TRANSVERSE COLOPLASTY POUCH FOR LOW RECTAL CANCER

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Since the development and improvement of the stapler devices, sphincter-saving procedure with coloanal anastomosis has become a commonly used method for complete rectal resection. Traditionally, straight coloanal anastomosis (CAA) is the standard procedure follow total mesorectal excision (TME)1, however, it jeopardized patient’s functional outcome owing to loss of the rectal reservoir. Early functional outcome after TME and straight coloanal anastomosis is associated with urgency, stool incontinence, and frequent bowel movements. Creation of a reservoir improves defecatory functions. In 1986, Parc et all and Lazorthes et all demonstrated a better functional outcome for restorative colonic J-pouch procedure (CJP) when compared with CAA.

Now, CJP is one of the standard reconstruction procedures after TME. The functional outcome of CJP is excellent in one year after surgery4, but long-term outcome showed difficulty of evacuation, fragmented stool, and/or constipation in about 10-30 percent of CJP patients5. Oversize of the reservoir and neutralization of properistaltic force vectors seem to be the pathophysiology of CJP dysfunction, this even happened to a smaller CJP (5-6cm)6.7. Ideal reservoir was to restore volume and compliance of the rectum. A recent, excellent, pig model shows all the prominent features of function of the transverse coloplasty pouch (TCP)8. TCP is corresponds to the principle of a Heineken-Mikulicz pyloroplasty or a strictureplasty for Crohn’s disease5. In this study, fifteen pigs were randomly assigned to undergo complete rectal excision follow by reconstruction of a CAA, CJP or TCP. One pig die at each group in this study and were excluded from the study. At six weeks, the functional outcomes were compared with the control group. Postoperation assessment of colonic transit times using radio-opaque markers; the results were 24h for CAA, 60h for CJP and 32h for TCP. The mean transit time for control group was 46h. The neorectal longitudinal smooth muscle layer in pig with a TCP was significantly thinner than that in pigs with a CAA or CJP, it is alike the normal pig rectum. Smooth muscle layers above the neorectum were significantly thicker after CJP than CAA and TCP formation. Colonic electrostimulation induced an adaptive relaxation in the normal rectum but a pressure increase in all neorectum, particularly after CAA. In comparison of the micrcirculation, there was no difference in between the three restorative procedures. The author concluded that TCPs were most similar to the normal rectum at short-term follow-up. Another animal study came out from the same group showed that TCP is superior than CAA and TCP formation. Colonic electrostimulation induced an adaptive relaxation in the normal rectum but a pressure increase in all neorectum, particularly after CAA. In comparison of the micrcirculation, there was no difference in between the three restorative procedures. The author concluded that TCPs were most similar to the normal rectum at short-term follow-up. Another animal study came out from the same group showed that TCP is superior than CAA and TCP formation.

There is only one published human study on the coloplasty pouch available by Dr. Fazio from the Cleveland Clinic Foundation11. In this study, data showed the patients with a coloplasty have a similar compliance as compared with colonic j-pouch patients. In conclusion, transverse coloplasty pouch is easier to construct and functional outcome is comparable to colonic j-pouch 12. Therefore, the future of TCP is promising.

REFERENCES
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Now, CJP is one of the standard reconstruction procedures after TME. The functional outcome of CJP is excellent in one year after surgery[4], but long-term outcome showed difficulty of evacuation, fragmented stool, and/or constipation in about 10-30 percent of CJP patients[5]. Ovserial size of the reservoir and neutralization of properticial force vectors seem to be the pathophysiology of CJP dysfunction, this even happened to a smaller CJP (5-6cm)[6].

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