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ORIGINAL RESEARCH

Study of the prevalence of lung metastasis of rectal cancer in patients treated with laparoscopic surgery for low rectal cancer at Thanh Nhan Hospital

Étude de la prévalence de la métastase pulmonaire du cancer rectal chez les patients traités par le chirurgie laparoscopique pour cancer du bas rectal à l'hôpital Thanh Nhan

M. Dao Quang, T. Nguyen Van

Thanh Nhan Hospital. Hanoi – Vietnam

ABSTRACT

Introduction. To evaluate the results of laparoscopic surgery for low rectal cancer and the prevalence of lung metastasis at Thanh Nhan hospital from January 2016 to June 2018.

Research method. Descriptive retrospective study.

Results and Discussion. 31 cases of rectal cancer were treated with laparoscopy. Rate of male / female = 17/14, Average age was 63.7 ± 6.2 , the most common cases was in the group over 60 years old. The clinical symptoms were various, not specific. The indicators of CEA only increased in 41.9% of cases. The major was lumpy tumors and ulcers with 93.5%, CT and MRI evaluated the incidence of sphincter invasion with 42% and distant metastasis with 56.4%. Lymph nodes over 10 mm have a risk of metastasis over 76.2%. 21 cases of ISR, 3 cases of Miles, 2 cases of artificial anus. Lung metastasis was 3.2%

Conclusion. Prevalence of lung metastasis of rectal cancer is low. Laparoscopic for low rectal cancer is feasible and beneficial.

KEYWORDS: Laparoscopy; Rectum; Lymph node; Metastasis; Lung.

RÉSUMÉ

Introduction. Évaluer les résultats de la chirurgie laparoscopique pour cancer du bas rectal et le prévalence de métastase pulmonaire à l'hôpital Thanh Nhan de Janvier 2016 à Juin 2018.

Méthode de recherche. Etude rétrospective descriptive

Résultats. 31 cas de cancer du rectum ont été traités par laparoscopie. Taux d'hommes / femmes = 17/14, l'âge moyen était de $63,7 \pm 6,2$, les cas les plus fréquents étaient ceux du groupe des plus de 60 ans. Les symptômes cliniques étaient variés et non spécifiques. Les indicateurs de CEA n'ont augmenté que dans 41,9% des cas. Les principales étaient les tumeurs et les ulcères bosselés avec 93,5%, la tomodensitométrie et l'IRM évaluaient l'incidence de l'invasion du sphincter avec 42% et les métastases à distance avec 56,4%. Les ganglions lymphatiques de plus de 10 mm présentent un risque de métastase supérieur à 76,2%. 21 cas de RSI, 3 cas de milles, 2 cas d'anus artificiel.

Conclusion. La prévalence de métastase pulmonaire du cancer rectal est base. La laparoscopie pour le cancer du rectum bas est réalisable et bénéfique.

MOTS CLÉS: Laparoscopie; Rectum; Ganglion lymphatique; Métastase; Poumon.

Corresponding author: Dr. NGUYEN VAN Truong

Thanh Nhan Hospital. Hanoi, Vietnam.

E-mail: quoctruongf@gmail.com

INTRODUCTION

Low rectal cancer is a malignant disease that accounts for about 40-45% of rectum cancer. The recommended treatment includes multidisciplinary treatment combined surgery and support therapy, combined or not combined preoperative chemoradiotherapy. The indications for treatment of low rectal cancer depend on the degree of sphincter invasion, tumor stage and some other factors. The methods include cutting low front rectum, cutting the rectum, connecting the anal to keep sphincter, cutting rectum and internal sphincter and cutting bundle of external sphincter, Miles surgery. Etc. Endoscopic surgery treatment of low rectal cancer has been performed in many parts of the world as well as in Vietnam. Endoscopic surgery has demonstrated many advantages both in cancer treatment and less invasion, which helps to recover quickly after surgery. Thanh Nhan Hospital in Hanoi has developed endoscopic surgery to treat low rectal cancer for many cases, achieved encouraging results. We carried out this study with the aim of to evaluate the results of endoscopic surgery to treat low rectal cancer and lung metastasis at Thanh Nhan Hospital in Hanoi.

