PriMera Scientific
Medicine and Public Health
Volume 3 Issue 3 September 2023
DOI: 10.56831/PSMPH-03-085
ISSN: 2833-5627

Relative Comparisons in Surgical Outcomes of Fistulectomy and Fistulotomy in Low Variety Perianal Fistula

Type: Case Study
Received: August 10, 2023
Published: August 25, 2023

Citation:
Chishti Tanhar Bakth Choudhury., et al. "Relative Comparisons in Surgical Outcomes of Fistulectomy and Fistulotomy in Low Variety Perianal Fistula". PriMera Scientific Medicine and Public Health 3.3 (2023): 30-43.

Chishti Tanhar Bakth Choudhury[1]*, Mohammad Al Mamun[2] and Md Shahadat Hossain[3]

[1]*Associate Prof. of surgery, SMAMCH, Bangladesh*

[2]*MBBS, FCPS, FACS, BCS*

[3]*Prof of Surgery, Ex Chairman, Colorectal Surgery. BSMMU*

***Corresponding Author:** Chishti Tanhar Bakth Choudhury, Associate Prof. of surgery, SMAMCH, Bangladesh.

Abstract

Background: Fistula in Ano is a chronic abnormal communication runs outward from anorectal lumen (int opening) to an external opening on the skin of perineum or buttock. History of ischiorectal, perianal abscess is the main hindering reason. Tuberculosis, IBD (Crohns or ulcerative proctocolitis), trauma can also lead to development of anal fistula. Sometimes termed as nonspecific, idiopathic or cryptoglandular and intersphincteric anal gland infection. chronic discharge, occasional pain and blood staining, foul smelling, cloths soiling and disturbance in religious purposes for muslims are the reasons to operate.

Objectives: To specify duration of healing in low variety fistula in Ano after surgery and staying time in Hospitals. Other concomitant issues in perioperative period.

Methodology: This cross sectional study was carried out in Bangabandhu sheikh Mujib Medical university from April to Sept 2012. Total 50 patients were selected as study population whom were admitted with low anal fistula and internal opening is below anorectal ring. Horse shoe, high variety fistula, associated disease (TB, IBD), malignancy were excluded from study population. Patient were grouped in A and B. A for Fistulectomy and B for fistulotomy. 25 patients in Group A, 25 patients in Group B. surgery was conducted by spinal anaesthesia and preoperatively 1 gm ceftriaxone and 1 bottle (500 gm) metronidazole given in each patient. Patients were discharged in 2nd post operative day with some guidelines and education of treatment maneuver. First follow up after 7 days and 2nd follw up after 4 wks.

Results: Total 50 patients admitted in BSMMU surgery Department and grouped in A (Fistulectomy) and B (Fistulotomy). Age range was 20-70 yrs and male are suffered more than female. low socioeconomic groups are presented more with history of anorectal abscess. Mean hospital stay was more in Fistulectomy with raised pain score than fistulotomy.

Conclusion: Anal fistula is a common cause of chronic pain and anal nuisance. Delineation of anal anatomy and identification of fistulas tract is important to prevent recurrence. Fistulotomy

patient has less post operative pain with less hospital stay than fistulectomy in low variety anal fistula.

Keywords: Fistulectomy; Fistulotomy; Low variety fistula

Background

Fistula in ano, or peri-anal fistula, is a chronic abnormal communication, usually lined 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 [1].

Tuberculosis, lymphogranuloma inguinale, inflammatory bowel disease like crohn's or ulcerative proctocolitis can also lead to development of anal fistula. Fistulae have been reported following external injury or probing an abscess or a low anal fistula [2].

A fistula may sometimes caused by chronic anal fissure. A colloid carcinoma of the rectum can manifest itself through an anal fistula [3].

The majority are termed non-specific, idiopathic or cryptoglandular and intersphincteric anal gland infection is deemed central to them.. Patients usually complain of intermittent purulent discharge(which may be bloody) and pain [1].

The anal fistula can be classified into four types- (i) Intersphincteric (ii) Transphincteric (iii). Supra sphincteric and (iv). Extra-sphincteric. However further variations of each can occur [4]. The majority of fistulae are comparatively superficial, in the track lies immediately deep to the skin and mucous membrane of the bowel [5].

The treatment of fistula is dictated by the course of the fistula [6]. Multiple modalities of surgery advised for the treatment of perianal fistula. Among them Fistulotomy, fiistulotomy with advancement flap, fistulectomy, use of setons, use of fibrin glue, video-assisted technology and most recently radiofrequency surgery by using electrode probe [7].

Some authors recommended as the best treatment of peri- anal fistula is laying open of the entire tract, curetting out of the granulation tissue and leaving the wound to granulate [8].

Tissues around the external and internal opening are excised along with a small margin of tissue lining the tract and the wound is kept open to allow healing by secondary intention.

The fistulectomy involves coring out of the fistula, usually by diathermy cautery. It allows better definition of fistula anatomy than fistulotomy, especially the level at which the track crosses the sphincters and the presence of a secondary extensions.

