

# The Association between Anorectal Abscesses and Development of Fistula in-Ano

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## Abstract:

**Background:** - Anorectal abscesses are associated with a fistula in ano in a large percentage of patients. Fistula in –ano complicates 30-50 % of anorectal abscesses.

**Objective:** - to establish the true frequency of fistula-in-ano in the patients with anorectal abscesses and to correlate these findings with relapse rate and microbiology.

**Patients and Methods:** - This cross-section study was done in surgical department of Al-Yarmouk teaching hospital. From January 2006 to December 2011. The patients were examined in knee-elbow position or left lateral position for anorectal abscesses and fistula. The clinical finding was studied and all the risk factors were studied too.

**Results:** - One-hundred and four patients with an anorectal abscesses; 76 male and 28 female patients with a mean age of 49.5 years (range 15-84 Years). There was perianal abscesses in 46 patients (44.23%), ischiorectal abscesses in 34 patients (35.69%), and submucosal in 24 Patients (23.07%). Fistula –in-ano developed in 29 patients (27.88%).

**Conclusion:**-this cross-section study had shown that a relatively large percentage of anorectal abscess are associated with anal fistula. As the abscess resolves with proper drainage, we encourage the selective use of antimicrobial agents on a case-by-case basis.

**Key words:** Anorectal abscess, fistula -in-ano.

## Introduction:-

Anorectal abscesses are common and important clinical problems. The majority of perianal abscesses result from obstruction of anal glands, with subsequent retrograde infection. The peak incidence of perianal abscesses is in the third or fourth decade of life and two or three times more common in men than women<sup>(1)</sup>.

The reason for this increased incidence of perianal suppuration in men is uncertain, however, it may be related to increased local androgen conversion in anal glands<sup>(2)</sup>.

An abscess is a localized collection of Pus. In this case, it can either occur near the anus close under the skin, or deep adjacent to the rectum<sup>(3)</sup>.

A fistula is an abnormal communication or tract between two epithelial surfaces<sup>(3,4,5)</sup>. In the case of fistula-in-ano this occurs between the ano-rectal passage and the skin surface near the anus.

It occurs as a complication of an ano-rectal abscess which has discharged to the skin, with the track from the ano-rectal passage to the skin remaining patent<sup>(6,7,8)</sup>.

A fistula in ano complicates 30-40% of perianal abscesses<sup>(9,10,11)</sup>. They are more common in patient with inflammatory bowel disease, diabetes mellitus and immunocompromised patients for any reason<sup>(12,13)</sup>.

The perianal abscesses have several routes of egress, the most Common of which are downward extension to the anoderm(perianal abscess ) or across the external sphincter into the ischiorectal fossa (ischiorectal fossa abscess)<sup>(16,17)</sup>.

Less common routes of spread are superiorly up the intersphincteric groove to the supralelevator space or in the submucosal plane<sup>(18,19)</sup>.

When the abscess is drained either surgically or spontaneously, persistence of septic foci and epithelialization of the draining tract may occur and lead to a chronic fistula- in –ano<sup>(20,21,22)</sup>.

Approximately 10% of perianal abscesses are thought not to be due to infected anal glands but to be consequences of more specific causes such as Crohn's disease, trauma , human immunodeficiency virus, sexually transmitted diseases, radiation therapy or foreign body<sup>(23,24,25)</sup>.

So the aim of this study is to establish the true frequency of fistula-in-ano in patient with anorectal abscesses and to correlate these Findings with the relapse rate and microbiology.

## Patients and Methods :-

This study was a cross-sectional study carried Out at Al-Yarmouk Teaching Hospital, department of general surgery, between January 2006 and December 2011.

The patients were examined in knee-elbow position or left lateral position.

The anal canal and lower rectum were carefully examined for anorectal abscesses and for an internal fistula opening by inspection and pressure from outside to see if pus could be demonstrated . Then if there is abscess the patients were examined in the lithotomy Position under general anaesthesia. The anal canal and lower rectum were carefully examined for an internal opening. The abscess was drained and with a probe in the cavity and a finger in the rectum a fistulous opening was again searched for, when a fistula was found it was laid open. The abscess cavity was packed loosely with antiseptic and left for two days after removal of the gauze the patient was taken to the x-ray department Where-soluble contrast medium was Injected in the cavity and fistulographic film were taken in two planes.