METHODS

Subjects: including all cases of low rectal cancer diagnosis with endoscopic surgery at Thanh Nhan hospital - Hanoi, from January of 2016 to June of 2018. Study method: cross-sectional, non-controlled vertical description.

Research indicators: general characteristics, clinical symptoms, laboratory tests, diagnosis images, surgical methods, surgery time, complications in surgery, postoperative complications, number of lymph nodes removed, lymph node metastasis rate, recurrence rate ... Results of postoperative follow-up: cases with support treatment after surgery, 3-month follow-up, evaluation of indicators according to the research samples.

RESULTS

Age and Gender

TABLE 1		Age and Gender			
Age	Gender	Male		Female	
		n	%	n	%
< 40 years old		01	3.2	01	3.2
40-60 years old		05	16	04	12.9
> 60 years old		11	35.5	09	29.1
Total		17	54.8	14	45.2
Average age		± 13.6			

Clinical symptoms

TABLE 2		Clinical symptoms	
Symptoms	n	%	
Stomachache	18	58.1	
Weight loss	09	29.1	
Constipation	13	41.9	
Blood in stool	25	80.6	
Bowel movements many times	21	67.7	
Change in the stool mold	26	83.8	
Change of bowel movements habits	22	70.9	

CEA tests

TABLE 3		CEA indicators	
CEA (ng/mL)	n	%	
< 5 ng/ml	18	58.1	
> 5 ng/ml	13	41.9	
Total	31	100	

Rectum endoscopy

TABLE 4		The results of rectum endoscopy	
Tumor forms	n	%	
Scarly tumors	09	29.1	
Ulcer tumor	06	19.4	
Scarly and ulcer tumors	14	45.2	
Injection tumors	01	3.2	
Polyp cancer	01	3.2	

The results of CT Scanner and MRI

TABLE 5		The results of CT and MRI	
Damage	n	%	
Invasion over rectal wall	08	25.8	
Invasion nearby organization	03	9.7	
Invasion internal sphincter	10	32.3	
Invasion internal and external sphincter	03	9.7	
Lymph node around the rectum	16	51.6	
Lymph node across the arteries	08	25.8	
Metastatic organs (liver, lungs)	02	6.4	

Location and invasion rate

Distance	T1,2		T3		T4a		T4b		Total	
	n	%	n	%	n	%	n	%	n	%
5-6 cm	03	9.7	08	25.8	02	6.4	00	00	13	41.9
4-5 cm	02	6.4	11	36.5	01	3.2	01	3.2	15	48.4
< 4 cm	01	3.2	01	3.2	00	00	01	3.2	03	9.70
Total	06	19.3	20	64.5	03	9.7	02	6.4	31	100

Surgery methods

Surgery methods	n	%
Cutting local tumor	01	3.2
Cutting low front tumor	04	12.9
Miles surgery	03	9.7
Schissel.R (ISR) Surgical	21	67.7
Artificial anus surgery	02	6.4

The methods of anti-stretching and pressure reduction

Methods	n	%
Sigma release	25	100
Spleen corner release	06	24.0
MTTD vessel knotting	25	100
Colon opening	01	4.0
Draining before the sacrum	25	100
Total	25	100

Shaping the colon

Methods	n	%
No shaping	06	28.6
Shaping of "J"	11	52.3
Lateral shaping	04	19.1
Total	21	100

Complications in surgery

Complications	n	%
Rectal - vaginal wall surgery	01	3.2
Bleeding	02	6.4
Urinary tract damage	01	3.2
Bladder damage	00	00
Bruising in bowel straps	01	3.1

The complications after surgery

Complications	n	%
Bowel semi-obstruction after surgery	02	6.4
Wound infection	03	9.7
Redundant fluids	02	6.4
Connection wound leaking	03	9.7

The results of histopathology

Histopathology forms	n	%
Adenocarcinoma- highly specific	08	25.8
Adenocarcinoma- moderately specific	19	61.3
Adenocarcinoma- slowly specific	02	6.4
Adenocarcinoma- not specific	01	3.2
Adenocarcinoma- mucous glands	01	3.2

The number of removed and metastatic lymph nodes

TABLE 13		Lymph nodes					
Types of tumors		Group 1		Group 2		Group 3	
Index		n	%	n	%	n	%
The number of lymph nodes removed		185	48.4	160	41.9	37	9.7
The number of metastatic lymph nodes		42	48.3	34	39.1	11	12.6
The average number of lymph nodes		12.65 ± 4.82					
The average number of metastatic lymph nodes		5.63 ± 2.7					