Comparison of fistulectomy and fistulotomy stimulating a number of academic presentations, editorials, retrospective reviews, and prospective clinical trials. The operation has the potential to become standard of care in the treatment of per-ianal fistula as it represents a fundamental change in the surgical management of perianal fistula. A substantial body of evidence now exists to support the fact that fistulotomy causes less postoperative pain and less chance of anal incontinence than fistulectomy while achieving equivalent postoperative results. The present study aims to evaluate the comparison of fistulectomy and fistulotomy in low variety perianal fistula and postoperative complications and patient satisfaction by follow up through hospital visits.

The disease is as old as mankind itself. The management of fistula in ano was described by Hippocrates 450 BC.in 2500 BC by "shushruta", the well known Indian ancient surgeon has conducted operation on fistula in ano. This was known as ''shalya tantra'' comes from Ayurvedic medicine.. Shushruta traced the origin of fistula in ano known as ''Murma" to the abscess in the perianal region. He had various instruments in his armamentarium for the surgery of fistula in ano [9].

Even though the detailed of fistula operations are not available in Egyptian medicine, the instruments which might have been used for the operations of fistula in ano have been unearthed from the ruins of pumpeli.

The actual record available in the history of medicine for fistula in ano is during the 14th century. It was John Ardene, the surgeon of the late 14th century and early 15th century who conducted the operation for fistula in ano. King Luis xiv developed an anal fistula as described officialy by his court of physicians and surgeons and he was operated for the same on November 17, 1686 by Charles Francois Felix by using his own instruments 'Le Bistouri ala Royale' which is a slight modifications of Galen's syringotome. The king was successfully operated again on 10th December, 1686 by the same surgeon. At a later stage the method of opening of the fistula by cutting was replaced by a tight ligature which was passed along the tract with a strong silk or rubber tube in order to produce necrosis of overlying tissues.

Percival Pott (1714-88) was worked on Bartholomicu's hospital and produced a paper on fistula in ano in 1765.

In 1779, Sir Percival Pott advocated strongly with his vast experience, the simple incision on fistula in ano and careful dressing and by packing the wound was better than tight ligature.

Fredric Soloman modified this by adding another incision at the outer end of the wound in the form of 'T'. This is known as "Soloman's back cut" and this was designed to prevent the premature healing of the wound.

Goodsall and Miles(1900), Atwington(1901), Tuffer(1903) and Mummery(1934) contributed very much to the surgery for fistula in ano specifying the extent of sphincter that may be sacrificed without causing incontinence, which is a dreaded complication.

Since then, although much has been written about anal fistula, a great deal remains uncertain and controversial and the ailment continues to be trouble some to both surgeon and patients. This study deals with some of these issues and is limited to idiopathic or non-specific anal fistula of low variety. Specific causes of anorectal sepsis which will not be discussed in this study include Crohn's disease, tuberculosis, actinomycosis, various malignancies, gut duplication, foreign bodies as well as intra abdominal or pelvic disease.

The majority of studies on anal fistula involve small groups of selected patients. Men predominate in most series with a male: female ratio varying from 2: 1 to 7:1 [10]. Age distribution is spread throughout adult life with the maximal incidence between the third and fifth decades [11]. Sainio examined anal fistula in a defined population of 510000 over a 10-year period and found the incidence for men to be 12.3 per 100000 and that for women 5.6 per 100000 [12].

The anal canal extends from the anus to the rectal ampulla and is 2–5 centimetres in length, and shorter in women than in men. Its lower part is lined by stratified squamous epithelium. The dentate or pectinate line is situated in the middle of the canal and is defined by the anal valves. (Greys Anatomy).

Here the anal glands open into the crypts above the valves and can be situated in the submucosa but may reach through the internal sphincter into the intersphincteric space. At the dentate line, the epithelium becomes transitional: this anal transition zone with modified columnar epithelium has a high sensory inervation important for continence and normal defecation.

The anal canal is surrounded by the sphincter muscles. The smooth internal sphincter consists of the thickened circular muscle layer of the bowel wall. The circular striated external sphincter merges upwards with the puborectalis muscle, which forms a sling behind the uppermost part of the anal canal and attaches forwards to the pubic bones. The puborectalis is the lowermost part of the funnel-shaped levatores ani muscles, which separate the perineum from the pelvic cavity.

Anal continence depends on several mechanisms where the function of the anal sphincters is generally believed to be one of the most important. The internal sphincter is estimated to contribute 52-85 % of the resting pressure in the high-pressure zone of the anal canal [13].

As the pressure is not significantly decreased when the external sphincter is paralysed, resting pressure appears mainly due to the internal sphincter. The external sphincter is unique compared with other striated muscle in that it has a continuous tonic activity even at rest.

The basal tone varies with postural changes and activity increases with increased abdominal pressure and rectal distension.

