# INPLASY PROTOCOL

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## Diagnostic Accuracy of threedimensional endoanal ultrasound for anal fistula: a systematic review and meta-analysis

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Review question / Objective: Anal fistula is a relatively common anorectal disease.accurate assessment of the main anal fistula type and the anatomy of the internal opening before surgery is necessary to obtain the best surgical results. Whether 3D-EAUS should be used as the first-line diagnostic tool for anal fistula is still controversial.

Condition being studied: Anal fistula is a relatively common anorectal disease, usually occurring in young adults, aged 21-42 years. Some studies have pointed out that the incidence of anal incontinence after anal fistula surgery is 0-40%, and the recurrence rate is 0-26.5%, the reason may be that the internal openings was not accurately found before the operation, the fistula was not completely treated, or the fistula branch was missed, and the shape of the fistula was not understood, etc., resulting in excessive intraoperative anal sphincter injury. Therefore, accurate assessment of the main anal fistula type and the anatomy of the internal opening before surgery is necessary to obtain the best surgical results.

**INPLASY registration number:** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 20 July 2020 and was last updated on 20 July 2020 (registration number INPLASY202070090).

#### INTRODUCTION

Review question / Objective: Anal fistula is a relatively common anorectal disease.accurate assessment of the main anal fistula type and the anatomy of the internal opening before surgery is necessary to obtain the best surgical results. Whether 3D-EAUS should be used as the first-line diagnostic tool for anal fistula is still controversial.

Rationale: The purpose of this study is to conduct a meta-analysis of the published literature on 3D-EAUS and anal fistula, and compare the results of 3D-EAUS and surgery to evaluate the diagnostic value of 3D-EAUS for anal fistula.

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#### **METHODS**

(endoanal'/exp OR Search strategy: endoanal) AND (ultrasound'/exp OR ultrasound) OR AND ultrasound:ab,ti OR diagnostic) AND ultrasounds:ab,ti OR ultrasound,) AND diagnostic:ab,ti OR ultrasounds,) AND diagnostic:ab,ti OR ultrasound) AND imaging:ab,ti OR imaging,) AND ultrasound:ab,ti OR imagings,) AND ultrasound:ab,ti OR echotomography:ab.ti OR ultrasonic) AND imaging:ab,ti OR imaging,) AND ultrasonic:ab,ti OR medical) AND sonography:ab,ti OR sonography,) AND medical:ab,ti OR ultrasonographic) AND imaging:ab,ti OR imaging,) AND ultrasonographic:ab,ti OR imagings,) AND ultrasonographic:ab,ti ultrasonographic) AND imagings:ab,ti OR diagnosis,) AND ultrasonic:ab,ti OR echography:ab,ti OR diagnoses,) AND ultrasonic:ab,ti OR ultrasonic) AND diagnoses:ab,ti OR ultrasonic) AND diagnosis:ab,ti OR echotomography,) AND computer:ab,ti OR computer) AND echotomography:ab,ti OR tomography,) AND ultrasonic:ab,ti OR ultrasonic) AND tomography:ab,ti) AND (fistula'/exp OR fistula) OR (fistula, rectal':ab,ti OR 'anal fistula':ab,ti).

Participant or population: A total of 1057 fistulas were included. According to the Parks classification, there were 241 intersphincteric fistulas, 667 transsphincteric fistulas, 73 suprasphincteric fistulas, 8 extrasphincteric fistulas, 19 superficial fistulas, and 548 internal openings.

**Intervention:** Three-dimensional endoanal ultrasound.

**Comparator: Surgery.** 

Study designs to be included: Diagnostic test.

Eligibility criteria: Inclusion criteria: 3D-EAUS diagnostic test for diagnosis of anal fistula; complete data; gold standard is pathological biopsy. Exclusion criteria: review, conference report; missing data. If there are multiple reports of the same study, the latest and most comprehensive literature is included.

Information sources: Computer searched English databases include PubMed, Embase, Cochrane Library. The search time is from the establishment of each database to Juny 2020, and the search language is English. In order to minimize missed searches, a secondary search of all references is performed.

Main outcome(s): The main outcome indicator is the accuracy of the fistula.

Additional outcome(s): The secondary outcome indicators are as follows: type of fistula (intersphincteric fistula, transsphincteric fistula, suprasphincteric fistula, extrasphincteric fistula, superficial fistula), and internal opening position.

Data management: Use Endnote and Noteexpress software for data management. Defined as: Records after duplicates removed; Records screened; Full-text articles assessed for eligibility; Studies included in qualitative synthesis; Studies included in quantitative synthesis.

### Quality assessment / Risk of bias analysis:

Study quality was independently assessed using a tool for the Quality Assessment of Diagnostic Accuracy Studies-2 (QUADAS-2). Perform publication bias diagnosis and sensitivity analysis for included studies.

Strategy of data synthesis: Use STATA 15.1 and Revman 5.3 software for data analysis. After the diagnostic accuracy of 3D-EAUS of all anal fistula types was integrated, a single group rate meta-analysis was performed; analyze 3D-EAUS separately for the diagnosis of different anal fistula types, and conduct a meta-analysis of test accuracy.

Subgroup analysis: This study conducted a subgroup analysis of two covariates, the study population and the use of instruments.

Sensibility analysis: Perform sensitivity analysis for included studies.

Language: English.

Country(ies) involved: Sri Lanka; Italy; England; Spain; Iran; Korea; Poland; Malaysia; Singapore; Netherlands.

**Keywords:** Ultrasound; Endoanal; Three-dimensional; Anal fistula; Meta-analysis.

Contributions of each author:

Author 1 - Jin Li.

Author 2 - ShaoNa Chen.