

Perianal Fistula in Infants: Etiology, Management and Outcome

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Received June 24, 2019; Accepted July 01, 2019; Published January 07, 2020

ABSTRACT

Background: Perianal suppuration is a broad term that includes both perianal abscess and fistula-in-ano (FIA). The optimal management of PA and FIA has not yet been established. Although surgical treatment is a widely accepted therapy, recently it was declared that FIA in infants is a time-limited and self-limited disorder and the non-operative management of FIA has shown positive results.

Aim: The purpose of this study is to assess the value of the conservative management of perianal fistula in infants to evaluate recurrence and complication rates.

Methods: We have included 15 infants with clinical and sonographic evidence of FIA We manage them conservatively for 12 months.

Results: In 10 infants the fistula closed spontaneously within 4-6 months of nonsurgical management, while the remaining 5 patients were treated with fistulotomy or fistulectomy after failure of conservative therapy.

Recurrence of FIA occurs in 2 cases after surgical treatment, we have reported no recurrence after conservative therapy of FIA. Complications were reported in 1 (20%) patients who underwent fistulotomy and 1 (20%) patients who underwent fistulectomy, whereas no complications were recorded after conservative management.

Conclusion: Conservative management of FIA is proved to be a better technique of management which avoid recurrence and complications of surgery.

Keywords: Perianal fistula in infants, Conservative management, Outcome

INTRODUCTION

Perianal suppuration is a broad term that includes both perianal abscess and fistula-in-ano (FIA) [1]. In children, 57-86% of the cases of FIA develop in infants younger than 1 year of age with an obvious male predominance [2]. There are two theories about the pathogenesis of FIA in infants, the congenital and acquired theories. The congenital theory suggests that FIA is a developmental defect causing the anal crypts of Morgagni to be deeper than normal (1-2 mm) which allows trapping of bacteria inducing inflammation, perianal abscess, and eventually fistula. This developmental defect may also be responsible for recurrence of FIA after surgery. The abnormal structure of anal crypts was postulated to be a consequence of androgen/estrogen imbalance or excessive androgen stimulation of the sebaceous glands causing secondary infection. The acquired anal fistulae can be secondary to a variety of factors such as perianal suppuration, inflammatory bowel disease (IBD) tuberculosis, and immune-suppression [1]. The optimal management of PA and FIA has not yet been established [3]. Although surgical treatment is a widely accepted therapy,

recently it was declared that FIA in infants is a time-limited and self-limited disorder and the non-operative management of FIA has shown positive results [2,4]. Since FIA in infants differs from FIA in adults in many respects various treatment modalities for this condition have been devised. While some authors consider conservative treatment to be the treatment of choice for FIA in infants [4], others [5], still believe that surgery is the best means to ensure eradication of the condition.

The purpose of this study is to assess the value of the conservative management of perianal fistula in infants to

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Citation: Elekiabi OA, Heggy IA & Zaitoun MA. (2020) Perianal Fistula in Infants: Etiology, Management and Outcome. Int J Surg Invasive Procedures, 3(1): 95-99.

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evaluate recurrence and complication rates.

MATERIALS

This is a prospective study which was performed in Pediatric Surgery Department, Faculty of Medicine, Zagazig University. Written informed consents were acquired from all patients’ guardians for all managements.

METHODS

Institutional review board of faculty of medicine, Zagazig University approval was obtained. Between October 2017 and October 2018, 15 children (male: 9 and female: 6) with FIA were included in our study.

Inclusion criteria:

1. Infants with co-morbid condition who cannot afford anesthesia.
2. Ages at the first visit ranged from 5 days to 12 months.
3. Refusal of surgical management by the parents.
4. Consent of the family to conservative management.

FIA was defined by the opening persisting over 3 weeks after incision or a discharge apparent in stools.

Our standard management was as follows:

Conservative treatment consisted mainly of local wound care (hygiene and daily dressing as sitz baths and frequent change of diapers) in addition to careful observation of the infant.

Treatment of any napkin dermatitis.

Simple drainage of any collection under local anesthesia.

Local antibiotics cream were used with avoidance of systemic antibiotics to avoid immune-suppression.

STATISTICAL ANALYSIS

All data were analyzed using Statistical Package for Social Science for windows version 18.0 (SPSS Inc., Chicago, IL, USA). All tests were two sided. P-value<0.05 was considered statistically significant. Independent Student t-test was used to compare two groups of normally distributed data, while Mann-Whitney U was used for non-normally distributed data.

RESULTS

In 10 (65.7%) infants, anal fistula closed spontaneously within 4-6 months of nonsurgical management, while the remaining 5 patients who were older than 3 years were treated with fistulotomy or fistulectomy after failure of conservative therapy.

Recurrence of FIA occur in 2 cases after surgical treatment after a median follow-up duration of 14.5 months (range 3-92.4 months), we have reported no recurrence after conservative therapy of FIA. Recurrence was detected in 1 (20%) patients who underwent fistulotomy and one (20%) patient who underwent fistulectomy.