A thorough knowledge of the anatomy of the anal canal and rectum, with the different muscle layers of sphincters and pelvic floor and the associated surrounding spaces, is essential for the classification and understanding of anal fistulas and subsequent decisions on treatment. The predominant classification system is that described by Parks et al 1976, which classifies the fistula according to the primary tract's relation to the external and internal sphincters and the levator ani muscle. There are four categories: intersphincteric, transsphincteric, suprasphincteric and extrasphincteric fistulas. Superficial fistulas were not included in the original classification as they were considered to have a different aetiology. Apart from the primary tract, a fistula can also have secondary tracts or extensions, both vertically and horizontally. A special type of secondary tract is the horseshoe tract, which extends horizontally in the intersphincteric, ischiorectal or supralevator spatium, in most cases dorsal to the anal canal.

The level where the primary tract transverses the external sphincter or levator muscle is another important aspect in classifying fistulas, as it determines how much of the sphincter mechanism is encompassed by the fistula: if this level is above the level of the dentate line the fistula is considered high. The internal opening of an anal fistula is usually situated at the level of the dentate line. When the external opening(s) is situated in the posterior half of the perianal area, the internal opening is usually located in the posterior midline, but when the external opening is anterior, the internal opening is usually situated radially in the same direction Goodsall's rule [14].

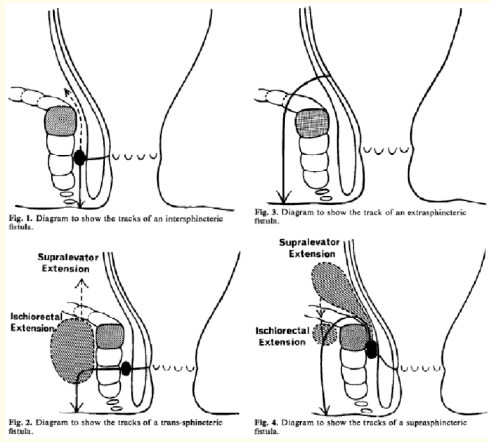

Figure 1: Classification of anal fistula: A. Intersphincteric, B. transsphincteric C. Extrasphincteric, D. Supra-sphincteric.

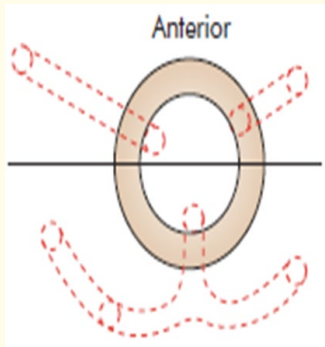

Figure 2: Goodsall's rule for the position of the internal opening.

An anorectal abscess usually presents with classic symptoms of an abscess, such as pain, swelling and induration, tenderness and often a raised temperature: it is usually evident at inspection of the perianal area. Sometimes, as in a small intersphincteric abscess or a deeper ischiorectal or supra-levator abscess, there may be no outward signs at inspection, but pain and tenderness at anal or rectal examination. The abscess may perforate spontaneously through the skin, or into the anal canal or rectum.

An anal fistula, the chronic phase of the infection, typically gives symptoms with intermittent discharge of pus or a little bleeding. If the external opening temporarily closes, there may be swelling and pain a few days until it opens spontaneously again or a new abscess forms. A fistula will rarely heal permanently by itself, but sometimes the symptoms can be light or even absent. There are case reports of the development of malignancy in longstanding anal fistula but this is a rare event.

In the clinical examination of anal fistula the perianal area is inspected and the positions of external openings are noted with their distance from the anal verge and clockwise position (where 12 o'clock is the anterior midline and 6 o'clock the posterior). A low tract may be palpable through the skin between the external opening and the anus. With digital examination of the anal canal and lower rectum it is sometimes possible to localise the internal opening in the anal canal. Any localised tenderness and induration or swelling indicates an underlying abscess. Anoscopy may identify the internal opening and proctoscopy is always performed to rule out other disease in the rectum or determine the presence or grade of inflammation in inflammatory bowel disease. Sometimes it is possible to probe part of the tract from the external opening: if so, this must be done gently and with great care, as it can be painful to the patient and there is a risk of creating a false tract.

Examination under anaesthesia has long been considered the gold standard in determining the anatomy of an anal fistula. All external openings are noted and the peri-anal area, anal canal and lower rectum carefully palpated for any localized indurations or swelling. With a retractor in the anus, the anal canal is inspected for any pathology such as fissure or scarring and occasionally a large internal opening can be visualized. Identification of the internal opening is mandatory for successful surgery in most cases. It is generally not visible as it is often small and located in an anal crypt. Gentle probing through the external opening is used to determine the anatomy of the primary tract and any secondary tracts. If the internal opening cannot be identified in this way some kind of contrast medium is injected through the external opening while the anal canal is observed. A methylene blue solution has been used but hydrogen peroxide is easier to use for repeated injections.

Fistulography was previously the only imaging technique available for demonstrating the anatomy of an anal fistula. In a comparison with operative findings fistulography was unreliable with only 16 % concordance and also 12 % false positive findings of high extensions and rectal openings. Other authors have found it useful in 48 % of cases and recommended it in recurrent fistulas. With the development of endosonography and magnetic resonance imaging (MRI), the use of fistulography has further diminished, although it may still be useful in evaluating a suspected extrasphincteric fistula. Better delineation of tract endoanal USG and MRI has significant importance.

