

Colorectal Carcinoma – Technique of Resection of Low Located Rectal Carcinomas

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1. Introduction

Colon cancer is a growth of cells that begins in a part of the large intestine. It develops from polyps in the colon's inner lining. There are screening developed to find polyps that may turn to cancer over time. The screening helps find colorectal cancer at an early stage. Colorectal polyps don't always cause symptoms, such as changed bowel habits, blood in the stool, diarrhea or constipation, abdominal pain or weight loss. According to World Health Organization the colorectal cancer is the third most common cancer worldwide, accounting for approximately 10% of all cancer cases and is the second leading cause of cancer-related deaths worldwide [1]. In Slovakia is the most common cancer type in men not only in later age but lately appears in younger groups [2].

2. Overview

Problematics of colorectal carcinoma with aspects of improval of survival rate depends on exact TNM classification

2.1. Primary Tumor Staging [T]

- Tx – primary tumor cannot be assessed
- T0 – no evidence of primary tumor
- Tis – carcinoma in situ
- T1 – into [but not through] submucosa
- T2 – into [but not through] muscularis propria
- T3 – through muscularis propria into subserosa, or into non-peritonealised pericolic/perirectal tissues
- T4a – penetration of the visceral peritoneal layer
- T4b – penetration or adhesion to adjacent organs

2.2. Nodal Status [N]

- Nx – nodes cannot be assessed
- N0 – no evidence of nodal involvement
- N1a – involvement of one regional node
- N1b – involvement of 2-3 regional nodes
- N1c – deposit involving seesaw or non-peritonealised pericolic/perirectal tissues without regional nodal metastasis
- N2a – involvement of 4-6 nodes
- N2b – involvement of more than 7 nodes

2.3. Metastases [M]

- Mx – presence of metastases cannot be assessed
- M0 – no evidence of metastases
- M1a – distant metastases confined to one organ [e.g. liver, lung, ovary, non-regional node]
- M1b – distant metastases confined to more than one organ or to the peritoneum [3].

There is no problem to localize primary tumor according to diagnosis methods such as, endorectal ultrasound, endorectal MRI, also there is no problematics to diagnose distant metastases using standard diagnostics such as CT, MRI, and PET CT. The problematics lays in diagnosing nodes stage of the colorectal carcinoma because 70% of metastatic nodes can be smaller than 5 millimeters in diameter. Also immunochemical diagnosis can prove 26% of metastases which were negative before according to standard diagnostics. The number of metastatic nodes increases according to increasing number of examined nodes and the exact diagnosis of

TNM classification there is need to examine more than 14 nodes. In general there is exact diagnosis stated post-operative. In the surgical treatment there is dispute among the range of pelvic lymphonodectomy in European and Japanese surgeons and its affect on the survival rate. The ligature of arteria mesenterica inferior is the problematics also and also the difference between it's high and low ligature which is distance approximately 4 centimeters with presence of 10 lymph nodes with incidence of 11-22% of metastasis [4]. The number of metastasis in lymph nodes influences the survival rate of the patient [5]. Therefore the histopathologist belong to one of the prognostic factors of the disease.

Number of metastatic lymph nodes	5-year survival rate
0	75-90%
1	69-75%
3-Jan	66%
More than 4	27-40%

There is need of exact surgical procedure of ligature to follow in order to improve the survival rate and local recurrence. Surgical procedure includes distal resection line, radial resection line, and technique of lymph node dissection mentioned above. Distal resection line should be 2 centimeters from tumor because tumorous cells very occasionally disseminate more than 2 centimeters. Radial resection line [mesorectum], where tumorous cells disseminate more than 2 centimeters, is the most common deposite placement of tumor and that is the reason of local recurrence, distant recurrence and total survival rate [5,6]. Therefore there is significant improvement of the potential of surgical resection from the abdominal perineal rectal amputation through low-resection to ultra-low colo-anal anastomosis.

