%) and male to female ratio was 5.25:1, as showed in table 1. The age ranged from 11 to 70 years, with a mean age of 35 years  $\pm$  5 years, the majority being in the 4<sup>th</sup> decade of life constituting 20 patient (40%) as showed in table 2. Low type 32 patients (64%) and high type 18 patients (36%). Thirty four patients (68%) were cured and 16 patients (32) were failed.

**Table 1. Sex distribution**

Sex	No of patients	%
Male	42	84%
Femal	8	16%

**Table 2. Age distribution**

Age group (Years)	No of patients	%
1-10	0	0%
11-20	5	10%
21-30	6	12%
31 – 40	20	40%
41 -50	9	18%
51 – 60	8	16%
61-70	2	4%
Total	50	100%

**Table 3. Comparisons with other studies**

Studies	Patients Number	Recurrence	%	Complete Healing	%
Our Study	50	16	32%	34	68%
Sentwich <i>et al.</i> [2003]	48	15	31%	33	69%
Chan <i>et al.</i> [2002]	10	4	40%	6	60%
Cintron <i>et al.</i> [2000]	79	31	39%	48	61%
Lindsey <i>et al.</i> [2002]	6	3	50%	3	50%

## DISCUSSION

A fistula in ano is a common perianal condition that is associated with appreciable morbidity and inconvenience to the patient. Fistulotomy, fistulectomy and seton insertion are the most commonly performed surgical procedures for this condition. These surgical modalities have low rates of efficacy, a prolonged postoperative wound healing and protracted pain. Over the past decade, fibrin glue treatment of anal fistulas has become increasingly popular. Fibrin glue is a biological glue which is made of fibrinogen and thrombin along with other clotting factors (Aprotinin factor 13 and Ca), which when combined, lead to the last step of the clotting mechanism, thus forming a gel like clot (Grey, 1915; Harvey, 1916) This glue offers a unique treatment modality by sparing the sphincter muscles and thus preventing incontinence. It also decreases the patient discomfort and loss of the job hours. It is simple and repeatable and a failure does not compromise the further treatment options (Cirocchi *et al.*, 2009). Though fibrin glue is increasingly used in the treatment of anal fistulas, it is yet to establish its long-term efficacy and to clarify its role in this setting. Fistula in ano produces a constant strain on the patient as well as on the surgeon.

Many surgical options for the treatment of anal fistulas have been known, which have the goal of healing the fistula tract, with minimum recurrence and incontinence. The procedures like a fistulotomy, lead to a high rate of faecal and gas incontinence (Hanley, 1965). Other procedures like a seton insertion (Thompson *et al.*, 1989; Elting, 1912) and newer techniques like advancement flaps (Hanley, 1965), have been compared with the standard fistulotomy, but no single procedure has yet, become the gold standard for fistula repair. Fifty patients were studied, 42 male (84%) and 8 female (16%) and male to female ratio was 5.25:1, the age ranged from 11 to 70 years, with a mean age of 35 years  $\pm$  5 years, the majority being in the 4<sup>th</sup> decade of life constituting 20 patient (40%). Low type 32 patients (64%) and high type 18 patients (36%). Thirty four patients (68%) were cured and 16 patients (32) were failed. Table 3 showed comparisons with others study.

### Conclusion

Fibrin glue treatment is a unique treatment modality for closing the anal fistulas. It is superior to the conventional surgical treatment, in terms of the patient comfort, an undisturbed sphincter function, a reduced overall hospital stay, a decrease in the need of the post operative analgesia and minimized operative trauma, wound pain, complications and adverse reactions. It is an easy, relatively simple, repeatable and a minimally invasive procedure which allows the resumption of normal activities within a short time in all the patients. It is best for the treatment of anal fistulas, which are low and single tracted and which have not been surgically treated before.

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