



LETTER TO EDITOR

The comparison between conventional method and perineal-approach-first abdominoperineal resection



KEYWORDS

Rectal cancer;
Abdominoperineal
resection;
Prone position

Dear Editor,

It becomes hot to study how to improve the efficiency of operation of rectal cancer abdominoperineal resection (APR) and reduce the incidence of complications.^{1,2} In this study, we improved the conventional abdominoperineal resection by starting with perineal surgery at prone

jackknife position first and then the abdominal surgery at supine position (Fig. 1).

Between January 2010 and December 2013, there were 73 patients enrolled in this retrospective study. They were randomly divided into two groups. The clinical information was shown in Table 1. The study approved by the Dongfang Hospital ethical committee.



Figure 1 The prone jackknife position for perineal surgery. The lateral view of jackknife position.

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Table 1 The clinical information of patients.

	APR (n = 39)	PAPR (n = 34)
Sex (n,%)		
Female	12 (30.8)	13 (38.2)
Male	27 (69.2)	21 (61.8)
Age (y)	61.2 ± 9.9	58.8 ± 10.7
BMI (kg/m ²)	21.4 ± 2.1	21.7 ± 2.9
Tumor phase (n)		
I	7	6
IIA	3	3
IIB	10	9
IIC	0	0
IIIA	2	3
IIIB	14	8
IIIC	3	5
Transverse diameter of tumor (mm)	34.8 ± 5.6	35.6 ± 4.9
Location of tumor (cm)	3.1 ± 1.0	3.5 ± 1.4
Preoperative adjuvant radiotherapy (n,%)		
Yes	6 (15.4)	5 (14.7)
No	33 (84.6)	29 (85.3)

Note: APR: abdominoperineal resection; PAPR: perineal approach first abdominoperineal resection; BMI: body mass index. The location of tumor means the distance between the lower margin of the tumor and the anal verge.

Compared with the conventional APR, perineal approach first abdominoperineal resection (PAPR) required less operative time (48.7 ± 6.8 vs. 36.4 ± 6.3 min, $t = 7.978$, $p < 0.01$) and decreased the bleeding (102.6 ± 28.6 vs. 46.2 ± 15.4 ml, $t = 10.53$, $p < 0.01$) (Table 2). In addition, PAPR doesn't increase the risk of positive circumferential resection margin (APR: 2.9% vs. PAPR: 17.9%, $\chi^2 = 2.796$, $p = 0.095$) and rectal rupture (APR: 2.9% vs. PAPR: 15.4%, $\chi^2 = 1.968$, $p = 0.161$). The two groups had similar rates of recurrence (APR: 59.0% vs. PAPR: 61.8%, $p = 0.81$) and overall survival (APR: 41.0% vs. PAPR: 44.1%, $p = 0.79$) (Table 3). PAPR was not associated with decreased median recurrence-free survival time (MRFST) (38 vs. 34 months, $p = 0.89$) (Fig. 2) and median overall survival time (MOST) (52 vs. 55 months, $p = 0.72$) (Fig. 3).

Since the abdominal surgery position is usually stationary in conventional APR, there is 40°-50° blind corner when doing the lithotomic position abdominal surgery.³ Because of this blind corner, the dissociation of anterior wall was

Table 3 The comparison of rectal rupture, positive circumferential resection margin and pathology of levator ani muscle proximal tumor.

	APR (n = 39)	PAPR (n = 34)	P
Rectal rupture (n,%)	6 (15.4)	1 (2.9)	>0.05
Positive circumferential resection margin (n,%)	7 (17.9)	1 (2.9)	>0.05
Pathology of levator ani muscle proximal tumor (n,%)	0	0	
Recurrence (n,%)			
No	16 (41.0)	13 (38.2)	>0.05
Yes	23 (59.0)	21 (61.8)	
Survival (n,%)			
Alive	16 (41.0)	15 (44.1)	>0.05
Dead	23 (59.0)	19 (55.9)	

Note: APR: abdominoperineal resection; PAPR: perineal approach first abdominoperineal resection.

