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Platelet-rich plasma for pilonidal disease: a systematic review

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 20 October 2023 and was last updated on 20 October 2023.

INTRODUCTION

Review question / Objective This systematic review aimed to summarize and evaluate the evidence of platelet-rich plasma (PRP) for the treatment of pilonidal disease (PD) in order to provide a reference for clinical applications.

Rationale A systematic review of Pubmed and the Cochrane Library was performed following to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses. We considered all the studies that reported the use of platelet-rich plasma for the treatment of PD. Data extracted included the first author's name, year of publication, the type of studies, number of included patients, inclusion and exclusion criteria, interventions, anaesthesia, application (source, preparation, dose and operation) of platelet-rich plasma, antibiotics, follow-up time, therapeutic outcomes, adverse events.

Condition being studied Pilonidal disease (PD) is usually acquired and closely associated with the presence of hair in the gluteal cleft, so it is also called pilonidal sinus or pilonidal sinus disease. Surgical excision is the traditional standard treatment for PD and is generally divided into two categories: excision of diseased tissue with primary closure (including midline or off-midline sutures and flap techniques) and excision with healing by secondary intention (including open healing and marsupialization). However, the benefits of open healing versus primary closure are controversial, which are embodied in time to

healing, time off daily activities or work, surgical site infection and recurrence. Some studies have begun with the quest to utilize advanced dressings to provide an optimal environment for wound healing, typically by optimizing wound cleansing and re-epithelization.

METHODS

Participant or population All patients using PRP to treat PD and the control patients.

Intervention Patients using PRP to treat PD.

Comparator Treatment without PRP, such as open surgery, excision, curettage, laser pilonidoplastylaser, phenol, etc.

Study designs to be included All studies reporting the use of PRP for the treatment of PD were considered.

Eligibility criteria Case reports, randomized controlled trials, and single-arm studies were included, while letters, comments, and review articles were excluded.

Information sources Pubmed and the Cochrane Library.

Main outcome(s) Eight randomized controlled trails and one prospective cohort study were included, containing a total of 809 cases. PRP can promote healing, reduce pain, shorten the duration of pain, accelerate the return to normal life and reduce psychological stress. Preliminary results showed that PRP can also reduce the recurrence rate, wound infection rate, and the incidence of other adverse events. Minimally invasive surgery combined with multiple applications of PRP have achieved more positive results. However, the overfilling of PRP in minimally invasive surgeries may increase the risk of adverse events.

Quality assessment / Risk of bias analysis For randomized controlled trials, the Cochrane Handbook Version 5.2.0 and RevMan 5.3 were used, which assesses the biases of selection, performance, detection, attrition, reporting and so on. This work was done by the two reviewers independently and reached a consensus.

Strategy of data synthesis We conducted the summary independent-samples t test of the healing time of all studies with the same surgical methods, selecting studies without significant differences between control groups and significantly different between PRP groups, to explore the effect of different PRP application methods on efficacy. Finally, we summarized the number of adverse events in all studies and calculated the total incidence.

Subgroup analysis We conducted the summary independent-samples t test of the healing time of all studies with the same surgical methods, selecting studies without significant differences between control groups and significantly different between PRP groups, to explore the effect of different PRP application methods on efficacy.

Sensitivity analysis This review is limited to the existence of heterogeneity, which is mainly reflected by the lack of unification of the application methods and evaluation indicators of PRP, which is also why we were unable to conduct a quantitative meta-analysis.

Country(ies) involved China.

Keywords Pilonidal disease, Platelet-rich plasma, Minimally invasive surgery, Adjuvant treatment.

Contributions of each author
Author 1 - Yu Zhuang.
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