

REPAIR OF FISTULAE IN-ANO IN CHILDREN USING IMAGE GUIDED HISTOACRYL INJECTION

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Abstract

PURPOSE Our aim to determine the feasibility and safety of usage of N Butyl Cyanacrylate (Histoacryl) , adhesive material in treatment of fistula in-ano in infants and children.

METHODS A 17-patients, with age ranged from 9 months up to 15 years, presented by fistula in-ano who not respond to medical treatment. They were 14 males and three females. All patients were subjected to injection of adhesive material through the fistula under fluoroscopy guidance and general anesthesia after failed of medical management.

Results Between January 2005 and July 2009, a total 17 children underwent injection therapy to the fistula in-ano. The mean follow up of 18 months. Two patients had a recurrence after one to two months, they were subjected to reinjection, one of them had second recurrence. Overall, 16 (%)of 17 patients have had successful closure of their fistula, one of them healed from second injection.

Conclusion Our method of tissue adhesive Histoacryl injection is safe, feasible, and repeatable in treatment of fistula in-ano in infants and children.

Introduction

An anal fistula is a chronically infected, abnormal tract, , between the anal canal and outer skin of the anus, often drain watery pus, with unclear pathogenesis. Fistula in ano is a common condition in infancy and often accompanied by perianal abscess. It is generally accepted that male infants are most commonly affected and fistulas tend to be simple, low and direct⁽¹⁾ Perianal abscess in infants who are younger than 12 months is associated with a 20% to 80% overall rate of progression to fistula in ano ⁽²⁾⁽³⁾ Surgical management of fistula in-ano is the widely accepted method for treatment of these patients, however, recent few studies have shown positive results from the nonoperative management of fistula in-ano.⁽⁴⁾⁽⁵⁾

Patients and methods

This study had been conducted on 17 infants and children, at pediatric surgical unit, University Children's Hospital, Assiut University, in a period from January 2005 to July 2009. The patients were selected from children with perianal problems. They had been thoroughly examined for detection of abscess or fistula. Children with other anorectal anomalies were not included in our study. The

parents of the 17 patients were informed about the technique and the possibility of the recurrence. They agreed because the surgical intervention is considered the backup in failure of the technique. Children avoided eating solid food for at least 8 hours, and bowel preparation to clean anus and rectum had been done.

In angiography room and under general anesthesia, the tissue adhesive Histoacryl was mixed to oily contrast media (lipidol) in a 50 percent concentration to allow optimal time of polymerization of histoacryl and identify the pathway of the fistula tract. 5 percent glucose solution was injected first to prevent premature polymerization .

The patient was positioned in the lithotomy position, The fistula opening was identified and a small cannula (22 gauge) was introduced gently, and glucose solution followed by the adhesive material was injected under image guidance until the glue reach the end of the fistula's tract . The time of procedure ranged from 10 to 15 minutes. After recovery, the patients returned home and received simple analgesia (paracetamol). A schedule of follow up had been done, every week in first month and every month for six months, every 3 months for one year. 16 of them were males and one female, the age of them ranged from 11 months to 15 years.

Fistulogram had been carried out to all children, who were planned to surgery or injection. The parents were informed to consult us even by phone for any abnormality noticed, as of infections

Results

Over the last five years (2005-2009), this study had been conducted on for all children complaining of perianal lesions. They were thoroughly examined to define the exact pathology. Thirty patients complaining of perianal fistula or perianal abscess were selected from children with perianal problems. The fistula was defined as a small opening discharging pus in 25 patients, and perianal abscess was found as a red, tender small swelling at one side of the anus in 5 patients. Children with other anorectal anomalies were not included in our study. All children, (30 patients), were subjected to conservative treatment in form of systemic and local antibiotic, in addition to instruction of their mothers to clean the perianal area perfectly after defecation for three months. All patients were males (except two females). Six of 30 patients were improved and healed after medical treatment, so they were isolated from the study.

Surgery had been carried out for seven patients, either fistulotomy for four patients and fistulectomy in three patients. The remaining 17 patients were subjected to tissue adhesive Histoacryl injection.

Mean age at the injection was 95.5 months (range, 11 to 180 months). Mean duration of symptoms from initial onset to injection was 6.5 months (range, 3 to 10 months). The procedure was done under general anesthesia to made the procedure easy to the patient and to the operator. The parents were informed to record any complications even if it minor, and to come back to hospital if there are any allergic or inflammatory complications. Two patients recorded some minor complications in form of itching not respond to simple analgesia, and their discharge were delayed for 24 hours and they received antihistamine and diclofenate analgesia. Two patients underwent second injection because of recurrence, first one after 4 months and the second one after 7 months. One of the two healed and the second showed another recurrence and his parents refuse the third trial of injection.