Sizes of the lymph nodes

TABLE 14		Sizes of the lymph nodes					
Metastatic types		Metastatic lymph nodes		Un-metastatic lymph nodes		Total	
Lymph node sizes		n	%	n	%	n	%
< 5 mm		34	12.9	229	87.1	263	68.8
5 -10 mm		37	37.7	61	62.3	98	25.7
> 10mm		16	76.2	5	23.8	21	5.5
Total		87	22.8	295	77.2	382	100

Relapse rates

TABLE 15		Relapse rates	
Relapse rates	n	%	
Local relapse	01	3.2	
Local metastasis	01	3.2	
Distant metastasis	01	3.2	
Total	03	9.7	

Kirwan criteria

TABLE 16		Kirwan criteria	
Kirwan criteria	n	%	
Kiwan I	11	44	
Kiwan II	08	32	
Kiwan III	06	24	
Kiwan IV	00	00	
Kiwan V	00	00	

DISCUSSION

Age and gender

Low rectal cancer is more common in people over 60 years of age; men are more common than women. In our study, the group of over 60 years old accounted for 64.5%, the average age of the group was 63.7 ± 13.6, the male/female ratio was about 1.2. Truong Vinh Quy studied 52 cases in Hue Central Hospital with the rate of over 60 years old at 65.4% and male/female at 1.17 [1].

Clinical and subclinical

In our study, the symptoms of bloody mucous stool accounted for 80.6%, change of stool pattern accounted for 83.8%, although this is not a specific symptom but it is very useful and a marker in colorectal cancer screening in general. Clinical symptoms that have a major impact on the colonoscopy decision because the endoscopy is still an invasive screening which needs to be prepared, often causes anxiety to the patient. Nguyen Hoang Minh studied 96 cases at K hospital with the rate of blood mucous stool at 80.2% and 87.5% of stool pattern change [2].

In the CEA cancer marker test, 41.9% of cases of CEA increase over 5ng / ml showed that CEA sensitivity

was not high and was often used for postoperative follow-up. In Tran Anh Cuong's study of 116 cases, the rate of CEA increase reached 46.6%. Colonoscopy: images of lumpy tumors and ulcers account for 93.6%. In addition, there is ring cell cancer, polyp's cancer. The hard infectious tumors were rare and difficult to diagnose. Truong Vinh Quy studied 52 cases, in which only 2 cases had hard infectious tumors. In the study of Schissel.R, the hard infectious tumor accounted about only 4-5% [1,3].

Imaging diagnosis: for rectal cancer, performing MSCT and MRI routinely has two purposes: to evaluate the levels of local invasion, sphincter invasion and distant metastasis. In case of distant metastasis, PET / CT are required. All cases in our study followed MSCT and MRI. There were 25.8% of cases with the invasion that crossed the rectum wall, of which 9.7% invaded nearby organs. The rate of sphincter invasion was about 42%, of which internal sphincter invasion was 32.3%, 9.7% had the invasion in both sphincters. The rate of lymph nodes around the rectum and along the arteries was about 77.4%. 2 cases detected distant metastases (liver, lung) with one case of extensive invasive and one case of here and there metastasis. The study by Nguyen Hoang Minh showed that MRI has a sensitivity of 94.7%, a specificity of 90.5% in assessing the level of invasion and lymph node metastasis [2].

Relating to the location and invasion level: the distance of the tumor to the anal edge is confirmed by endoscopy and MSCT / MRI image. 13 cases' tumors (41.9%) were 5-6cm from the edge of the anus. 15 cases' tumors (48.4%) were 4-5cm away and 3 cases under 4cm. In relation between tumor position and invasion, 4 cases of tumors above 4 cm have invasive levels of T4b. According Tran Anh Cuong, in high rectal tumors, the level of invasion, lymph node metastasis is 3.6 times higher than the low one [3].

