

Summarizing measures of proficiency in transanal total mesorectal excision: a systematic review

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Introduction

- Transanal total mesorectal excision (TaTME) is a technically challenging procedure and there may be a higher risk of complications during the learning curve.
- Determining when a surgeon is ready to safely perform this technique independently remains a matter of debate.

Study Objective

The objective of this study is to systematically summarize the available evidence regarding measures of proficiency in TaTME.

Methods

Information Sources

- Clinical databases searched: MEDLINE, Embase, PubMed Epub records, Biosis previews, Scopus and Cochrane Library
- Initial search criteria: Articles that described proficiency metrics for TaTME.

Study Selection/Eligibility Criteria

- English and French Language
- Published between 2010 and 2018
- Describe proficiency metrics for TaTME and/or a number of cases necessary to achieve proficiency

Exclusion criteria

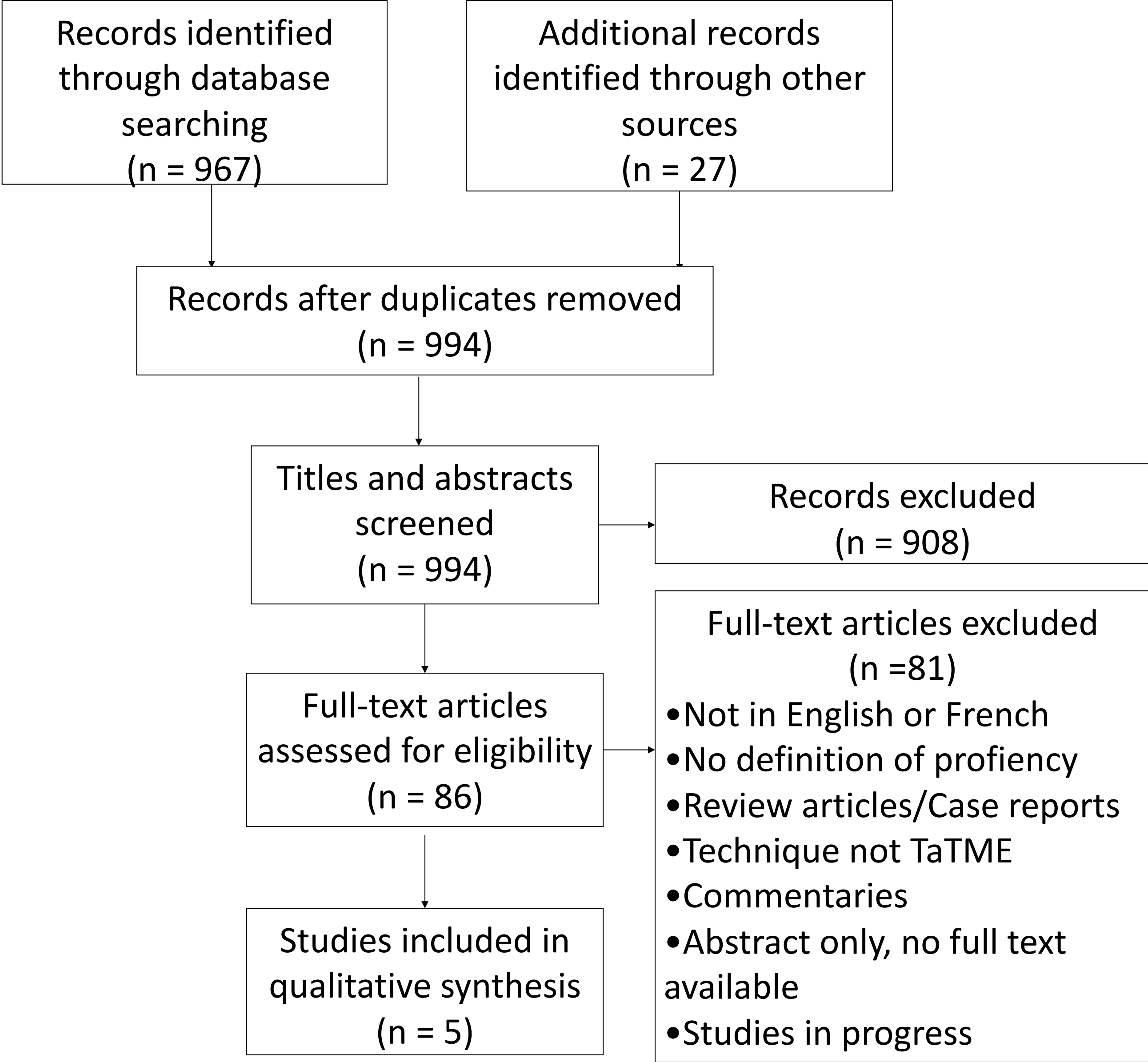
- Articles concerning other forms of transanal endoscopic surgery
- Review articles/Commentaries
- Descriptions of technique

