

LOOSENING AND LENGTHENING OF INTESTINAL TRACT AFTER RECTAL ISOLATION IN ANUS - SAVING RESECTION FOR RECTAL CARCINOMA

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In low rectal cancer surgery, the section of rectum distal to the lower tumor margin is relaxed and lengthened after fully isolation of the organ. This would facilitate the adoption of anus saving operation. Before and after fully isolation of the rectum in low rectal cancer surgery, the distance between the lower tumor margin and the anorectal line was measured by the same rectoscope introduced through the anus. The two results were compared. The average lengthening was less than 1 cm if the lower tumor margin - anorectal line distance was 5 cm. It was 1-2 cm if the lower tumor margin - anorectal distance was 6 cm. It was more than 2 cm if the distance was 7-9 cm. The loosening and lengthening of the rectal canal was related to the presence of lymphnode metastasis and the skill of the operator. The lengthening was also influenced by the body build of the patient, involvement of the rectal circumference and the Dukes stage. Modified Park's operation, trans-abdominosacral resection with anastomosis of rectum, and anterior resection on transpubic approach are indicated for those in whom the lower tumor margin - anorectal line distance was 5 cm. The rectectomy - anastomosis in the abdominal cavity (Dixon's operation) is indicated for those in whom the lower tumor margin - anorectal line was 6 cm.

If manual anastomosis is difficult, stapling device may be used. The anus saving resection is easy if the distance was 7-9 cm.

Key word: Rectal carcinoma, Lateral ligament, Isolation of rectum, Loosening and lengthening of intestinal tract, Anus - saving resection.

The distance between rectal cancer and anorectal line is important in the anus - saving resection. The rectum below the lower margin of tumor is loosened and lengthened somewhat after incision of the lateral ligament and isolation of rectum which would make possible the anus - saving resection. The authors made observation as to the extent of lengthened rectal canal and factors involved in a successful preservation of the anus.

MATERIALS AND METHODS

There were 20 males and 25 females. The ages ranged from 24 to 81, with an average of 50 years. The body - height ranged from 1.49 to 1.83 meters, with an average of 1.63 meters. Eighteen

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patients had standard weight, 4 were underweight, 5 overweight and 18 were obese. The clinical course was less than half a year in 22 patients, half to one year in 19 and two years in 4. The involvement of the rectal circumference was $< 1/4$ in 8 patients, $1/3$ in 13, $1/2$ in 14, $3/4$ in 3 and complete in 7. The distance between the lower margin of the tumor and the anorectal line was 5—9 cm. Thirty - nine patients received Dixon's operation, 3 Park's operation, 3 Hartman's operation. Gross pathology showed bulging type 30, localized ulcerating type 14 and infiltrating type 1. Microscopic differentiation were: well - differentiated adenocarcinoma 6, moderately differentiated adenocarcinoma 30, poorly differentiated adenocarcinoma 4 and mucoid adenocarcinoma 5. Eight had Dukes B1, 19 had Dukes C1 and 18 Dukes C2 lesions.

The distance between the lower margin of tumor and the anorectal line was measured by a rectoscope introduced through the anus in the lithotomy position after anesthesia before operation. After incision of the lateral ligament and isolation of the rectum, we measured again the distance with the same rectoscope in the same way. The two results were compared.

RESULTS

After incision of the lateral ligament and isolation of rectum in this group, the tumor was lifted up a little with the intestine and the segment of the intestine below the lower margin of the tumor would be lengthened. The distance from the lower margin of the tumor and the anorectal line was 5 cm in 3 cases. The increased length was 1 cm in 2 cases and was not apparent in 1 case. The distance between the tumor margin and the anorectal line was 6 cm in 11 case. They were lengthened 1—2 cm with an average of 1.4 cm. The distance between the tumor margin and the anorectal line was 7 cm in 16 cases. They were lengthened 1—4 cm with an average of 2 cm. The distance between the tumor margin and the anorectal line was 8 cm cases. They were lengthened 2—3 cm with an

average of 2.2 cm. It was 9 cm in 7 cases. They were lengthened 2—3 cm with an average of 2.4 cm. It was so clear that the lengthening of intestinal tract was less if tumor lower - margin lies within 6 cm from the anorectal line. Yet, the lengthening would become greater than 2 cm of the tumor lower - margin is located far away from the anorectal line by 7, 8 or even 9. The 6 cm group were quite different all statistically significant ($P < 0.05$, 0.01 , 0.01).

The lengthening of distal intestine tract was also related to lymph node metastasis. The average increase was 2 cm in patients with positive lymphnodes. It was 1.1 cm in patients with negative lymphnodes. The difference in these two groups was statistically significant ($P < 0.01$). The increase in the intestine tract was related to body build of the patients. The average increase in leptosomatic patients was 0.5 cm more than that of the obese patients. The lengthening of the intestinal tract was related to the involvement of the rectal circumference. The average increase was 2.3 cm in tumors involving the whole rectal circumference in contrast to the 1.5 cm in tumors involving only $1/4$ circumference. As to Dukes stages, the average increase in the distal intestinal tract was less than 2 cm in stages Dukes' C1 and C2, while the average increase was 2.3 cm in Dukes' B1. Yet the lengthening was not related to patient's sex, age, clinical course, gross pathology or microscopic differentiation.

DISCUSSION

The development of rectal cancer shows that it first grows around the intestinal lumen in the mucosa or along the submucosal layer and infiltrates into the deeper layer simultaneously. But chiefly it tend to grow around the intestinal lumen. The intestinal canal is involved, fixed, distorted and displaced or even to intussusception. The rectal lateral ligament situated below the rectovesical reflexion, fixed the rectum assuming a triangular shape after isolation of anterior and posterior

rectum. Its base is situated on the lateral wall of the pelvis and its point attach to the two sides of the rectum. After incision of the lateral ligament and isolation of the rectum, the natural rectal bend disappears and the intestinal canal is straightened.

The study of intestinal loosening and lengthening after rectal isolation in rectal cancer operation may be invaluable in choosing the adequate type of operation. The intestinal lengthening in this group was limited if the distance between the tumor margin and the anorectal line was 5 cm. Intra-abdominal anastomosis would be difficult if excised intestine is 3 cm below the margin of the tumor. For this, improved parks¹ and trans-abdominal-sacral resection and anastomosis of rectum or anterior resection of transpubic approach for rectal carcinoma^{2,3} should be performed. The intestinal lengthening was 1—2 cm if the distance between the tumor margin and the anorectal line was 6 cm. In this group, with a large pelvis, we may prefer rectectomy-anastomosis in the abdominal cavity. If manual anastomosis is difficult, stapling device⁴ may be used. The average lengthening was over 2 cm if the distance was 7—9

cm, so anus-saving resection would be easy. Full isolation of rectum is also related to the skill of the operator, the cooperation of the members in the surgical team and the operative facilities. The lengthening of intestine after rectal isolation is influenced by the build of the patient. The tumor involvement of the rectal circumference and Dukes' stages.

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