Postoperative complications were reported in 2 (40%) patients. Complications were reported in 1 (20%) patients who underwent fistulotomy and 1 (20%) patients who underwent fistulectomy, whereas no complications were recorded after conservative management (**Tables 1 and 2**).

Table 1. Basic characteristics and outcome of patients with perianal fistula following conservative management (n=15).

| Basic characteristics and outcome | Patients (n=15) | |
|--|-----------------|-----|
| | No. | % |
| Sex | | |
| Male | 9 | 86% |
| Female | 6 | 16% |
| Age at presentation (months) (range) | 0.5-12 | |
| Duration of conservative management (months) (Mean ± SD) | 10-12 | |
| Outcome | | |
| Failure | 5 | 20% |
| Success | 10 | 80% |

n=Total number of patients

Table 2. Factors determine technical and clinical success of conservative management of the studied patients (n=15).

| Basic characteristics | Patients (n=15) | | Outcome | | | | p-value |
|--|--------------------|-----|------------------|------|-------------------|-----|---------|
| | | | Failure (n=5) | | Success (n=10) | | |
| | No. | % | No. | % | No. | % | |
| Sex | | | | | | | |
| Male | 9 | 84% | 2 | 19% | 7 | 81% | 1.000 |
| Female | 6 | 16% | 3 | 25% | 3 | 75% | |
| Age at presentation (months) (Mean ± SD) | 8.60 ± 2.98 | | 6.00 ± 1.91 | | 3.50 ± 1.08 | | 0.001 |
| Recurrence | 2 | | 2 | | 0 | | 0.003 |
| complications | 2 | | 2 | | 0 | | 0.004 |
| Comorbid condition | | | | | | | |
| Absent | 13 | 92% | 3 | 13% | 10 | 87% | 0.013 |
| Present | 2 | 8% | 2 | 100% | 0 | 0% | |

P-value < 0.05 is significant

DISCUSSION

More than 85% of perianal suppuration in infants occurs in the first year of life with an obvious male predominance as more than 90% of the affected infants are male. The etiology of FIA in infants is mostly attributed to a congenital developmental defect in anal crypts. However, FIA in infants can be secondary to a number of conditions including crypto glandular infection, IBD, tuberculosis, and immune-suppression [1]. Regarding infants, who have more delicate tissues and whose FIA are likely to heal spontaneously [6]; there are some controversies and dilemmas about what constitutes optimal management. These controversial issues include: type of treatment whether conservative or surgical, type and timing of surgical treatment and need for antibiotics [7]. There are number of studies that concern the incidence, presentation and management and recurrence rate of anal fistula in infants is quite small. No definite guidelines regarding the optimal treatment of FIA in the pediatric population exist. The present study comprised infants with FIA, with around 90 % of them aging below 1 year, in line with other authors [8] who stated that 87-96 % of pediatric anal fistulae occur in infants below 1 year of age. More than 97% of infants with anal fistula were males, which were concordant with the data previously published about the male predominance of anal fistula in the pediatric population [9,10]. This male predominance is mostly attributed to excess androgen or androgen sensitive anal glands in males [11]. Emile et al. [1] collect and analyze the results of individual studies in an attempt to understand the magnitude of the problem and the outcome of various treatments in this

particular age group. Treatment of anal fistula varied in the included studies: Around 20% of patients were managed on a conservative basis and this non-surgical treatment succeeded in 73% of patients who achieved complete resolution of fistula with no recorded cases of complications or recurrence [1].

Several recent reports have recommended conservative management in infants [4,12]. Watanabe et al. [12] reported successful results of conservative treatment in 82% of infants with FIA. The authors recommended avoiding surgical treatment of FIA in infants as they are likely to resolve spontaneously. Similarly, in a study conducted by Rosen et al. [4] all infants with anal fistula achieved complete healing after non-surgical treatment. According to them, the non-operative treatment of FIA in infants appears to be safe and effective. Rosen et al. [4] found that none of the 14 male infants who developed FIA following PA treatment required surgery, and the lesions healed in those patients after non-operative therapy [4].

Serour et al. [7] claimed that non-operative treatment was preferred for patients with FIA for 1 or 3 months, and fistulectomy was performed in persisting FIA. It is recommended that once the fistula is developed, surgical treatment should be done if conservative management failed.