The surgery results

Surgery method: depending on the location and the invasion level of tumors and body conditions, we chose different methods. There is one case of large polyps cancer without the invasion and lymph nodes around the rectum, we cut the mucous membrane and send for further treatment after surgery. There were 4 cases of low anterior cutting, 21 cases of cutting sphincter - ISR (Schissel.R surgery). There were still 3 cases of Miles surgery and 2 cases that we could only do artificial anus due to late stage and weak condition. Currently, studies show that rectal tumors rarely metastasize to less than 2cm, often have more horizontal metastasis; the degree of sphincter invasion will determine the method of surgery. Akasu T et al. in the study published in Japan in 2008 said that it was time to say no to artificial anuses, while Schissel.R led to cases of artificial

mechanic anus [4,5].

Regarding the anti-tension and pressure-reduction: the double-cutting of the mesenteric artery below the root, releasing the sigmoid colon in some cases was enough to bring the colon down at the anal canal. In some cases, Colon in the spleen angle must be released. There was one case with opening the ileum to the skin to reduce the pressure at the connection wound. This case was a 35-year-old patient who had chemo-therapy before surgery. After the surgery after 2 weeks of chemotherapy, we found that the colon straps colon has edema so we reduced active pressure, but then the patient still has the complication of vaginal rectal leakage. We carried out pre-sacrum drainage to lateral shaping 100% along the trocar hole in the right pelvic area. The study of Ung Van Viet showed that the drainage of the ileus to the skin does not reduce the risk of leakage but has the effect of reducing the risk of re-surgery when being leaked [6].

About colon shaping: there were 23.8% of cases with no shaping, 47.6% of the cases "J" shaping, and 19.4 % with lateral shaping. Shaping colon or not based on many factors: the frequency of bowel movement before the surgery, sphincter function, the length of the colon after cutting, colon mesenteric thickness, the diameter of the colon, pelvic diameter, etc. In this study, in cases under 60 years of age, with bowel movement frequency less than 2 times a day, we did not perform colon shaping but connected the colon directly to the anal canal. Colon shaping was divided into 2 groups, shaped "J" and lateral shaping, depending on the length of the colon after cutting, mesenteric thickness and pelvic diameter. When having the rectum cancer, patients more or less have colon flow stagnant. In these cases, we found that the diameter of the colon stretched over 5cm, so the colon diameter has little impact on the shaping method in our study. Schissel R tended to do the colon shaping, basing on the length of the colon after cutting compared to the anal edge. With the length of over 5cm, a "J" shaping was made while that of less than 5cm, vertical cutting and horizontal stitch was done [4].

About complications in surgery: the complication occurred with the group of surgery to preserve sphincter and Miles surgery, with the damages of the ureters, bladders, vaginal rectal sides or bruising intestinal straps. In our study, there were 2 cases of bleeding, 1 case of ureter damage, 1 case of bladder damage, and 1 case of bruising intestinal straps which must be done to release the colon of the spleen angle to make it lower. In the study by Mai Dinh Dieu, the complication rate was about 3%; our complication rate was higher because our sample size was not large enough. In the study of Portier G

and Cs, the rate of complication in surgery ranged from 3.6-5% [7,8].

Regarding the complications after surgery: the common complications included intestinal obstruction (2 cases), wound infection (3 cases) and fluid residues (2 cases) and junction leakage complications (3 cases). The complication of junction mouth leakage was worrying, causing patients to face the risk of having surgery to make an artificial anal. This complication often occurs in cases where there was no good draining of residual fluid. We manage by rotating the drainage tube, puncturing to suck the fluid out through ultrasound, increasing antibiotics and continuously draining before the sacral bone.

About histopathology: the results of histopathology

after surgery are mostly adenocarcinoma, with different specifications. The majority is moderate specifications with 61.3%. Those cases had over 12 nodes removed. The average number of lymph nodes removed was 12.65 ± 4.82 , the number of metastatic lymph nodes was 5.63 ± 2.7 . The higher the tumors were, the higher the rate of invasion and lymph node metastasis were. The size of the lymph nodes over 10mm was about 76.2%. In the study of Tran Anh Cuong, the metastasis rate of lymph nodes over 10mm was 84.4% [3].

About follow-up examination: although the follow-up time was not long, we have recorded 1 case of local relapse and 2 cases of metastatic invasion. In terms of the ability to sphincter self-control, all cases had Kirwan scores below 3 and got better.

CONFLICT OF INTEREST

Non.

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