#506 Systematic review assessing complications related to the urinary tract reconstruction following total pelvic exenteration for locally advanced or recurrent pelvic cancer

Allen, Christopher[1], Malde, Sachin[2], Moran, Diarmaid[3], Schizas, Alexis[4], George, Mark[4], Nair, Rajesh[2], Thuairaja, Ramesh[2], Khan, Mohammed Shamim[2], Sahai, Arun[2]

[1]GKT School of Medical , King's College London, [2]Department of Urology, Guy's and St Thomas' Hospitals NHS Foundation Trust, Department of Urology, [3]St Vincent's University Hospital, [4]Department of Colorectal Surgery, Guy's and St Thomas' Hospitals NHS Foundation Trust

Introduction

- Total Pelvic exenteration (TPE) is an extensive procedure with a high complications rate (1) . Several systematic reviews exist relating to TPE, however, these do not cover complications related to the urinary tract reconstruction.
- The aim of this systematic review is to understand this in more detail and to see if there are any contributory factors.

Methods and Materials

- A systematic review was conducted in accordance with PRISMA guidelines. Articles were obtained via search on PubMed/MEDLINE using the search term "Pelvic Exenteration" for studies published between 1st January 1990 and 31st December 2021. Articles with >10 TPE patients and reporting specifically on urological complications were included. Articles not in the English Language, editorials, letters and expert opinions were excluded.
- Information from studies included: number of patients, mean/median age, type of cancer, primary or recurrent malignancy, urological complications and re-operation rates. Risk of bias assessment was conducted using ROBINS-1 and Newcastle-Ottawa assessment tools. This was done along with rating of certainty of evidence, GRADE.

Figure 1. PRISMA flowchart of Search Methods

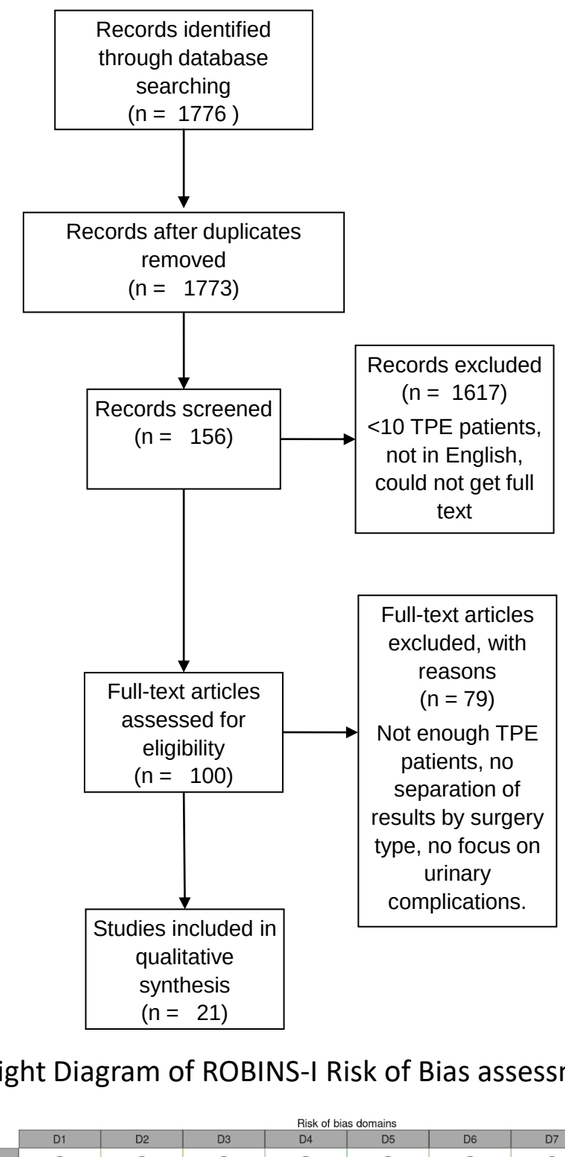
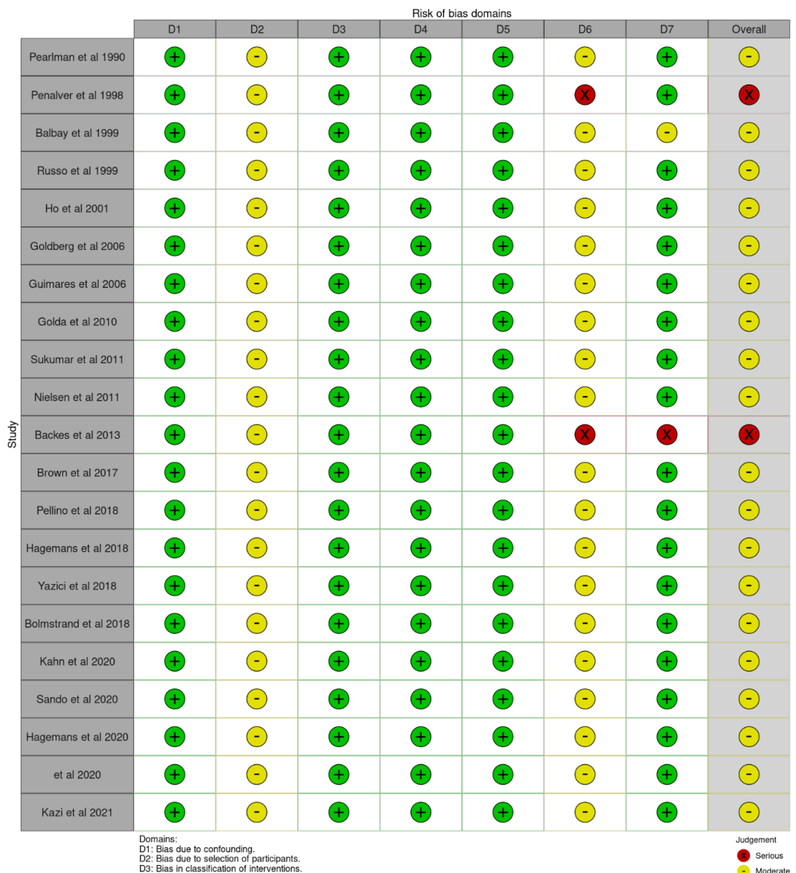


