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A systematic review of new treatments for cryptoglandular fistula in ano

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ABSTRACT

Aim: In 2007 the ACPGBI published a position statement on the management of cryptoglandular fistula in ano. Over the last seven years a number of new treatments have been developed and the aim of this systematic review was to assess their effectiveness.

Method: A systematic review of all English language literature relevant to novel treatment strategies for cryptoglandular fistula in ano, published between 1 January 2007 and 31 Dec 2014 was carried out using MEDLINE (PubMed and Ovid), EMBASE (Ovid) and the Cochrane Library of Systematic Reviews/Controlled Trials for relevant literature. Technical notes, commentaries, letters and meeting abstracts were excluded. The different treatments were assessed with regards to fistula closure rate in relation to length of follow up and reported complications.

Results: Seventy potential articles published between 1 January 2007 and 31 December 2014 were identified from the initial literature search. Twenty-one articles were included for final analysis although only two were randomized controlled trials, the remainder being retrospective or prospective series.

Conclusion: This systematic review has demonstrated that whilst there have been technological advances to treat complex cryptoglandular fistula in ano, these are in an early stage of evolution and although early results were promising they are difficult to reproduce. Longer follow up data is not currently available and these treatments should not be introduced without further evidence.

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Introduction

The surgical treatment of fistula-in-ano remains a formidable challenge as no single technique is appropriate in every case. For treatment of a low cryptoglandular fistula a fistulotomy (laying open) has reported closure rates of 98%.[1] High fistulas are more difficult to treat with higher recurrence rates and greater potential to damage the anal sphincter complex resulting in flatal or faecal incontinence. The 2007 ACPGBI position statement assessed the evidence to support established treatment modalities such as fistulotomy, fistulectomy, seton suture, fibrin glue and endorectal advancement flap.[2] Since then a number of new techniques have been reported in the literature. In this systematic review we have assessed the efficacy and safety of medical and surgical treatment modalities developed since the ACPGBI 2007 position statement.

Methods

Search strategy

A systematic review of all English language literature relevant to treatment of cryptoglandular fistula in ano, published between 1 January 2007 and 31 Dec 2014 was carried out using MEDLINE (PubMed and Ovid), EMBASE (Ovid) and the Cochrane Library of Systematic Reviews/Controlled Trials for relevant literature. Searches were performed using a combination of Medical Subject Headings (MeSH) terms and text words *'anal fistula',' Comfort Drain', 'Permacol™', 'Radiofrequency ablation', 'Acellular human dermal matrix', 'Platelet rich plasma', 'Stem Cells', 'Laser Ablation', 'FiLaC','Fistula Clip Closure', 'Self-locking cable tie'* and *'Video-assisted anal fistula treatment (VAAFT)'*. Bibliographic references were searched to identify relevant studies that were not produced by the electronic search. All citations identified by our search strategy were reviewed independently by NNA and SKN, by sequential review of title, abstract and finally full text to establish inclusion or exclusion as per Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidance.[3]

Selection criteria

All randomized/nonrandomized, controlled/non-controlled clinical trials, prospective observational studies, clinical registry data and retrospective case series that studied novel treatment modalities treatment for low or high cryptoglandular anal fistulae in adults were included.

All publications that included the treatments for fistula in ano such as fistulotomy, seton suture, LIFT, Rectal advancement flap, fistula plug and fibrin glue in isolation were excluded from this review. Studies on fistula treatment in children, animals, perianal Crohn's disease, tuberculosis, HIV, traumatic, malignant and radiation exposure have also been excluded from this systematic review.

Definitions

A fistula is defined as high if the tract passes through the middle and/or upper third part of the anal sphincter complex and complex if any of the following features were present; the tract crosses more than 30%–50% of the external sphincter, anterior fistula in a female, the presence of multiple tracts, a recurrent fistula, pre-existing incontinence, local irradiation or Crohn's disease. Treatment success was defined as closure of all primary/secondary openings, and absence of perianal discharge/abscess formation. As MRI fistulography and endorectal ultrasonography are not frequently used for confirmation of healing, we did not include this as a criterion for defining successful treatment. Recurrence is defined as an abscess spontaneously discharging or requiring surgical drainage, or a recurrent fistula either at the same site or at a different site.

Data collection and analysis

Data points extracted from each study included the year of publication, study design, age group, gender, classification/type of fistula, associated risk factors, previous anal surgery, preparation for procedure, preoperative imaging (CT/MRI fistulography/Endoanal USS), operative technique, postoperative complication, fistula healing rate, incontinence score, duration of follow up, recurrence rate and any specific technical factor associated with the novel intervention. To exclude reviewer bias data were extracted by two independent researchers and recorded on Microsoft Excel 2007 spreadsheet.

Methodological quality and risk of bias within the studies was assessed using the MINORS criteria by two independent investigators SKN and NNA.[4] Any discrepancies were resolved by discussion and consensus between the reviewers and senior authors (IRD & NJS). Analysis of some variables was not possible due to the lack of both uniformity and the quantity of the data reported. These included: the impact of seton insertion before procedure, role of antibiotics, bowel preparation, the effect on continence, objective pain assessment after the procedure and the efficacy of multiple procedures in the same patient.

A weighted analysis to get a summary estimate of the efficacy of the procedure was not possible because of the heterogeneity (retrospective and prospective studies, inclusion of complex as well as noncomplex fistulae in different studies) amongst included studies. Therefore, the success rate of different parameters has been expressed as range.

Results

Sixty-eight potential articles were identified from the initial literature search after removal of duplicates. Sixteen animal studies and five foreign language articles were excluded and using the inclusion criteria described above, 23 articles were eliminated on title and abstract review. Twenty-four full text articles were obtained, with a further three then rejected as two were case reports and one an invited commentary leaving 21 articles for final analysis. Apart from two randomized controlled trials, all were retrospective or prospective studies evaluating adult patients undergoing novel intervention for cryptoglandular fistula in ano (Fig. 1). In two studies using acellular extracellular matrix (AEM) and acellular dermal