Fistulotomy or laying open has long been considered the standard treatment for intersphincteric and low transsphincteric fistulas.

Fistulectomy, by a cone-shaped "coring out" excision of the external opening and fistula tract in through the external sphincter, was described by Parks (1961) as a more conservative method for high transsphincteric fistula.He also divided the internal sphincter distal to the internal opening and left the remaining canal open. Coring out of a primary fistula tract is now usually combined with a technique for closing the internal opening, e.g. fibrin glue or advancement flap.

A seton (from the Latin seta = bristle) is a thread of foreign material that is passed through a fistula tract and tied into a loop. In curative fistula surgery setons are used when the amount of muscle encircled by the fistula tract is considered too large to be divided due to the risk of incontinence. There are mainly two methods: the cutting seton and the two-stage seton fistulotomy. The cutting seton is tied tightly around the encircled tissue and then retied with 2-4 week intervals - gradually dividing the muscle by pressure necrosis.

The seton in the staged procedure is tied loosely and left in place for six weeks or more until the remaining fistulotomy is performed. The theory behind both methods is that the seton will cause fibrosis and scar formation to reduce retraction of the divided muscle, and

thus prevent incontinence when the muscle is finally divided. Recurrence rates are low, similar to the rates for fistulotomy, but continence disturbances are not uncommon. Another use of a seton is as a temporary drain in a fistula prior to definitive surgery, allowing acute inflammation to resolve and cavities to contract, Such a loose seton can also be used as a more permanent, palliative treatment in patients with complex fistulas and high risk of incontinence through further surgery, especially in the case of Crohn's disease.

Due to the risk of incontinence after fistulotomy or seton procedures, especially for high anal fistula, different sphincter saving techniques have been developed. The endoanal advancement flap technique has been previously used for rectovaginal fistulas and the first larger study on anal fistula was presented with excellent results with a recurrence rate of only 2 % and continence disturbances in 10 % [22]. In several later studies, the recurrence rates are higher and continence disturbances vary from none to above 30-40 %. Thus, there is some controversy concerning both the risk for recurrence/non-healing and incontinence after advancement flap repair for anal fistula. The flap consists of anal mucosa, submucosa and usually part of the underlying circular muscle. It is generally considered that the base of the flap should be twice the width of its apex to ensure adequate blood supply, but the importance of vascularisation for healing has not been studied. The fistula tract is cored out or curetted before the mobilisation and suturing of the flap distal to the internal opening of the fistula. The external wound is left open for drainage. Any secondary tracts can be treated with curetting or laying-open.

Materials and Methods

Methodology: This study was designed as cross sectional study and was carried out in Department of colorectal surgery for a period of 6 months.

Patients of low peri anal fistula admitted for surgery were selected as study population. Patients were selected as two groups designated as Group A Fistulectomy and Group B Fistulotomy. The sample size was 50 patients and group A 25 and group B 25 patients.

The patients who were enrolled in this study were explained the whole procedure of the study. They were also informed about regular follow-up would be done after operation. Written consent of the study population was taken. During admission of the patients all information like history, physical findings, previous anal abscess, relevant investigation results and later the operative procedures, per operative findings and postoperative outcomes, Co morbidity (DM, HTN, IHD) were enrolled in the pre designed data sheet.

In this study purposive sampling was done as per inclusion and exclusion criteria.

Inclusion criteria: patients of low peri anal fistula whose internal opening is below anorectal ring.

Exclusion criteria: patients of complex anal fistula, crohns, Malignancy, TB and of high variety fistula are excluded from this study population.

The relevant socioeconomic data of all study patients were collected and recorded. Study variables were age, sex, clinical findings, socioeconomic status, use of antibiotics, hospital staying after operation and time of healing.

Patients were followed up in the postoperative period upto 4 wks even after discharge. Hospital stay time after operation and postoperative follow up for wound healing duration are monitored.

Data were collected in a pre designed data collection sheet. Statistical analysis was performed by using statistical packages for social science (SPSS - 22) (SPSS Inc, Chicago, IL, USA). Confidence limit - 95% was taken. Parametric data was evaluated by 't' test and non parametric data was evaluated by chi square test and significance will be defined as p value <0.05. The summarized data was interpreted accordingly and was then presented in the forms of tables.

Results: A total number of 50 patients were recruited for this study of which 25 patients were enrolled in group A and 25 patients were in group B. In group A age group was 22-70 years and group B was 20 - 60 years. Male female ratio was in group A - 5:1 and group B 4:1. In this study highest age was 70 and lowest age was 20 years and mean age was 40. In group A mean age was 39 years and group

B mean age was 41 years. The incidence of fistula in ano in female is less than male. Male incidence was 82% and female incidence was 18%. In this study population, most of the patients were from low socioeconomic income group that is related to poor hygiene, ignorance and poverty in food habit, and illiteracy. Poverty and ignorance causing less income and less dietary protein, fat and Fibre contain food and smoking, betel nut which are related with constipation. Previous peri anal abscess seems to be most commonest cause of fistula in ano which undergone spontaneous rupture or inadequately treated. 90% of patients had purulent discharge, 6% blood mixed discharge and 44% has serous discharge. Every samples of fistula in ano are identified both external and internal opening by inspect, per rectal exam, DRE and proctoscopic exam. 15 of samples were anterior low anal and 35 were posterior low anal fistula. Co morbidly were well controlled by Referring physician before intervention. Fistulogram are not included as low variety of fistula with identifying two opening. Collecting tissues are identified non specific by histopath exam. Previous day of operation patient advised for liquid diet and enema was given at night before operation and with nothing per oral from 10 pm.