Figure 2. Traffic light Diagram of ROBINS-I Risk of Bias assessment



Results

- Out of the 1776 articles found by the search, 21 were included in the final study. This group of studies was made up of 6 prospective cohort studies, 14 retrospective cohort studies and 1 retrospective case series. 11 clearly showed outcomes from Colorectal or gynaecological malignancies while 2 reported on both.
- 17 studies reported results for urinary diversions. 2 for continent diversions, 13 for incontinent diversions and 2 for both. Additionally, 17 studies patient reported radiation status
- Assessment of the studies showed moderate/severe risk of bias along with a low certainty of evidence for all studies reported.
- 1487 patients underwent TPE. Patient ages ranged from 15 to 92. Radiation status was reported for 1400 patients. The majority (1039, 74%) received radiotherapy prior to surgery. There were 745 urological complications (50.1%), some patients had multiple complications. Clavien-Dindo scores were reported for 522 patients. 218 (41.8%) had a Clavien-Dindo score >III (including non-urological complications). The most common complications were UTI/Pyelonephritis (n=261, 22.9%), urinary anastomotic leakage (n=116, 8.9%) and uretero-enteric strictures (n=91, 8.1%).
- There is significant association between the use of a continent diversion and the development of obstruction/strictures/stenosis (p=0.000), stones (p=0.000) and UTI/pyelonephritis (p=0.021).
- 13 studies reported re-operation rates. Reoperation rate was 14.9% (164/1019). The most common cause was urinary leakage (14/152, 9.2%). Not all papers discussed the specifics of re-operation. The most common procedures presented were placement of nephrostomy (16/152, 10.5%), placement of stent (6/152, 3.9%) or placement of both (8/152, 5.3%).

Table 1. Complications in patients with continent and incontinent urinary diversions.

Complications	Continent (N=125)	Incontinent (n=1042)	P (<0.05)
Anastomotic leak	10 (8%)	90 (8.6%)	0.809
Stones	6 (4.8%)	4 (0.4%)	0.000
Obstruction/stricture/stenosis	21 (16.8%)	64 (6.1%)	0.000
Fistula	5 (4%)	46 (4.4%)	0.830
UTI/Pyelonephritis	39 (31.2%)	206 (19.8%)	0.003
Sepsis	6 (4.8%)	63 (6%)	0.577

Discussion

- Complication rates for total pelvic exenteration remain high despite improvements to surgical practice and even more so than radical cystectomy for bladder cancer.
- Continent diversions were associated with higher rates of complications compared to incontinent, as per previous literature in cystectomy series for bladder cancer.
- Studies assessing radiotherapy impact were mixed with some suggesting an increased risk and others not and so no firm conclusions could not be drawn. The prevalence of uretero-enteric stricture in part maybe related to the high utilisation of pre-operative radiotherapy.
- The utilisation of minimally invasive approaches to TPE eg robotic will need careful evaluation in the future to see if this can help reduce complications.

Conclusions

- The results revealed that complication rates for TPE are high. The effects of other peri-operative factors such as chemo-radiation status could not be fully established, due to the lack of information provided and heterogeneity of the data. Continent diversions had higher rates of complications in general. In general the quality of the studies were poor. Further well designed studies in this area are warranted.

References

1. PelvEx C. Changing outcomes following pelvic exenteration for locally advanced and recurrent rectal cancer. BJS Open. 2019;3(4):516-20