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LAPAROSCOPIC TREATMENT OF APPENDICEAL CARCINOID TUMOR – A CASE REPORT

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Summary

In this paper we present a case report of laparoscopic right hemicolectomy as the treatment of choice for appendiceal carcinoid tumor.

A 43-year-old female patient was presented with signs and symptoms of acute appendicitis. An open appendectomy was performed, and the inflamed appendix with a tumefaction on it's tip was removed. Pathohistological examination revealed a carcinoid tumor of the appendix, 2 by 2.5 cm in size, with a small satellite carcinoid in the surrounding tissue. Carcinoid cells occupied the whole thickness of the appendiceal wall. Considering the above mentioned histological characteristics a second operation was indicated. Laparoscopic right hemicolectomy was performed. It was accomplished with the use of three trocar ports. Ileotransverseal anastomosis was finished extracorporeally with the use of a stapling device. Pathological examination revealed a nodule of carcinoid tissue less than 1 cm in diameter close to the cecal wall. The postoperative period was uneventful. The patient was urged to see the oncology specialist for consideration of further oncologic therapy.

Although appendectomy alone is effective in most cases of appendiceal carcinoid tumor, in some cases right hemicolectomy may be indicated. In such cases, the laparoscopic approach is safe and effective, and should be considered as the treatment of choice.

KEY WORDS: *carcinoid tumor of the appendix, appendicitis, appendectomy, laparoscopy, right colectomy*

LAPAROSKOPSKO LIJEČENJE KARCINOIDA CRVULJKA – PRIKAZ SLUČAJA

Sažetak

U ovom radu prikazujemo slučaj laparoskopske desne hemikolektomije u liječenju karcinoida crvuljka.

Bolesnica u dobi od 43 godine javila se liječniku sa znakovima i simptomima akutnog apendicitisa. Obavljena je otvorena apendektomija i uklonjen je upaljeni crvuljak s tumefakcijom na vrhu. Patohistološkim pregledom otkriven je karcinoid crvuljka veličine 2 x 2,5 cm, i mali satelitski karcinoid u okolnom tkivu. Karcinoidne stanice obuhvaćale su čitavu debljinu stijenke crvuljka. S obzirom na spomenute histološke značajke indicirana je druga operacija. Laparoskopska desna hemiktomija obavljena je uvođenjem triju troakara. Ileotransverzalna anastomoza završena je ekstrakorporalno s pomoću staplera. Patološkim je pregledom u blizini stijenke crvuljka otkriven mali čvor karcinoidnog tkiva manja od 1 cm u promjeru . Postoperacijski tijek protekao je bez poteškoća. Bolesnica je hitno upućena onkologu radi daljnjeg onkološkog liječenja.

Iako je sama apedenktomija učinkovita u većini slučajeva karcinoida crvuljka, katkad je indicirana desna hemikolektomija. Držimo da je u tim slučajevima laparoskopski pristup siguran i učinkovit, i treba ga uzeti u obzir kao liječenje izbora.

KLJUČNE RIJEČI: *karcinoidni tumor crvuljka, apendicitis, apendektomija, laparoskopija, desna kolektomija*

INTRODUCTION

Appendiceal tumors are a very rare condition. They represent only 0.4% of all GI tumors (1). They are usually discovered accidentally at the time of operation, most often for acute appendicitis, in less than 2% of patients (2, 3). The most common is carcinoid in about 60% of all appendiceal malignancies, followed by mucinous carcinoma, adenocarcinoma, signet-ring cell carcino-

ma and others. Carcionoids arise from enterochromaffin cells (Kulchitskiy cells) found in the crypts of Lieberkuhn, also known as argentaffin cells because of their staining by silver compounds. After their first description in 1888 by Lubarsch, in 1907 Oberndorfer coined the term Karzinoid to indicate the carcinoma-like appearance and the presumed lack of malignant potential. Carcinoids can arise in organs derived from foregut, midgut and hindgut. The appendix is the most common site of origin, compromising for about 45% of all GI carcinoids. The ileum is the second most frequent site (28%), and rectum the third (16%). There is a strong female predominance of appendiceal carcinoid (2-4:1). Commonly, it is located at the tip of the appendix (60-70%) while its base is the origin in only up to 10% (4). Usually, they are less then 1cm in diameter (60%-76%) with benign behavior, while 2-17% are larger than 2cm in diameter (4, 5). The malignant potential is related to location, size, depth of invasion and growth pattern. Only about 3% of appendiceal carcionoids metastasize. For tumors smaller than 1 cm there is practically no risk of metastases, while tumors larger than 2 cm are non-localized in 20-85% (4, 6, 7). A special feature of these tumors is the high frequency of sinchronous colon carcinoma in 7-48% of cases (2, 3, 8). These findings give rationale for the treatment options. Appendectomy alone is the treatment option for tumors less then 1 cm in diameter. For tumors more than 2 cm in diameter, right hemicolectomy is the treatment of choice. For tumors of 1-2 cm in diameter, right hemicolectomy should be considered if there is mesoappendiceal infiltration or metastases or location is at the base of the appendix (3, 8-11).