Operation was conducted by spinal anesthesia and i/ v fluid, analgesic, antiulcerant, ceftriaxone and metronidazole were given in all sample population. Oral liquid started 4 hrs after operation and first 2 days low residue diet. Pack removed 24 hrs after procedure and sitz bath twice daily and after defecation.

In this study patient stayed in hospital 2-3 days in fistulectomy and 1-2 days in fistulotomy. The time required for complete healing in fistulectomy 2-4 wks and fistulotomy 2-3 wks. All patients advised to follow up after 4 wks.

Results

The 50 patients admitted in colorectal surgery unit of BSMMU were divided into two groups. Patients selected for fistulectomy were classified as Group A and patients selected for fistulotomy were classified as Group B. The patients charecteristics of the two groups were well matched as given in the table below.

Age and sex incidence

Group A		***Group B***
No of patients	25	25
Range of age(Years)	22-70	20-60
Male:Female	5:1	4:1

Table 1: Age and sex ratio.

In our study age range of Group A is 22-70 years and Group B is 20-60 years. Male female ratio in Group A is 5:1 and in Group B is 4:1.

The incidence of fistula in ano in female is less than male. Male incidence was 82% and female incidence was 18%.

Socioeconomic status

Occupation	***No of cases***	***Percentage***
Labour	19	38%
Farmer	09	18%
Shopkeeper	13	26%
Services	05	10%
Housewife	03	06%
Student	01	02%

Table 2: Socioeconomic status.

In this study most of the patients were from low socioeconomic income group that is related to poor personal hygiene, illiteracy and ignorance.

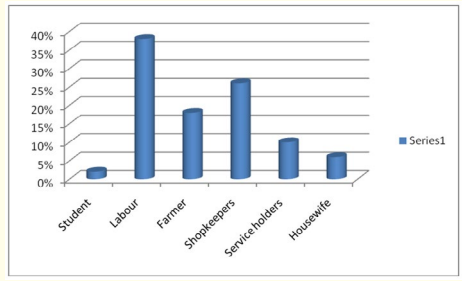

Figure 3: Socioeconomic status.

Ano-rectal pathology

Sl no	***Condition***	***Percentage***
1	Anorectal abscess a.spontaneous ruptured b.incision & drainage	80% 20%
2	Fistula Operation	Nil
3	Haemorrhoedectomy	Nil
4	Fissurectomy	Nil

Table 3: Ano-rectal pathology.

Previous ano-rectal abscess seems to be the most commonest cause of fistula in ano which undergone spontaneous rupture or inadequately treated.

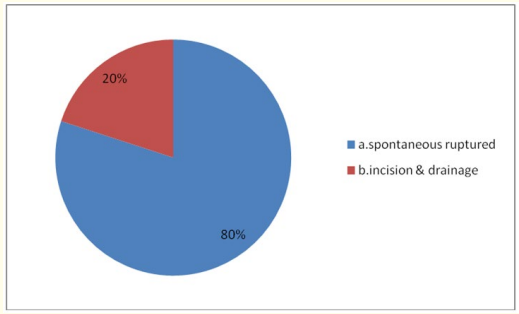

Figure 4: Causes of fistula in ano in pie chart.

Hypertension and diabetes were well controlled before operation as per the advice of physician and daily check up was made in hospital.

Radiological Examination

All the patients were subjected to radiological examination of the chest. No radiological abnormality detected.

Fistulogram: Fistulogram was not useful in our study.as these cases studied were fistula in ano of low variety and we could make out both internal and external opening clinically.

Histopathological examination: All the excised fistulous tracts were sent for histopathological examination and reported non specific.

Pre-operative preparations: All the patient were examined clinically and by investigation for fitness of surgery. On the previous night patient was advised only liquid diet and kept nil orally after 10 P.M. Enema was given on previous night and on the day of operation.

Post-operative

On the day of operation, i.v fluids, analgesics (diclofenac sodium, pethedin) and antibiotics (inj. ceftriaxone) and metronidazole were given. Oral liquid given 4 hours after the operation. Next day low residual diet given for first 2 days, afterward regular solid diet started.

The dressing or pack removed after 24 hours in case of both technique. The wound were reviewed and dressing changed. Patients were advised to take sitz bath three times daily.

In the study, patients who had undergone fistulectomy had a mean pain score of 8.88 while patients who had undergone fistulotomy had a mean pain score of 5.20 on the first postoperative day.

To relive the post operative pain injection diclofenac sodium and pathedin were given in the first 24 hours and repeated 2-3 times in cases of severe pain. After first postoperative day pathedin was not needed.