Swab specimens were submitted for aerobic and anaerobic bacteria.

Age, duration of symptoms at admission, clinical symptoms, result of physical examination, risk factors, location of abscesses, antibiotics administered and duration of treatment and hospitalization were recorded. In addition,

laboratory results, such as white blood cells(WBC) Count, erythrocyte sedimentation rate (ESR), and pus culture were performed in all patients. Patients were followed –up For six months. Any patient who had previous history of fistula before this abscess

was excluded from this study , also we excluded patients who had fissure in ano with abscess.

#### Results:

It was found that 33 patients (43.42%) had perianal abscesses (table 1)

**Table 1:** The clinical presentation of patients

	Male	female	total
	N (%)	N (%)	N (%)
<b>Patients</b>	76 (73.07)	28 (26.92)	104
<b>Perianal</b>	33 (43.42)	13 (46.42)	46 (44.23)
<b>Ischiorectal</b>	24 (31.57)	10 (35.71)	34 (35.69)
<b>Submucosal</b>	19 (25)	5 (6.57)	24 (23.07)

**Table 2:** The distribution of patients according to signs and symptoms

	Male	Female	Total
	N(%)	N(%)	N(%)
<b>Pain</b>	76(100%)	28(100%)	104(100)
<b>Local swelling</b>	54(71.06%)	22(78.5%)	76(73.07%)
<b>Fever</b>	36(47.36%)	21(75%)	57(54.80%)
<b>Fluctuation</b>	32(42.10%)	20(71.42%)	52(50%)
<b>Erythema</b>	30(39.47%)	19(67.85%)	49(47.11%)
<b>Tenderness</b>	27(35.52%)	15(53.57%)	42(40.38%)
<b>Chills</b>	23(30.26%)	13(46.42%)	36(34.61%)

The most frequent risk factor was diabetes mellitus, it form 30.26% as shown in the table 3.

**Table 3:** Distribution of patients according to the Risk factors.

	Male	female	total
	N(%)	N(%)	N(%)
<b>Diab. mell.</b>	23(30.26)	5(17.85)	28(26.92)
<b>Trauma</b>	19(25)	6(21.42)	25(24.03)
<b>Obesity</b>	13(17.10)	11(39.28)	24(23.07)
<b>Malignancy</b>	9(11.84)	3(10.71)	12(11.53)
<b>Pregnancy</b>	0(0%)	5(17.85)	5(4.80)
<b>Steroid therapy</b>	3(3.94)	1(3.57)	4(3.84)
<b>Chronic renal failure</b>	2(1.4)	1(3.57)	3(2.88)

**Table 4 :-** Distribution of Complication in anorectal abscesses patients.

	Male	Female	Total
	N(%)	N(%)	N(%)
<b>Fistula</b>	21(27.63)	8(28.57)	29(27.88)
<b>Recurrence</b>	7(10.1)	1(8.3)	8(9.8)
<b>Fistula in acute abs. seen</b>	3(3.94)	1(8.3)	4(3.84)

Aerobic bacteria were isolated in 62 Patients (61.38%).

Anaerobic bacteria were isolated in 14 patients (13.461%).

Three patients only (2.14%) yielded no bacterial growth.

Mixed aerobic and anaerobic bacteria were isolated in 28 patients(26.92%).as shown in table 6.