Prognosis for these tumors is excellent. Overall five-year survival rate is 83%, but for tumors less than 1 cm it is virtually 100%. For tumors larger than 2 cm it is still more than 66%. Even for carcionoids with distant metastasis, 5-year survival is 31% (11).

CASE REPORT

A 43-year-old female patient was admitted for abdominal pain. The symptoms started after lunch, when she felt nausea accompanied with the urge to vomit. After examination, the patient complained of pain in the lower abdomen. On palpation, the abdomen was soft, elastic, with a painful node found in the ileocecal region. The patient underwent standard laboratory tests. The leukocyte count was 17.4 with granulocytes accounting for 92.8%. The patient was admitted to the Department and based on clinical and laboratory parametes, the indication for surgery was made. Surgery started immediately after the emergency preoperative preparation. An incision into McBurney's point was made. A phlegmonous appendix of about 5 cm in length was found with a tumor of about 2 cm in diameter at its tip. The appendix with the described tumor was removed using the classical approach. The material was sent to pathohistological verification with the following result: the 5 cm long appendix with a firm, yellowish node of 25x22x16 mm at its tip. Histology revealed the node composed of clusters and cords of atypical cells, with unimorphous hyperchromatic nuclei, permeating the appendiceal wall. Sporadically, infiltration of the described cells and surrounding fatty tissue was observed, and in two separate specimens of fatty tissue, islets of the described cells were also found. The pathohistological diagnosis was argentaffinoma. The postoperative period was uneventful.

Abdominal US and 5-HIAA levels were normal. The patient was discharged to home care. Four weeks after the first operation, the patient was admitted again for futher treatment. After preoperative preparation, a second procedure was performed using the laparoscopic approach. Through a supraumbilical incision, a pneumoperitoneum was made and the telescope trocar was inserted. Moreover, two additional incisions were made, one in the medial line of the epigastria and another suprapubically to insert a 10 mm and 5 mm trocar, respectively (Figure 1). Right colon, cecum and hepatal flexure were completely mobilized. A harmonic scalpel was used. A. colica dex. was cut using a vascular stapler. The mobilized colon was then taken out from the anterior abdominal wall through the enlarged umbilical incision (Figure 2). The material was staple cut and forwarded for pathohistological verification. Extracorporeal t-l anastomosis was made using a circular stapler 25 (Figure 3). The abdominal cavity was washed well and a

Figure 1.

Figure 3.

Figure 2.

Figure 4.

catheter placed through the lower incision (Figure 4). The patient took the operation well. The postoperative period was uneventful, and on postoperation day 8, the patient was discharged from the Hospital to home care. The pathohistological diagnosis was as follows: a yellowish node, 13 mm in diameter, close to the cecum. In the fatty tissue surrounding the node and in the lymph node, histological examination showed clusters of atypical cells with unimorphous nuclei. In the fatty tissue surrounding the small intestine and the colon, 9 additional lymph nodes with no tumor tissue in their examined slides were found. The pathological dg: *argentaffinoma infiltrans textus adiposi. Argentaffinoma metastaticum lymphonodi pericoecalis*.

DISCUSSION

In the era of laparoscopic surgery, there is a question whether the laparoscopic approach could be used to treat appendiceal carcinoid tumors. There are several published articles that cover this topic, most of them comparing open and laparoscopic appendectomy and showing no difference between the two approaches in the management of carcinoid tumors (2,12-15). Although there are studies showing that carcinoid tumors larger than 2 cm can be successfully managed with appedenectomy alone (16), the majority of authors however agree that the carcinoid tumor exceeding 2 cm requires right hemicolectomy (3, 8-11). Moreover, right hemicolectomy is also indicated in patients with carcinoid tumor

between 1 and 2 cm with mesoappendiceal infiltration, or location in the appendiceal base, or metastases (3, 8-11). However, at issue is whether the laparoscopic approach can be used in patients requiring further surgical treatment. In our patient , there were all indications for further treatment with right hemicolectomy (>2 cm, mesoappendiceal infiltration, tumor cells within the fatty tissue). Several recently published papers show the results of prospective randomized studies comparing an open versus laparoscopic technique in the treatment of colon carcinoma. Laparoscopic colon procedures provide all the benefits of laparoscopic surgery (shorter hospitalization, less use of analgesics, colon function normalizes faster) with similar mortality and morbidity rates, and similar rates of both survival and recurrence (17-19). For these reasons we decided to apply the laparoscopic technique in the further therapy of this carcinoid tumor, although there are only few cases reported in the world literature (15). Our case showed that the laparoscopic technique can be successfully used for such indication, too. As patients who had appendectomy commonly do not show any macroscopic signs of tumor involvement, in such patients, laparoscopic hemicolectomy should be far simpler than in patients with tumor changes in the colon. More specific and more accurate results require a study with a larger number of patients, which should hopefully show all the benefits of the laparoscopic technique.

CONCLUSION

Although appendectomy alone proves to be effective in most cases of appendiceal carcinoid tumor, in some cases, right hemicolectomy may be indicated. In such cases, the laparoscopic approach is safe and effective, and therefore should be considered as the treatment of choice.

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