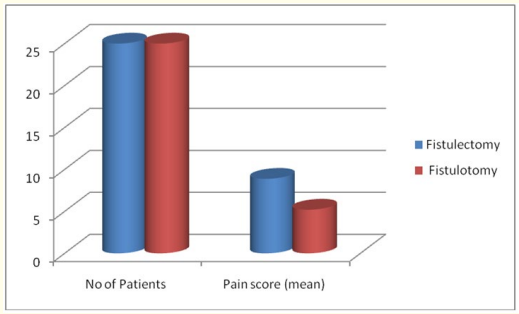

Figure 5: Pain score.

In our study 1 patients required catheterization after fistulectomy, and in 18 patients there was acute retention but relieved after injection of analgesics.

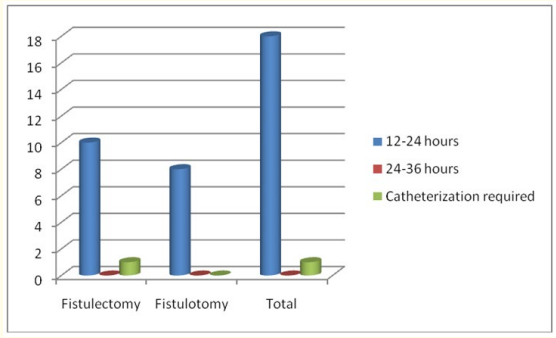

Figure 6: Retention of Urine.

Period of stay in hospital

Period of hospital stay	*3 days*	*4 days*	*5 days*	*6 days*	*7 days*	*P* value*
Fistulectomy	05	7	7	4	2	<0.001
Fistulotomy	08	9	6	2	0	

P value measured by Paired T-test.

Table 4: Period of stay in hospital.

In our study patient stayed in hospital was from 3-7 days in fistulectomy and mean hospital staying was 4.65 days. In fistulotomy it was 3-6 days and mean was 4.08 days.

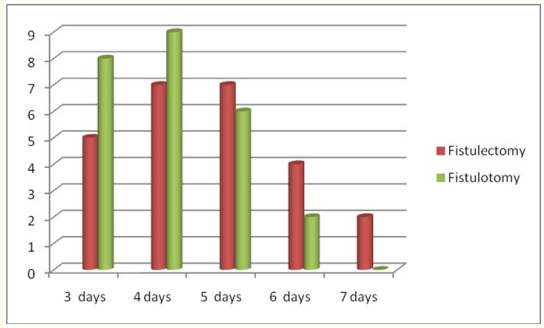

Figure 7: Periods of stay in hospital.

Duration of wound healing in both type of surgery

Period of healing	*3 weeks*	*4 weeks*	*5 weeks*	*6 weeks*	*P* value*
Fistulectomy	5	6	10	4	0.001
Fistulotomy	6	12	5	2	

P value measured by Paired T-test.

Table 5: Duration of wound healing.

The time required for complete healing in fistulectomy was 3 weeks to 6 weeks, mean 31 days. Fistulotomy required to heal was 3 weeks to 6 weeks, mean was 29 days.

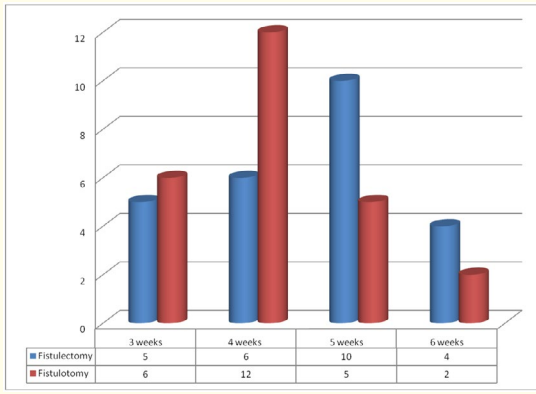

Figure 8: Wound healing time in weeks.

In this study only perianal fistulae of low variety were selected. The anorectal ring damage during surgery was not occurred. So disturbances in continence and early recurrence did not occur.

Follow up

All patients came for follow up after six weeks of surgery. In this time no recurrence or incontinence was noted.

Discussion

The patient satisfaction after surgical treatment for anal fistula depends on factors like period of hospitalization, postoperative pain and bleeding, return to routine activity, wound care, wound healing time, interference with the anal continence and the recurrence of the disease. Low fistulae can be laid open with minimal loss of sphincter muscle but as far as the high variety is concerned, it is safer to place a seton or stage the procedure. For the low and simple fistulas, fistulotomy is easy to perform but meticulous assessment must be emphasized on the amount of external sphincter involvement.

50 Cases of perianal fistula of low variety, both anterior and posterior, were selected for comparative study of fistulectomy and fistulotomy. In each category 25 cases were studied.

In the present series age range of patients were 20-70 years, mean age was 40 years. In O, kronborg series [29] age range was 23-70 years and mean age was 41.5 years which is coincides with our study.

Sex incidence was 82% male and 18% female, ratio was 4:1.In O, kronborg series [29] Male was 79% and female was 21%, ratio was 4:1, which is coincides with our study.