**Table 5:-** Isolated microorganism from Anorectal abscesses, anaerobic organism.

Type of bacteria	No. of patients	%
<b>Bacteroides spp.</b>	20	19.23
<b>Strep.spp.</b>	6	5.76
<b>Fusobacterium</b>	4	3.84
<b>Total</b>	30	8.846

**Table 6:-** Isolated microorganism from Anorectal abscesses, aerobic organism.

Type of bact.	No. of patients	%
<i>E. coli</i>	32	30.76
<i>Staphylococci</i>	15	14.42
<i>Staph. Aureus</i>	9	8.65
<i>Klebsiella pneumoniae</i>	4	3.84
<i>Pseudomonas aeruginosa</i>	4	3.84
<i>B-hemolytic streptococci</i>	3	2.88
<i>Proteus mirabilis</i>	2	1.92
<i>Corynebacterium spp.</i>	2	1.92
<b>Total</b>	<b>71</b>	<b>68.26</b>

In eleven patients(10.576%) fistula-in-ano was diagnosed by examination under general anaesthesia, four patients(3.84%) were diagnosed by fistulography.

fourteen patients who had no fistula demonstrated by contrast x-ray subsequently developed a fistula within six months after discharge. Six patients of these were admitted with recurrent abscess or secretion from fistula.

29 patients (27.884%) had a fistula in connection with the anorectal abscess.

Skin-derived bacteria were seen in 38 patients including *Staphylococcus aureus*, *Staphylococcus albus*, *Proteus*, *B-hemolytic Streptococci* and non-hemolytic streptococci. None of these patients developed fistula later on.

Intestinal bacteria were seen in 63 patients e.g. Coliforms , streptococcus faecalis , bacteroides spp. and *E. coli*. These patients developed fistula.

#### Discussion:-

In this study 29 Patients (27.88%) with anorectal abscess out of 104 patients developed fistula in ano. This result is less than the result in two recent studies done in the department of surgery, Elmhurst general hospital, New York, where 35% and 41% of patients respectively had an intestinal fistulous tract<sup>(1)</sup>

True incidence of fistula may be even higher.<sup>(2,3)</sup> It is notable that in the present study a fistula was only diagnosed In four patient out of 104 patients (3.84%) at the time of abscess drainage.

This difference may possibly be explained by the fact that in our study special care was taken not to create any Internal opening or false passage during Examination with the probe.

Radiological search for a fistula after injection of water-soluble contrast medium Into the cavity was of little value since nine patients only in whom no

fistula could be demonstrated by this technique developed a fistula within six months.

Clinical re-examination three or six months after drainage of the abscess seems appropriate since more than 25 patients with a fistula had such minor symptoms than they were only diagnosed at routine follow-up.

Since the existence of a fistula in-ano even with only minor symptoms carries a potential risk of recurrent anorectal-abscesses.

The result of microbiology studies confirmed earlier findings that a fistula only occurred in anorectal abscesses when intestinal microorganisms were cultured<sup>(4)</sup>consequently, only these patients need to be followed –up.

anorectal abscess are more common in men than women.<sup>(5,6)</sup> but study male / female Ratio was 2.7 :1. And it was similar in studies done by Lunniss, et al. On Other hand, the vast majority of anorectal abscesses, The mean age of patients was 49.5 year and it Was similar to other study.<sup>(7,8)</sup>

Most aerobic and anaerobic organisms isolated from the anorectal abscess are of gastrointestinal tract origin and skin flora origin.<sup>(9,10)</sup> In present study, we found that incidence of gastrointestinal tract and skin- derived microorganisms was 60.576% and 36.538% respectively and it is similar to other studies<sup>(11,12)</sup>.

This study demonstrated that aerobic organisms are predominantly isolated in these infections. This finding was similar to other studies<sup>(13,14,15)</sup> but it was not Supported by the studies of brooks et al. And Nicholls et al.<sup>(16,17,18)</sup>.

#### Conclusion:-

This cross-section study had shown that relatively large percentage of anorectal abscess associated with anal fistula. As the abscess resolves with proper drainage, we encourage the selective use of antimicrobial agents on a case-by-case basis.

#### References

- 1-Parks AG. Gordon PH. Hardcastle JD. A classification of fistula-in-ano. Br J surg 2008; 63:1-12.
- 2-Grace RH. Harper IA. Thompson RG. Anorectal sepsis. Microbiology in relation to fistula-in-ano. Br J Surg 2009 ,69:401-403.