Oh et al. [5] reported a 100% failure rate of conservative treatment stating that not all infants with FIA could be treated non-surgically. This 100% failure rate of conservative management in this particular study can be attributed to the fact that all the infants included were

referred to the authors' institution after failure of conservative treatment received elsewhere against the recommendations of the surgeon. Since the authors did not apply and follow the conservative treatment of these infants by themselves, the 100% failure rate can be attributed to poor application of non-surgical management and/or non-compliance of the parents with the treatment plan. However, many reports support the operative treatment of FIA [13,14]. These studies have suggested that the surgical treatment of PA and FIA is easy and have a very low complication rate. Oh et al. [5] postulated that non-operative management of FIA could not guarantee a successful cure for all patients. They also claimed that although there were advantages of non-operative treatment as avoidance of general anesthesia and surgical intervention, many parents experienced anxiety during the conservative treatment [5]. The surgical management of FIA either by fistulotomy or by fistulectomy is the most accepted treatment for that disorder but results in a high recurrence rate (up to 68%) [4,5,15]. In our study we have supported using conservative treatment in FIA management and surgical intervention is restricted only to cases with failed conservative management.

Conservative treatment of anal fistula in infants basically consists of local wound care with frequent sitz baths and adequate hygiene. Systemic antibiotics can be used if the infant shows signs of systemic infection such as fever and irritability. New methods for non-surgical management of FIA in infants have been advised by Kubota et al. [16]. The excellent results reported by the authors indicate that this method is an effective new treatment strategy for management of peri-anal abscesses and FIA in infants.

On the other hand, drawbacks of conservative treatment include longer duration of treatment, prolonged antibiotic use, exposing infants to more pain, increasing the anxiety level of the parents and possibility of relapse [13].

Shortcomings of surgical treatment included the need for general anesthesia and development of postoperative complications which were, however, encountered in less than 3% of infants, mostly after fistulectomy. The majority of these complications were minor, short-term consequences of surgery.

All patients with a fistula were treated with operative treatment in Ezer et al. [2] series. After surgical treatment, FIA recurred in five patients (15.1%), all of which underwent a second operation that resulted in cure.

SUMMARY AND CONCLUSION

The search of the literature shows that there are some controversies in the treatment of FIA, a common and troublesome condition in children and there is still not a consensus in patient selection for operative and non-operative treatment, particularly in infancy. In spite of these controversies, the results of our study give enough clues that conservative management by laying the fistula open ended

up with good outcome and low recurrence rate in the treatment of FIA in children. However, further prospective randomized studies are needed to outline the advantages and disadvantages of operative and non-operative treatment approaches.

REFERENCES

1. Emile SH, Elfeki H, Abdelnaby M (2016) A systematic review of the management of anal fistula in infants. *Tech Coloproctol* 20: 735-744.
2. Ezer SS, Oguzkurt P, Ince E, Hicsonmez A (2010) Perianal abscess and fistula-in-ano in children: aetiology, management and outcome. *J Pediatr Child Health* 46: 92-95.
3. Karlsson AJ, Salö M, Stenström P (2016) Outcomes of various interventions for first-time perianal abscesses in children. *BioMed Res Int* 2016: 6.
4. Rosen NG, Gibbs DL, Soffer SZ, Hong A, Sher M, et al. (2000) The non-operative management of fistula in ano. *J Pediatr Surg* 35: 938-939.
5. Oh JT, Han A, Han SJ, Choi SH, Hwang EH (2001) Fistula-in-ano in infants: Is non-operative management effective? *J Pediatr Surg* 36: 1367-1369.
6. Nelson R (2002) Anorectal abscess fistula: What do we know? *Surg Clin North Am* 82:1139-1151.
7. Serour F, Somekh E, Gorenstein A (2005) Perianal abscess and fistula-in-ano in infants: A different entity? *Dis Colon Rectum* 48: 359-364.
8. Piazza DJ, Radhakrishnan J (1990) Perianal abscess and fistula-in-ano in children. *Dis Colon Rectum* 33: 1014.
9. Afsarlar CE, Karaman A, Tanır G (2011) Perianal abscess and fistula-in-ano in children: Clinical characteristic, management and outcome. *Pediatr Surg Int* 27: 1063-068.
10. Chang HK, Ryu JG, Oh JT (2010) Clinical characteristics and treatment of perianal abscess and fistula-in-ano in infants. *J Pediatr Surg* 45: 1832-1936.
11. Fitzgerald RJ, Harding B, Ryan W (1985) Fistula-in-ano in childhood: a congenital etiology. *J Pediatr Surg* 20: 80-81.
12. Watanabe Y, Todani T, Yamamoto S (1998) Conservative management of fistula-in-ano in infants. *Pediatr Surg Int* 13: 274-276.
13. Festen C, van Harten H (1998) Perianal abscess and fistula-in-ano in infants. *J Pediatr Surg* 33: 711-713.
14. Al-Salem AH, Laing W, Talwalker V (1994) Fistula-in-ano in infancy and childhood. *J Pediatr Surg* 29: 436-438.
15. Serour F, Gorenstein A (2006) Characteristics of

perianal abscess and fistula-in-ano in healthy children.
World J Surg 30: 467-472.

16. Kubota M, Hirayama Y, Okuyama N (2010) Usefulness of bFGF spray in the treatment of perianal abscess and fistula-in-ano. *Pediatr Surg Int* 26: 1037-1040.