Socioeconomic status was remarkable in this series.70% of the patients belonged to the lower socioeconomic group and 30% patients belongs to the comparatively higher socioeconomic status. This fact may be related to illiteracy, ignorance, poverty and poor hygiene.

Modes of presentations in this study was maximum 96% patients with perianal discharge, pain was in 80% patients, swelling was in 64% patients. Maximum presentation with perianal discharge(65%), then pain 34%, swelling 24% showed in vasilevesky and Gordon series [30] which coincides with our study.

Type of discharge from the external opening had purulent discharge in 90% patients, 6% had blood stained discharge and 4% had serous discharge. Goligher et al [31] reported 84% patients had purulent discharge, 10% blood stained discharge and 6% had serous discharge. It coincides with our study.

Previous anorectal abscess (100%) was found to be the commonest cause of perianal fistula In our study. In Vasilevesky and Gordon series [30] it was also the commonest cause (60%). The differences was due to exclusion criteria in our study.

In this study 70% of external opening of fistula was at the posterior to the anal canal and 30% of external opening was at the anterior to the anal canal. In Marks CG and Ritchie JK series [32] there was 66.4% posterior to the anal canal and 22% anterior to the anal canal and 11.60% were in right and left lateral sides. We categories as only anterior and posterior to anal canal, otherwise it coincides with our study.

In our study 4% of patients were suffering from anal fissure as associated disease and 8% were suffering from diabetes mellitus and 4% were suffering from hypertension.

In the present series patient have undergone fistulectomy had a median pain score was 8.88 while patients have undergone fistulotomy had a median pain score was 5.20 which is statistically significant($P<0.001$). In Yasmeen Bhatti et al [33] series showed that there is more pain in fistulectomy which expressed by patient number.

In our study 1 patient required catheterization following fistulectomy but fistulotomy did not required any catheterization.10 patients expressed retention of urine after Fistulectomy where as 8 patients expressed retention after fistulutomy and relieved after injection of analgesics in both cohort.

Period of hospital stay for the patient undergone fistulectomy was 3-7 days and mean was 4.65 days and patients undergone fistulotomy was 3-6 days which mean was 4.08 days that was significant statistically($P<0.001$). Here showed early hospital leave of patient group undergone fistulotomy. It coincides with the Yasmeen Bhatti et al series [33].

Period of wound healing was 3-6 weeks after fistulectomy and median time was 31 days where as 3-6 weeks after fistulotomy and mean healing time was 29 days The healing difference was significant($P=0.001<0.05$). In O kronborg series [29] mean healing time was 34 days for fistulotomy patients and 41 days for fistulectomy patients, that means fistulectomy needed more days to heal than fistulotomy which coincides with our study. In O Kronborg series it taken 34 days to heal after fistulotomy and 41 days to heal after fistulectomy that was significantly more time than our study. It was due to 3 revision surgery in fistulotomy group and 2 revision surgery in fistulectomy group before healing and it was with prolong follow up that was upto 12 months. It is our limitation to do a prolong follow up. Our follow up was 6 weeks postoperatively.

In our study we didn't encounter any complications like haemorrhage, stricture, incontinence of sphincter and recurrence. We have selected only low variety perianal fistulae and during surgery sphincter damage was not occurred.

Conclusion

Anal fistula is a common cause of chronic irritation. Treatment failure rates may be decreased by proper identification of normal anorectal anatomy and fistula pathoanatomy as well as a wide and practical knowledge of the possible treatment regimens. Identification of the patient at risk of postoperative anal incontinence, or of the difficult or high fistula, should allow treatment in a specialist proctology unit. The paucity of well controlled trials on the management of anal fistula is inadequate; such trials need to be carried out so that the various modalities of treatment may be more accurately assessed and understood. As fistulectomy requires long time to heal, moreover number of hospital satying is longer.

In cases treated by fistulotomy, The period of hospital stay was less on an average & the healing occured quickly with in a period of 4 weeks. The number of hospital stay were less and hospital visits for dressing were less. From this study we can conclude fistulotomy is ideal for low variety perianal fistula. This saves number of days required for wound healing, hospital stay and resulting in less ex-

penditure for patients. This lessens the work load on Doctors and Hospital stuff.

Limitation of this study

This study was not without a limitation and followings were the limitation of this study:

1 This study was conducted in a single centre hospital only and may not reflect the actual situation of the country.
2 This study was done within a short period of time.
3 The sample size was small; This is the drawback of the study and a larger sample size can give a better conclusion.

Recommendations

Considering the finding of the study the following recommendations are made:

1 A randomized control trial should be done using large sample size should be conducted to find out the better result of perianal fistula surgery.
2 A prospective study involving multicenter and a large sample size should be conducted to evaluate the risk factors, long term complications and outcome of perianal fistula surgery.