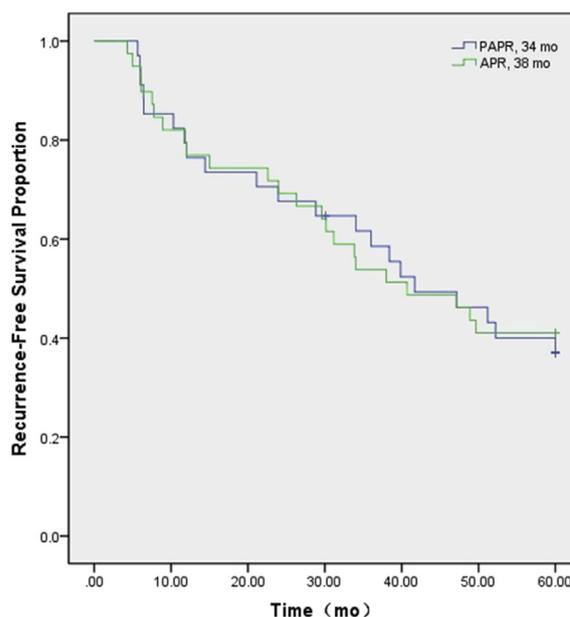


Figure 2 Median recurrence-free survival time (MRFST) in months ($p = 0.89$). Kaplan–Meier estimate of the MRFST of the APR group (green line) and the PAPR group (blue line).

Table 2 The comparison of operative time, blood loss and perineal infection between two groups.

	APR (n = 39)	PAPR (n = 34)	P
Perineal blood loss (ml)	102.6 ± 28.6	46.2 ± 15.4	<0.01
Perineal operative time (min)	48.7 ± 6.8	36.4 ± 6.3	<0.01
Abdominal blood loss (ml)	116.3 ± 28.3	104.0 ± 25.5	>0.05
Abdominal operative time (min)	118.1 ± 20.7	113.7 ± 18.8	>0.05
Perineal infection (n, %)	11 (28.2)	8 (23.5)	>0.05

Note: APR: abdominoperineal resection; PAPR: perineal approach first abdominoperineal resection.

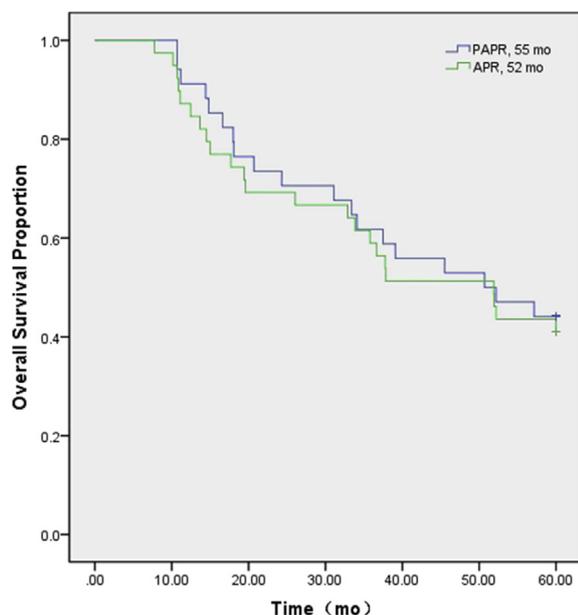


Figure 3 Median overall survival time (MOST) in months ($p = 0.72$). Kaplan–Meier estimate of the MOST of the APR group (green line) and the PAPR group (blue line).

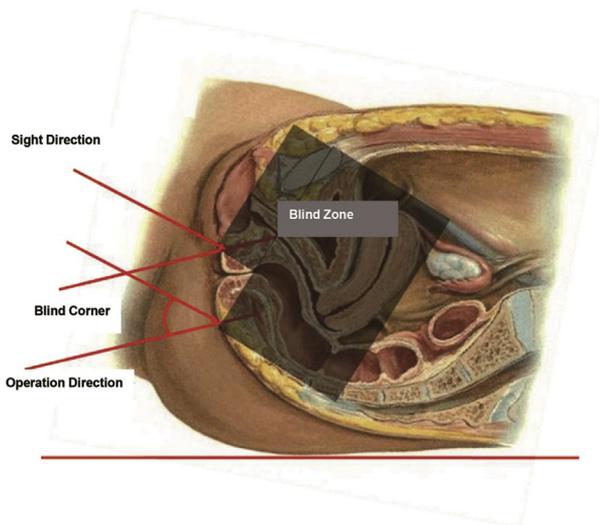


Figure 4 A schematic of blind corner in lithotomy position surgery.

not easy to follow the right dissection plane, which usually caused the rectal rupture (Fig. 4). Compared with lithotomic position, there is plenty of space for surgery operation, broad view and no blind corner in the jackknife position.⁴ Starting with perineal surgery requires only one team to finish the perineal and abdominal surgery. Furthermore, there is no feces contamination throughout the perineal approach first surgery because the anus is closed first. Continuous epidural anesthesia can be applied to patients when perineal surgery is performed at the prone position, which shortens overall surgical anesthesia

intubation time, simplifies airway management and reduces postoperative pulmonary complication.

In our opinion, though the perineal surgery at jackknife position requires transformation of surgical position, it is still advisable because of its improved efficiency.

Conflict of interest

The authors declare that they have no conflicts of interest.

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