Male child 4 yrs old presented by discharging sinus at the left perianal region. Diagnostic fistulogram revealed unbranched perianal fistula tract opens at the lower part of the rectum Treatment by histoacryl under fluoroscopic guidance Fig A, B and C representing AP, oblique and lateral views after injection of histoacryl, lipidol mixture. The fistula tract is seen filled with the mixture and reaches to the anal canal and lower part of the rectum

Discussion

In adult, fistulas in-ano are a heterogeneous group of disorders that can cause significant pain, social impairment, hygienic problems. Fistula-in-ano has classically been described to be the result of crypt abscess that has extended to the perianal skin, but it may result from perianal abscess.⁽⁶⁾

Anal fistulas in the pediatric population are poorly understood. A high incidence of recurrence has been attributed to a congenital abnormality of the anal crypts in children.⁽⁷⁾

Perianal abscess is a relatively common condition in children. It occurs most often in male infants younger than 1 year but can occur in either sex and at any age. The exact incidence and prevalence of perianal abscesses is not well established. In spite, the relative frequency of perianal abscess. Our study had less number of abscesses because we are working in a tertiary children's hospital, and the abscesses were treated in primary centers.

In adult, surgery is the mainstay of treatment for fistula in-ano because, the anal fistula as a chronic inflammatory process, does not heal spontaneously. Recently sphincter saving approaches have been applied in the treatment of perianal fistula in order to avoid the risk of complication particularly fecal. Incontinence and prolonged discomfort associated with wound dressing after surgery. Recent publications showed promising results after using fibrin glue in the treatment of anal fistula. The technique was simple and repeatable.⁽⁸⁾⁽⁹⁾⁽¹⁰⁾

In children the conservative management, which consists of antibiotic therapy against the gram-negative organisms and anaerobic bacteria, may be effective and gave nice results⁽¹¹⁾ some authors consider the anal fistula a chronic inflammatory process, that does not heal spontaneously. Although the conservative management, which consists of antibiotic therapy against the gram-negative organisms and anaerobic bacteria, may be effective in the acute and early phase of the anal disease, surgery remains the treatment⁽¹¹⁾. Medline searches were performed using the Pubmed, Ovid, and Google Scholar databases to identify articles reporting on management of pediatric fistula in ano using Histoacryl, the result was nothing. But there were considerable articles used tissue adhesive material and glues in

adults for tissue approximation and hemostasis in surgery and the results, in addition to technological improvement, encouraged us to report our experience with injection of Histoacryl for fistula in-ano in pediatric population. The tissue adhesive histoacryl is composed of enbucrilate. We used colored one (colored with the dyestuff D Et violet No. 2). The mode of action Histoacryl depends on the presence of tissue moisture, that immediately polymerize into solid substance with a stable connection to the tissue. Histoacryl must not be used for closing wounds to internal organs or on the surface of the brain and to the central and peripheral nervous system, since the tissue damage with the scar formation and subsequent disturbance of function can result. Administration to the intima and media of blood vessels should also avoided on account the risk of thrombosis and damage to the vascular wall.

Furthermore, the era of treatment strategies now is directed toward the less aggressive intervention, and to avoid surgical risks (as in adult), we report the our experience of using the tissue adhesive Histoacryl in management of pediatric fistula in ano.

In our study, we used Histoacryl injection for treating fistula in-ano in children population depending on its rapid polymerization and rapid connection to the tissue, we aim to close and to approximate the tissue of fistulus tract without surgical intervention to avoid its risk and also to avoid bothering the child and his parent from daily dressing after fistulectomy.

In our study, the injection was carried out through cannula during its withdrawal to avoid adhesion of cannula to the tissue. The procedure was done under general anesthesia to make it easy one. It was a simple and can be repeated many time. 16 patients with fistula in-ano healed (about 94%), one of them healed after second injection, may be considered a promising result. The recurrence in two cases may be due to rapid injection with insufficient amount of Histoacryl.

Abel et al in 1993, used fibrin tissue adhesive to treat complicated fistulae reported success rate of 60%. Hjortrup et al reported closure rate of 74% using of a commercial fibrin sealant⁽⁹⁾

Conclusion

Depending on wide use of tissue adhesive material in many surgical conditions without significant side effects, we may conclude, from our preliminary results on a relatively small group of 17 children, that the method can be useful in children fistula in ano. The procedure is safe, feasible, repeatable, with minor surgical trauma, the sphincters are preserved, and with promising results. However, further surgical treatment are not compromised.

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