References

1. Peter J Lunniss. "The anus and anal canal". In: Norman S.Williams, Christopher J.K.Bulstrode, P.Ronan O'connell, Eds. Bailey and love's, Short practice of surgery, 25th edition, 2008; Edward Arnold (Publishers) Ltd (2008): 1262-1266.
2. Seow-Choen F and Nicholls RJ. "Anal fistula". Br J Surg 79 (1992): 197-205.
3. Isbister WH. "Fistula in ano: a surgical audit". Int J Colorectal Dis 10 (1995): 94-6.
4. Parks AG, Gordon PH and Hardcastle JD. "A classification of fistula in ano". Br J Surg 63 (1976): 1-12.
5. DGG Bartolo, JMS Johnstone and RF Rintoul. "Operations on the Rectum and Anal canal". In:R.F.Rintoul, Editor. Farquharson's Textbook of Operative Surgery, 8th Edition, 1995 International Student Edition (1995): 515-16.
6. Mark L Welton., et al. "Current Diagnosis and Treatment". Surgery, 13th Edition 713-14.
7. Gupta PJ. "Radiofrequency fistulotomy in anal fistula. An alternative to conventional surgical fistulotomy". Medicina (Kaunas) 39 (2003): 996-8.
8. Robert JC Sterle and Kenneth Campbell. "Disorders of the anal canal". Sir Alfred Cuschieri, Robert J.C.Steile, Abdool Rahim Moosa, Eds. Essential Surgical Practice, Vol-2, 4th Edition 640.
9. Fielding Garrison. "An introducing to History of Medicine". 14 (1917): 365-7.
10. Lai CK, Wong J and Ong GB. "Anorectal suppuration: a review of 606 patients". Southeast Asian J Surg 6 (1983): 22-6.
11. Wong FM, Hsu H and Yang SC. "Anal fistula and abscess". Review of 518 cases. Southeast Asian J Surg 3 (1980): 9-15.
12. Sainio P. "Fistula-in-ano in a defined population". Incidence and epidemiological aspects. Ann Chir Ggnaecol 73 (1984): 219-24.
13. Gordon PH and Nivatvongs S. "Principles and practice of surgery for the colon, rectum, and anus (2nd edn)". Quality Medical Pub.: St. Louis, Mo (1999): 1455.
14. Goodsall DH and Miles WE. "Diseases of the anus and rectum". Longmans, Green: London 2 (1900).
15. Erhan Y., et al. "A case of large mucinous adenocarcinoma arising in a long-standing fistula-in-ano". Dig Surg 20.1 (2003): 69-71.
16. Choen S., et al. "Comparison between anal endosonography and digital examination in the evaluation of anal fistulae". Br J Surg 78.4 (1991): 445-447.
17. Navarro-Luna A., et al. "Ultrasound study of anal fistulas with hydrogen peroxide enhancement". Dis Colon Rectum 47.1 (2004): 108-114.
18. Buchanan GN., et al. "Value of hydrogen peroxide enhancement of three-dimensional endoanal ultrasound in fistula-inano". Dis Colon Rectum 48.1 (2005): 141-147.
19. Lunniss PJ., et al. "Magnetic resonance imaging of fistula-in-ano". Dis Colon Rectum 37.7 (1994): 708-718.

20. Buchanan GN., et al. "Clinical examination, endosonography, and MR imaging in preoperative assessment of fistula in ano: comparison with outcome-based reference standard". Radiology 233.3 (2004): 674-681.
21. Garcia-Aguilar J., et al. "Anal fistula surgery. Factors associated with recurrence and incontinence". Dis Colon Rectum 39.7 (1996): 723-729.
22. Aguilar PS., et al. "Mucosal advancement in the treatment of anal fistula". Dis Colon Rectum 28.7 (1985): 496-498.
23. Zimmerman DD., et al. "Anocutaneous advancement flap repair of transsphincteric fistulas". Dis Colon Rectum 44.10 (2001): 1474-1480.
24. Loungnarath R., et al. "Fibrin glue treatment of complex anal fistulas has low success rate". Dis Colon Rectum 47.4 (2004): 432-436.
25. Lindsey I., et al. "A randomized, controlled trial of fibrin glue vs. conventional treatment for anal fistula". Dis Colon Rectum 45.12 (2002): 1608-1615.
26. Buchanan GN., et al. "Efficacy of fibrin sealant in the management of complex anal fistula: a prospective trial". Dis Colon Rectum 46.9 (2003a): 1167-1174.
27. Sentovich SM. "Fibrin glue for anal fistulas: long-term results". Dis Colon Rectum 46.4 (2003): 498-502.
28. O'Connor L., et al. "Efficacy of anal fistula plug in closure of Crohn's anorectal fistulas". Dis Colon Rectum 49.10 (2006): 1569-1573.
29. O Kronborg. "To lay open or excise a fistula-in-ano: a randomized trial". In:Br J Surg 72 (1985): 970.
30. Vasilevesky and Gordon. "Results of treatment of fistulae-in-ano". In Dis col Rectum 28.4 (1984): 225-231.
31. Goligher John. "Surgery of the anus rectum and colon". London, Bailliere Tindall (1984): 179.
32. Marks CG and Ritchie JK. "Anal fistulas at St. Mark's Hospital". Br J Sury 64 (1977): 84-91.
33. Yasmeen Bhatti., et al. "Fistulotomy versus Fistulectomy in the treatment of low Fistula in ano". Rawal Medical Journal.