Main outcomes

- Description of the learning curve for TaTME
- Methodology used to determine the conclusions
- Threshold for achieving competence in TaTME
- Number of cases necessary to achieve proficiency.

Results

Figure 1. Study inclusion and exclusion



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graph TD; A[Records identified through database searching (n = 967)] --> C[Records after duplicates removed (n = 994)]; B[Additional records identified through other sources (n = 27)] --> C; C --> D[Titles and abstracts screened (n = 994)]; D --> E[Records excluded (n = 908)]; D --> F[Full-text articles assessed for eligibility (n = 86)]; E --> G[Full-text articles excluded (n = 81)]; G --> H[•Not in English or French  
•No definition of proficiency  
•Review articles/Case reports  
•Technique not TaTME  
•Commentaries  
•Abstract only, no full text available  
•Studies in progress]; F --> I[Studies included in qualitative synthesis (n = 5)];
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Table 1. Studies using comparative methods

Author (Year)	Country of Origin	Total number of cases	Methodology to determine proficiency	MINORS score (out of 24)	OCEBM Level of Evidence
Caycedo-Maluranda et al. (2018)	Canada	70	First 16 months of TaTME practice (arbitrarily selected)	18	4
Koedam et al (2018)	Netherlands	138	CUSUM analysis of major post-operative complications	20	2b
Lee et al. (2018)	USA	87	CUSUM analysis using TME quality	21	2b

TME – Total Mesorectal Excision, MINORS – Methodological Index for Non-Randomized Studies [16], OCEBM – Oxford Centre for Evidence-Based Medicine

Table 2. Studies using consensus methods

Author (Year)	Country of Origin	Number of rounds	Number of participants	Delphi study quality (out of 5) ^a	OCEBM Level of Evidence
Francis et al. (2017) [22]	UK	3	148 (Round 1) 12 (Round 2) 59 (Round 3)	5	5
Motson et al. (2018) [23]	UK/USA	1	16	2	5

OCEBM – Oxford Centre for Evidence-Based Medicine
^aScore based on checklist derived from components of good quality Delphi Study

- Studies using objective methods of analysis (CUSUM) determine that the learning curve for TaTME is between 40 and 51 cases.
- Studies using expert opinion conclude that competence in TaTME is achieved with 6 to 30 cases.
- Methodologies and metrics used as proficiency benchmarks in TaTME vary significantly across studies.

Conclusion

- Significant heterogeneity exists regarding the determination of proficiency benchmarks for TaTME.
- Expert consensus documents recommend lower case numbers to obtain proficiency than those defined by objective measures
- These results suggest that greater experience may be required than generally thought in order to establish optimal patient safety and oncologic outcomes in practice.

Key Message

The available evidence suggests a lack of consensus regarding the number of cases required to achieve proficiency in TaTME. Future directions should seek to establish objective benchmarks for proficiency in novel surgical procedures.