


Impact of COVID-19 on treatment modalities and short-term outcomes of rectal cancer following neoadjuvant chemoradiotherapy: a retrospective study

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Dear Editor

Since December 2019, coronavirus (COVID-19) has spread rapidly, with 25.8 million confirmed cases worldwide at 31 August 2020¹. To control transmission of SARS-CoV-2, Beijing established a first-level response with policies such as cancellation of public activities, restriction of public transportation, and suspension of school². Even so, Beijing experienced two waves of the COVID-19 pandemic, greatly influencing people's daily lives and hospitalization. Articles have been published to share the impact of the COVID-19 pandemic^{3,4}. However, evidence of its impact on patients with rectal cancer is sparse.

Patients with rectal cancer who underwent neoadjuvant chemoradiotherapy (nCRT) at Peking University Cancer Hospital between January 2019 and February 2020 were assigned to a routine (last radiotherapy before 1 September 2019) or COVID-19 (last radiotherapy 1 September 2019 or later) group. The

treatment modality of nCRT was as described previously⁵. No patient was infected by SARS-CoV-2 during the treatment process.

A total of 265 patients were included in the study: 114 patients in the routine group and 151 in the COVID-19 group. A significantly lower proportion of patients in the COVID-19 group (91, 60.3 per cent) underwent surgical resection compared with the routine group (86, 75.4 per cent) ($P=0.009$) (Table S1). Patients were more likely to have surgery at a local hospital during the COVID-19 pandemic ($P<0.001$). The COVID-19 pandemic significantly prolonged the mean interval between surgery and the last radiation session (13.0 weeks in the routine group versus 15.4 weeks in the COVID-19 group, $P=0.001$). The corresponding pathological complete resection (pCR) rate showed an increasing trend, from 14.0 to 20.9 per cent ($P=0.242$). Open surgery was more likely to be performed in the COVID-19 group ($P=0.026$). Duration of surgery, surgical approach, laparoscopic application, ileostomy, sphincter-preserving rate and

Table 1 Postoperative complications in patients who had surgical resection

	Total (n=159)	Routine (n=83)	COVID-19 (n=76)	P [†]
Hospital stay (days)*		11.2 (3.8)	10.8 (2.4)	0.769 [‡]
Duration of surgery (min)*		196.2 (75.6)	176.0 (64.8)	0.082 [‡]
Blood loss (ml)*		104.0 (116.3)	96.7 (88.8)	0.663 [‡]
No. of surgical complications	33 (20.8)	12 (14)	21 (28)	0.041
Anastomotic leakage	1 (0.6)	1 (1)	0 (0)	
Ileus	9 (5.7)	4 (5)	5 (7)	
Urological tract infection	1 (0.6)	0 (0)	1 (1)	
Bleeding	1 (0.6)	0 (0)	1 (1)	
Surgical-site infection	16 (10.1)	5 (6)	11 (14)	0.077
Pulmonary infection	1 (0.6)	0 (0)	1 (1)	
Other [†]	4 (2.5)	2 (2)	2 (3)	
Clavien–Dindo grade				0.046
I–IIIa	31 (19.5)	10 (12)	21 (28)	
IIIb	2 (1.3)	2 (2)	0 (0)	
IV–V	0 (0)	0 (0)	0 (0)	

Values in parentheses are percentages unless indicated otherwise; * values are mean (s.d.). [†] One patients with fever and one with rectovaginal leak in routine group; one patient with delayed gastric emptying and one with urinary retention in COVID-19 group. [‡] χ^2 or Fisher's exact test, except [‡] Student's t test, unpaired.

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intraoperative blood loss were no different between the groups, and no differences in pathological parameters, such as tumour regression grade, were observed (Table S2).

Postoperative complications occurred in 33 patients (20.8 per cent) in the whole group, most commonly surgical-site infection (16 patients, 10.1 per cent) and ileus (9, 5.7 per cent). The COVID-19 group had more postoperative complications than the routine group (27.6 versus 14.5 per cent respectively; $P=0.041$) and more Clavien–Dindo grade I–IIIa complications ($P=0.046$) (Table 1).

Among those who did not have surgical treatment, there were 30 (11.3 per cent of 265) who chose ‘deferral of surgery’ without achieving a clinical complete response (cCR) or near cCR: five (4.4 per cent) of 114 in the routine group and 25 (16.6 per cent) of 151 in COVID-19 group ($P=0.002$) (Table S3).

Based on these results and the speculation that the COVID-19 pandemic will last a long time, the authors present several suggestions for the treatment of rectal cancer. Medical professionals should inform patients of the risks of deferring surgery and advise them to consult regularly. Preventive measures should be taken during the perioperative period to reduce complications, especially surgical-site infection. Although delay to surgery after nCRT has been shown to increase cCR⁶, if this is not reached by 16 weeks after nCRT, surgery should be performed as soon as possible.

This was a single-centre retrospective study, and may be subject to selection bias. The median follow-up time was shorter for the COVID-19 group, which may impact upon the results of local and distant progression. Moreover, as all patients included in the study were free from infection by SARS-CoV-2, experience of treating patients with rectal cancer who were infected with the virus was not included.

Supplementary material

Supplementary material is available at BJS online.

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