- 3-Ramanujann PS, Prasad ML, Abcarian H, Tan AB. Perianal abscesses and fistulas. *Dis Colon Rectum* 2006,27: 593-597.
  - 4-Bokey L, Tjandra JJ. Anal fissure, perianal abscess, and fistula. In: Tjandra JJ, Cluny GJA, Thomas RJS (eds). *Textbook Of Surgery* (2<sup>nd</sup> edition). Carlton, VIC: Blackwell Science Asia, 2004.
  - 5-Kumar P, Clark M(eds). *Clinical Medicine* (5<sup>th</sup> edition). Edinburgh: WB Saunders Company, 2006.
  - 6-Braunwald E, Fauci AS, Kasper DL, et al. *Harrisons Principles of Internal Medicine* (15<sup>th</sup> edition). New York: McGraw-Hill publishing, 2007.
  - 7-McLatchie GR, Leaper DJ(eds). *Oxford University Press*, 2006.
  - 8-Raflerty AT. *Churchill's Pocketbook of Surgery* (2<sup>nd</sup> edition). London: Churchill Livingstone, 2001.
  - 9-Davidson S, Haslett C. *Davidsons Principles and Practice of Medicine* (19<sup>th</sup> edition). Edinburgh: Churchill Livingstone, 2005.
  - 10-Longmore M, Wilkinson I, Torok E. *Oxford handbook of Clinical*(5<sup>th</sup> edition). Oxford: Oxford University Press, 2003.
  - 11- Cotran RS, Kumar V, Collins T, Robbins SL. *Robbins pathologic Basis of Disease* (6<sup>th</sup> edition). Philadelphia: WB Saunders Company,2000.
  - 12-Fistula[online]. Bethesda , MD: Medline Plus, 2003[cited 31 October 2003]. Available from: URL LINK.
  - 13-Parks AG. Pathogenesis and treatment of fistula-in-ano. *Br Med J*.2001, 1:463-469.
  - 14-Eisenhammer S. The internal anal sphincter and the anorectal abscess. *Surg J*. 2006, 103 :501-506.
  - 15-Whiteford MH, Kilkenny J, III, Hyman N, et al. Practice parameters for the treatment of perianal abscess and fistula-in-ano .*Dis Colon Rectum* 2005,48: 1337-1342.
  - 16-Isbister WH. A simple method for the management of anorectal abscess. *Aust NZ Surg*. 2001,57: 771-774.
  - 17-Read DR, Abcarian H. A prospective survey of 474 patients with anorectal abscess. *Dis Colon Rectum*. 2002,22: 566-568.
  - 18-Llera JL, Levy RC. Treatment of cutaneous abscess: a double-blind clinical study. *Ann Emerg Med*. 2008, 14: 15-19.
  - 19-Stewart MP, Laing MR, Krukowski ZH. Treatment of acute abscesses by incision, curettage and primary suture without antibiotics: a controlled clinical trial. *Br J Surg*. 2001,72:66-67.
  - 20-Tets WF van, Kuijpers HC. Continence disorders after anal fistulotomy. *Dis Colon Rectum*. 2004,37:1194-1197.
  - 21-Dietz DW. Role of fibrin glue in the management of simple and complex fistula in ano. *J Gastrointestinal Surg*. 2006, 10: 631-632.
  - 22-Tonkin DM, Murphy E, Brooke-smith M. Perianal abscess: a pilot study comparing packing with non-packing of the abscess cavity. *Dis Colon Rectum*.2004,47:1510-1514.
  - 23-Garcia-Aguilar J, Belmonte C, Wong W D, Golderg S M, Madoff R D. Anal fistula surgery, factor associated with recurrence and incontinence. *Dis Colon Rectum* 2001,39:723-729.
  - 24-Ho Y H, Tan M, Leong A F, Seow-Choen F. Marsupialization of fistulotomy wounds improves healing: a randomized controlled. *Br J Surg* 2000,85:105-107.
  - 25-Schouten W R, Zimmerman D D, Briel W . Transanal Advancement flap repair of transsphincteric fistulas. *Dis Colon Rectum* 2001,42:1419-1422.
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