3. Surgical Treatment

Targeted study of 52 patients with colorectal carcinoma – 20 patients T2N0, 32 patients -T3N1 - who underwent pre-operative radiotherapy 5x5 Gy in total dose of 25 Gy [T2] with surgical treatment within 72 hours, and long-time radiotherapy of total dose 49 Gy and surgical treatment in 6-8 weeks post radiotherapy. In these patients operated by one surgeon there was performed low-anterior resection and total meso-rectal excision with colo-anal intersphincteric anastomosis followed. In all cases we reversed the process of endo-luminal stapler application through rectum into applying the stapler through colotomy on proximal loop of the descendent colon and applying the head of stapler endoanal. That allowed safe construction of anastomosis in the distance of 1,5 centimeters of external sphincter. The sufficiency of anastomosis was easily digitally controlled. The criteria of this kind of resection was histopathologically per-operation negative distal resection line and complete mesorectal excision to prevent local recurrence. There was no axial ileostomy in any patient as potential control of anastomosis sufficiency. There was post-operative anastomosis leak

observed, where there was one case of asymptomatic microleak heal by hyper granulation, therefore we considered this technique as simple and safe for this kind of intra-low anastomosis. In 60% of patients there was temporary incontinention for gas and fluid stool. There was complete continence recovery within 3 months (Figure 1-3).

In all cases patients underwent post-operative sufficient chemotherapy depending on disease stage. In 5-year follow-up was 63% survival rate and reason of patient deaths was occurrence of distant metastasis.



Figure 1: Pelvic view after rectal resection with total mesorectal excision.

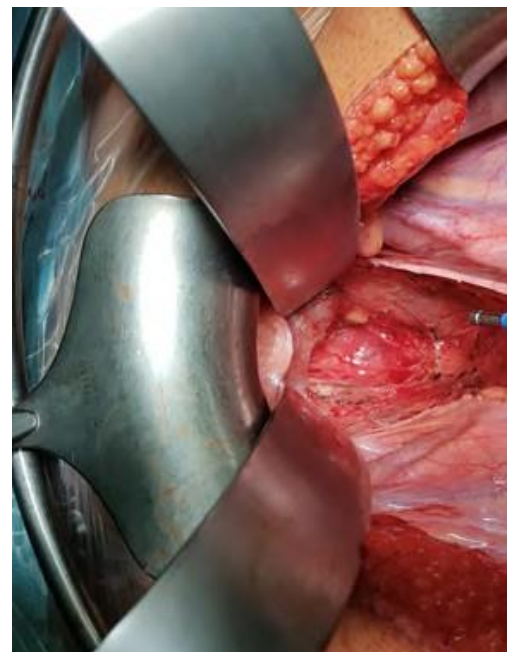


Figure 2: Pelvic lymphonodectomy with high ligature of a. mesenterica inferior.

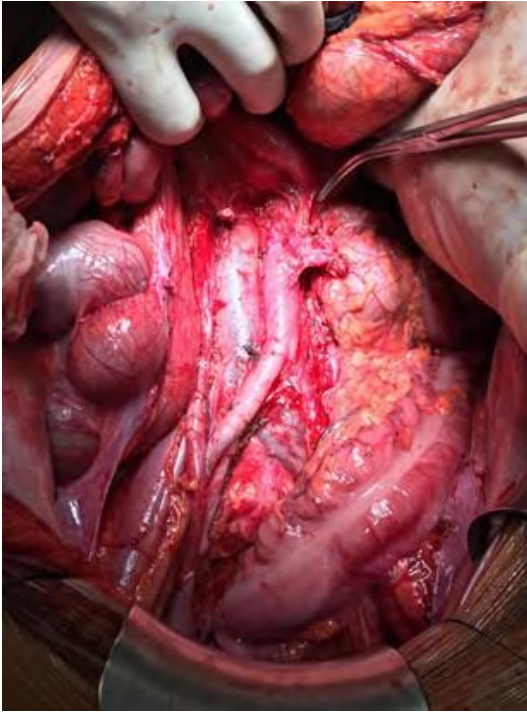


Figure 3: Constructed colo-anal anastomosis after mobilization of colic-splenic flexure.

4. Discussion

Many author and articles were discussing the topic of surgical approach a in colorectal carcinoma and its aspect on peri-operative mortality. Surgical treatment is becoming multidisciplinary topic which includes diagnosis, per-operative and post-operative chemo and radiotherapy and surgical principles and strategies of oncological treatment therefore surgical training leads significantly to decreasing of locoregional recurrence and total survival-rate.

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